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Glass Property Data and Models for Estimating High-Level Waste Glass Volume

JD Vienna
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DS Kim
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October 2009

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Abstract

This report describes recent efforts to develop glass property models that can be used to help estimate the volume of high-level waste (HLW) glass that will result from vitrification of Hanford tank waste. The compositions of acceptable and processable HLW glasses need to be optimized to minimize the waste-form volume and, hence, to save cost. A database of properties and associated compositions for simulated waste glasses was collected for developing property-composition models. This database, although not comprehensive, represents a large fraction of data on waste-glass compositions and properties that were available at the time of this report. Glass property-composition models were fit to subsets of the database for several key glass properties. These models apply to a significantly broader composition space than those previously publised. These models should be considered for interim use in calculating properties of Hanford waste glasses.

Summary

Efforts are being made to increase the efficiency and decrease the cost of vitrifying radioactive waste stored in tanks at the U.S. Department of Energy's Hanford Site. The compositions of acceptable and processable high-level waste (HLW) glasses need to be optimized to minimize the waste-form volume and, hence, to save cost. A database of properties and associated compositions for simulated waste glasses was collected at Pacific Northwest National Laboratory for developing property-composition models. The database includes waste-glass compositions and properties, such as Product Consistency Test (PCT) response, viscosity (η), electrical conductivity (ε), Toxicity Characteristic Leach Procedure (TCLP) response, density (ρ), one-percent crystal temperature ($T_{1\%}$), and liquidus temperature (T_L), that are important for processability and product performance. Data from Pacific Northwest National Laboratory, West Valley Demonstration Project, Savannah River National Laboratory, Vitreous State Laboratory at the Catholic University of America, Idaho National Engineering and Environmental Laboratory, and several other institutions were reviewed and compiled into a single, easy-to-use database. This database, although not comprehensive, represents a large fraction of data on waste-glass compositions and properties that were available at the time of this report. Because of the size of the database, two versions of this report were printed, one version with the database attached as Appendix A and one version without the database attached.

Glass property-composition models were fit to subsets of the database for several key glass properties. Models were generated for normalized boron, sodium, and lithium release in the PCT (PCT_B, PCT_{Na}, and PCT_{Li}, respectively); $T_{1\%}$ in the spinel ($[Fe,Ni,Mn][Fe,Cr]_2O_4$) phase region; T_L in the zircon ($ZrSiO_4$) primary phase field; η at 950, 1150, and 1250°C (η_{950}, η_{1150}, η_{1250}); ε at 1000, 1100, 1150, and 1200°C (ε_{1000}, ε_{1100}, ε_{1150}, ε_{1200}); and the specific volume (SpV).

The models are of the form:

$$g_\alpha(p_\alpha) = \sum_{i=1}^{N} b_{\alpha i} x_i + \text{Selected}\left\{ \sum_{i=1}^{N} b_{\alpha ii} (x_i)^2 + \sum_{i}^{N-1} \sum_{<j}^{N} b_{\alpha ij} x_i x_j \right\} \quad \text{(S.1)}$$

where g_α = α^{th} predicted transformed property
p_α = α^{th} property
N = number of terms in the model
$b_{\alpha i}$ = the i-th component coefficient for the g_α transformed property
x_i = the i-th component mass fraction in glass.

Note that $\sum_{i=1}^{q} x_i = 1$, so that the models of the form in Equation (S.1) are classified as mixture models.

Tables S.1 through S.6 summarize the results and validity regions for these models. The results (shown on the left side of the tables) include model coefficients estimated by least squares regression from subsets of the database, model goodness-of-fit statistics (R^2, R^2_A, R^2_P, R^2_V, and RMSE), and other summary statistics. The model validity regions (shown on the right side of the tables) are the lower and upper bounds of glass compositions for which the models

are valid. In addition to single-component concentration constraints, the models are valid only over the range of predicted property values for which they were fitted (min and max values on left side of the tables). Note that although the model validity constraints are listed in wt% of components, the coefficients are based on mass fractions.

Table S.1. Viscosity Model Coefficients and Validity Regions (in ln[Pa-s] and wt%)

Term	$\ln[\eta_{950}]$	$\ln[\eta_{1150}]$	$\ln[\eta_{1250}]$
Al_2O_3	18.13541	10.6085	8.94357
B_2O_3	-12.1316	-9.37529	-7.66615
BaO	-2.69662	-3.41816	-3.89304
Bi_2O_3			-3.54929
CaO	-4.6401	-6.9328	-7.96797
F	-13.7453	-12.3445	-12.3147
Fe_2O_3	2.542852		-1.29457
K_2O	-3.46383	-3.82491	-3.45232
La_2O_3	-1.48037	-4.96954	-4.70143
Li_2O	-54.8992	-39.0249	-34.7926
MgO	0.785951	-3.23141	-4.85407
MnO	-4.34993	-6.88677	-7.14845
Na_2O	-9.52319	-9.63275	-8.81239
P_2O_5	8.837872	5.305007	
PbO	-22.2775	-23.1436	-35.1899
SiO_2	13.09017	9.368089	7.719283
SrO	-3.84188	-4.35052	-6.42168
TiO_2			-2.96399
UO_3	5.952491	2.151455	1.061988
ZnO	0.664542	-2.69626	-2.91064
ZrO_2	15.1512	7.14044	
Others	3.523275	-0.09027	2.681183
$B_2O_3 \times B_2O_3$	44.83921	24.59262	17.33823
$Na_2O \times B_2O_3$	-23.3502	-26.9571	-25.4993
$Li_2O \times Li_2O$	140.7392	47.35918	35.43191
$Na_2O \times Al_2O_3$		17.51718	14.98563
$Na_2O \times Fe_2O_3$	-9.58328		
$B_2O_3 \times Al_2O_3$	-17.9433		
$CaO \times Al_2O_3$		-8.13474	
Statistic			
R^2	0.953	0.9619	0.9678
R^2_A	0.9513	0.9610	0.9669
R^2_P	0.9491	0.9586	0.9649
R^2_V	0.9491	0.9619	0.9649
RMSE	0.1832	0.1632	0.1612
Minimum	0.8643	-0.4588	-1.055
Mean	3.75	1.673	1.007
Maximum	5.775	4.599	4.159
n	673	967	817
N	25	24	24

Comp	$\ln[\eta_{950}]$		$\ln[\eta_{1150}]$		$\ln[\eta_{1250}]$	
	Min	**Max**	**Min**	**Max**	**Min**	**Max**
Al_2O_3	0	20.4	0	26.6	0	25.9
B_2O_3	0	20	0	20.2	0	20
BaO	0	4.7	0	4.7	0	4.7
Bi_2O_3			0	7.4	0	16.4
CaO	0	15	0	18.2	0	15
F	0	6	0	2.4	0	4.7
Fe_2O_3	0	18.4	0	20	0	24.3
K_2O	0	10	0	10	0	10
La_2O_3	0	5	0	5	0	5
Li_2O	0	9	0	8.9	0	8.9
MgO	0	8	0	8.2	0	8.2
MnO	0	8	0	8	0	8
Na_2O	2.5	25.9	3.4	25.5	2.5	25.5
Nd_2O_3			0	8.6	0	8.6
P_2O_5	0	5	0	5		
SiO_2	32.3	60.4	25	62.8	26	64.1
SrO	0	10.3	0	10.3	0	10.3
ThO_2			0	6.8	0	7.8
TiO_2			0	10	0	9.6
UO_3	0	6.5	0	7	0	15.6
ZnO	0	5.8	0	5.8	0	9.8
ZrO_2	0	15.5	0	15.5	0	15.5
Remaining	0	7.5	0	7.1	0	9.4

Table S.2. Electrical Conductivity Model Coefficients and Validity Regions (in ln[S/m] and wt%)

Term	$\ln[\varepsilon_{1000}]$	$\ln[\varepsilon_{1100}]$	$\ln[\varepsilon_{1150}]$	$\ln[\varepsilon_{1200}]$
Al_2O_3	-0.234445	0.0821118	0.3447447	0.3312382
B_2O_3	0.8170189	1.7269964	2.2131363	2.380146
CaO	-0.812738	0.4816237	1.1386022	1.7033775
Fe_2O_3	1.7770346	2.3177094	2.4167485	2.5149398
Li_2O	37.351081	35.619913	35.108383	33.714638
MgO	-1.153956	0.1206499	0.2090895	0.9980765
Na_2O	16.053203	15.435281	15.226886	14.801322
NiO	-4.78784	-3.347901	0.284527	-1.239448
SiO_2	-0.649396	-0.067465	0.1665476	0.534619
SrO	0.564366	1.8585572	2.2279737	2.7731117
ZnO	4.7824589	6.0673766	6.4620647	6.5598526
ZrO_2	0.2999368	0.9202707	1.0944233	1.4700505
Others	1.9602265	2.4486435	2.6305908	2.8441506
$Na_2O \times Li_2O$	-111.9769	-101.2064	-100.2325	-91.29459
Statistic	**Value**	**Value**	**Value**	**Value**
R^2	0.8962	0.8856	0.8802	0.8770
R^2_A	0.8936	0.8828	0.8774	0.8740
R^2_P	0.8899	0.8789	0.8735	0.8704
R^2_V	0.8917	0.8793	0.8708	0.8708
RMSE	0.1732	0.1673	0.1668	0.1600
Min	0.84	1.53	1.70	2.13
Mean	2.854	3.3	3.47	3.65
Max	4.058	4.42	4.58	4.73
n	527	542	575	558
N	14	14	14	14

Comp	$\ln[\varepsilon_{1000}]$		$\ln[\varepsilon_{1100}]$		$\ln[\varepsilon_{1150}]$		$\ln[\varepsilon_{1200}]$	
	Min	**Max**	**Min**	**Max**	**Min**	**Max**	**Min**	**Max**
Al_2O_3	0	25.9	0	25.9	0	26.6	0	25.9
B_2O_3	0	20	0	20	0	20.2	0	20
Bi_2O_3	0	16.4	0	16.4	0	16.4	0	16.4
CaO	0	11.9	0	13.9	0	18.2	0	13.9
Fe_2O_3	0	15	0	15	0	15	0	15
K_2O	0	5.4	0	5.4	0	6.1	0	5.4
Li_2O	0	7.9	0	7.9	0	7.9	0	7.9
MgO	0	8	0	8	0	9.6	0	9.6
MnO	0	8	0	8	0	8	0	8
Na_2O	2.5	23	2.5	23	2.5	23	2.5	23
Nd_2O_3	0	7.8	0	8.6	0	8.6	0	8.6
NiO	0	1.8	0	2	0	2.1	0	2
P_2O_5	0	4	0	4	0	9	0	9
PbO	26	60	0	5.2	0	8.6	0	5.2
SiO_2	0	10.3	26	60	19.4	60	26	60.1
SrO	0	6	0	10.3	0	10.3	0	10.3
ThO_2	0	6.5	0	6	0	6	0	6
UO_3	0	5.8	0	6.5	0	6.5	0	6.5
ZnO	0	15.5	0	5.8	0	5.8	0	5.8
ZrO_2	0.3	6.4	0	15.5	0	15.5	0	16
Others	0.3	6.4	0.3	6.1	0.3	6.4	0.3	6.1

Table S.3. Product Consistency Test Model Coefficients and Validity Regions (in ln[g/m^2] and wt%)

Term	ln[PCT-B]	ln[PCT-Na]	ln[PCT-Li]
Al_2O_3	-88.2711	-69.768	-71.80358
B_2O_3	13.01511	-13.224	-15.88115
BaO	5.657878		
CaO	-3.38958	2.60598	0.4612474
CdO	12.66478		
F	28.72152	25.9327	29.676446
Fe_2O_3	-1.97003	-1.6767	-0.588641
K_2O	10.91193	11.9701	10.211474
Li_2O	26.08455	22.5717	24.236504
MgO	10.32971	9.44187	6.8614839
MnO	-11.942	1.43131	
Na_2O	15.66601	16.9404	5.8154351
Nd_2O_3	-6.94385	-2.8519	
P_2O_5	-3.93437	-2.3946	
SiO_2	-3.27355	-2.0965	-0.63572
SO_3	26.09692	22.3441	42.822925
SrO	-1.69883	2.04919	
ThO_2	-14.2188	-13.455	-14.11654
TiO_2	-11.0803	-11.347	-15.98701
UO_3	2.505961	1.49105	
ZnO	0.548053	-0.9934	
ZrO_2	-6.44919	-5.2997	-4.149619
Others	-0.41991	2.73564	2.1636268
$(Al_2O_3)^2$	705.3445	557.465	586.1739
$Al_2O_3 \times ThO_2$	193.7515	201.149	236.62771
$(Al_2O_3)^3$	-1974.56	-1590.6	-1640.968
$(B_2O_3)^2$		96.3525	88.683572
$(MnO)^2$	286.0626		
$B_2O_3 x Na_2O$			74.407878
Statistic	**Value**	**Value**	**Value**
R^2	0.801	0.811	0.803
R^2_A	0.796	0.806	0.798
R^2_P	0.789	0.800	0.790
R^2_V	0.788	0.795	0.786
RMSE	0.411	0.343	0.357
Min	-2.954	-2.749	-2.534
Mean	-0.788	-0.853	-0.726
Max	2.923	2.551	2.521
n	1100	1104	759
N	27	25	20

Comp	PCT-B		PCT-Na		PCT-Li	
	Min	**Max**	**Min**	**Max**	**Min**	**Max**
Al_2O_3	1.6	20	1.6	20	1.6	20
B_2O_3	4	20	4	20	4	20
BaO	0	4.7			0	4.7
Bi_2O_3					0	3.2
CaO	0	10.4	0	10.4	0	10
CdO	0	1.5				
F	0	2.5	0	2.5	0	2.5
Fe_2O_3	0	17.4	0	17.4	0	17.4
K_2O	0	6.9	0	6.9	0	6.9
La_2O_3					0	3.5
Li_2O	0	9	0	9	0.1	9
MgO	0	8	0	8	0	8
MnO	0	7	0	7	0	7
Na_2O	4.1	23	4.1	23	4.1	21.4
Nd_2O_3	0	5.9	0	5.9	0	5.9
P_2O_5	0	5	0	5	0	4.3
SiO_2	30.3	62.8	30.3	62.8	30.3	60.4
SO_3	0	2.5	0	2.5	0	1
SrO	0	10.1	0	10.1	0	10.1
ThO_2	0	6	0	6	0	6
TiO_2	0	4	0	4	0	3.3
UO_3	0	6.5	0	6.5	0	6.3
ZnO	0	5.8	0	5.8	0	5.7
ZrO_2	0	13.5	0	13.5	0	13.5
Others	0	9.4	0	9.4	0	6.3

Table S.4. Toxicity Characteristic Leaching Procedure Model Coefficients and Validity Regions (in ln[mg/L] and wt%)

Term	$\ln[N_{TCLP}]$
Al_2O_3	-0.524992
B_2O_3	12.003262
CaO	11.147865
Fe_2O_3	-1.209342
Li_2O	20.870752
Na_2O	15.242625
SiO_2	-2.004927
ThO_2	2.468589
ZrO_2	-0.661848
Others	9.2805424

Statistic	Value
R^2	0.8941
R^2_A	0.8907
R^2_P	0.8840
R^2_V	0.8853
RMSE	0.308
Min	2.624
Mean	3.896
Max	7.712
n	291
N	10

Comp	Min	Max
Al_2O_3	0	16.3
B_2O_3	2	21
BaO	0	4.5
Bi_2O_3	0	2.4
CaO	0	13.9
CdO	0	4
F	0	1.5
Fe_2O_3	1.9	18.7
K_2O	0	8.7
Li_2O	0	7.4
MgO	0	5
MnO	0	7.6
Na_2O	2.9	20
NiO	0	3
P_2O_5	0	3.9
PbO	0	8.6
SiO_2	29.4	55
SO_3	0	2.1
SrO	0	14.2
ThO_2	0	6
TiO_2	0	2
UO_3	0	8.4
ZnO	0	4.9
ZrO_2	0	10.4
Others	0	5

Table S.5. One Percent Crystal and Liquidus Temperature Model Coefficients and Validity Regions (in °C and wt%)

Term	$T_{1\%}$-sp	T_L-zs	Comp	$T_{1\%}$-sp		T_L-zs	
				Min	**Max**	**Min**	**Max**
Al_2O_3	2835.11	3193.36	Al_2O_3	1.9	20	0	17.2
B_2O_3	-201.41	651.397	B_2O_3	3	20	2	20
Cr_2O_3	12468.2		Bi_2O_3	0	7	0	10
Fe_2O_3	3328.76		CaO	0	7	0	10
K_2O	-409.94		CdO	0	2		
Li_2O	-735.44	-1904.42	Cr_2O_3	0	1.2		
LN_2O_3		2156.41	F	0	2		
MgO	3927.07		Fe_2O_3	4	20	0	10.5
MnO	2618.91		K_2O	0	6		
Na_2O	-717.5	-1947.71	Li_2O	0	6	0	9
NiO	11916.1		LN_2O_3			0	3.9
NM	14871.5		MgO	0	6	0	4
SiO_2	424.651		MnO	0	8	0	1.9
SrO	421.296	13011.9	Na_2O	3.7	25	4	15
ThO_2	897.152		NiO	0	3		
ZnO	3103.31		NM	0	0.5		
ZrO_2	1933.8	3747.42	P_2O_5	0	2.5	0	5
Others	735.728	1259.22	SiO_2	28	53	39.7	59.6
Statistic	**Value**	**Value**	SrO	0	10.3	0	1.2
R^2	0.772	0.9069	ThO_2	0	6	0	6
R^2_A	0.761	0.8962	TiO_2	0	3.1		
R^2_P	0.744	0.8693	UO_3	0	6.5	0	1
R^2_V	0.739	0.8718	ZnO	0	4	0	1.2
RMSE	60.69	26.2	ZrO_2	0	9.6	4	16.5
Min	635.7	897	Others	0	4.5	0.3	3.3
Mean	950.3	1079					
Max	1279	1298					
n	350	69					
N	17	8					

Table S.6. Specific Volume Model Coefficients and Validity Regions (in cm^3/g and wt%)

Term	v_i[(a)]	Statistic	ρ[(b)]	v
Al_2O_3	0.35634	Minimum	2.41	0.3175
B_2O_3	0.50877	Mean	2.656	0.377
BaO	0.16153	Maximum	3.15	0.4149
Bi_2O_3	0.09932	R^2	0.8231	0.8121
CaO	0.33202	R^2_A	0.8227	0.8116
Fe_2O_3	0.23186	RMSE	0.0431	0.00616
K_2O	0.45147	n	411	411
Li_2O	0.48306	N	2	2
MgO	0.34608			
MnO	0.20998		***a***	***b***
Na_2O	0.36235	Coeff.	1.33999	0.81725
P_2O_5	0.41608			
SiO_2	0.39547			
SrO	0.20425			
ThO_2	0.1055			
UO_3	0.13134			
ZnO	0.17329			
ZrO_2	0.20873			

(a) As the model has only has two fit parameters (a and b) that are multiplied by the ionic volume from Shannon (1976), there is a coefficient for all elements in glass. Only selected coefficients are shown here for example.

(b) The fit statistics are calculated based on specific volume (v) and on density (ρ).

The models in Tables S.1 to S.6 are applicable over significantly broader composition spaces than those in use at the Hanford Tank Waste Treatment and Immobilization Plant (WTP) (Piepel et al. 2008a). They are for predicting glass volumes over broad waste and glass-composition spaces and therefore are less precise than those needed to operate a plant within a relatively narrow composition space.

Ordinary "good practices" quality assurance (QA) practices were followed, but the QA was not compliant with RW-0333P (DOE-RW 2008) or Nuclear Quality Assurance Requirements and Descriptions requirements (Barnes 2000). Future updates of models could be developed to tighter QA requirements when required.

These models should be considered for interim use in calculating properties of Hanford waste glasses. The models presented here represent updates of the models developed by Vienna et al. (2002) and appear to perform as well or better than those models; they cover broader composition regions with comparable or higher R^2 values, especially for validation datasets. However, as we discuss below, the models should be updated when the database is updated.

Quality Assurance

Ordinary “good laboratory practices” quality assurance (QA) was performed in developing the database and models. Formal QA documentation, such as would be required for Nuclear Quality Assurance Requirements and Descriptions, was not performed because of the interim nature of the work.

Abbreviations

ASTM	American Society for Testing and Materials
BNFL	British Nuclear Fuels, Limited
CCC	canister centerline cooled
CUA	Catholic University of America
CVS	composition variation study
DF	decontamination factor
DOE	U.S. Department of Energy
DWPF	Defense Waste Processing Facility
EA	environmental assessment
EC	electrical conductivity
EDS	energy dispersive spectroscopy
HAW	high-activity waste
HLP	Hanford LAW product acceptance
HLW	high-level waste
HWVP	Hanford Waste Vitrification Plant
INEEL	Idaho National Engineering and Environmental Laboratory
INTEC	Idaho Nuclear Technology and Engineering Center
ISV	*in situ* vitrification
LAW	low-activity waste
LLW	low-level waste
MCC	Materials Characterization Center
MS	melter study
NCAW	neutralized current acid waste
OM	optical microscopy
ORP	Office of River Protection
PCT	Product Consistency Test
PNNL	Pacific Northwest National Laboratory
PQM	partial quadtatic mixture
Q	quenched (glasses)
QA	quality assurance
RCRA	Resource Conservation and Recovery Act
RPP	River Protection Project
RMSE	root mean squared error
RSD	relative standard deviation
SBW	sodium-bearing waste
SBS	submerged bed scrubber
SEM	scanning electron microscopy
SG	Savannah River Glass
SP	spinel (study)
SpV	specific volume
SRL	Savannah River Laboratory

SRS	Savannah River Site
S/V	surface area-to-volume ratio
TCLP	Toxicity Characteristic Leaching Procedure
TEM	transmission electron microscopy
THERMO	Thermodynamic Hydration Energy Reaction Model
TRU	transuranic
TWRS	Tank Waste Remediation System
VSL	Vitreous State Laboratory at the Catholic University of America
VFT	Vogel -Fulcher-Tamman
WAPS	Waste Acceptance Product Specifications
WESP	wet electrostatic precipitator
WQR	Waste Form Qualification Report
WTP	Hanford Tank Waste Treatment and Immobilization Plant
WV	West Valley
WVDP	West Valley Demonstration Project
WVNS	West Valley Nuclear Services
XRD	X-ray diffraction

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1.0 Introduction

This report discusses interim property-composition models developed for Hanford high-level tank waste (HLW) glasses. This effort is aimed at improving the understanding of composition effects on glass properties over the broad composition space of expected Hanford HLW glasses. With this increased understanding, the ability to more accurately estimate glass volumes, cleanup cost and schedule, and the impacts of changing property constraints and flowsheet options will be possible.

The effort described in this report is an update of that performed by Vienna et al. (2002). The differences between the work performed previously and this effort include the following: 1) the amount of additional data collected since 2002 are substantial, 2) the composition region of HLW glass property data has expanded in several important directions—with the design and construction of the Hanford Tank Waste Treatment and Immobilization Plant (WTP) progressing, the constraints for HLW glasses have evolved, and 4) models developed in 2002 were based on mole fraction of components while the mass fractions used here are easier to implement.

The interim models were developed from a glass property-composition database compiled for this purpose. Because the compiled database covers a large fraction of the region of HLW glass compositions considered potentially of interest for Hanford, the resulting interim property-composition models are considered *global models* (Piepel et al. 1998). Global models are useful when it is necessary to make property predictions over a wide HLW glass-composition region. Global models are likely to yield less precise property predictions (compared to local models near specific waste-glass compositions), but still can be useful. Eventually, when target compositions and composition-variation regions around target compositions for specific waste types[(a)] are better defined, it is advisable to develop *local models* to predict HLW glass properties over the composition-variation region corresponding to a target composition for a given waste type. *Local models*, because they cover smaller composition regions centered near the glass composition of interest, are typically more precise (see Piepel et al. 2008a, for example).

The glass property-composition models presented in this report are referred to as *interim models* for several reasons. The most obvious reason is that property-composition models will continue to be developed as more property-composition data become available and better information about HLW compositions[(b)] and corresponding waste-glass compositions become available. However, the models should also be considered interim because of limitations in the data used to develop them. Ideally, to provide good support for developing property-composition models, a waste-glass-composition region of interest should be defined and covered with property-composition data specifically designed to systematically cover a composition region of interest. The interim models presented in this report were developed from a compilation of existing data. The data were screened so that only relevant data (i.e., data in the appropriate composition region) were used. However, the coverage of the waste-glass-

(a) A *waste type* is defined in the Waste Acceptance Product Specifications (WAPS) (DOE 1996) as "the waste material fed to each vitrification plant, the composition and properties of which will remain relatively constant over an extended period of time during waste-form production."

(b) It is expected that waste-feed compositions will be updated as tank characterization, retrieval/blending scenarios, and definition of chemical impacts from separations and pretreatment processes are improved.

composition region(s) of interest was not as extensive as desired. Hence, the quality of the property-composition models discussed in this report may be affected by the limitations in the available data upon which they were based. Further, the time to develop, evaluate, and validate the interim-property models was limited. The available time did not permit the use of many statistical regression diagnostic methods (Draper and Smith 1998, Montgomery and Peck 1992) to identify outlying or influential data points and to identify the subset of waste-glass components that should be included in the interim model for a given property. Statistical model-validation methods (Montgomery and Peck 1992, Chapter 10) were not applied. Instead, informal model-validation methods were applied to indicate the prediction uncertainties of these models. In summary, although the interim property-composition models presented in this report have certain limitations, they should be useful for the intended purpose. These models are expected to give improved predictions of glass properties over those previously developed (Vienna et al. 2002) for Hanford HLW waste glasses and over broader composition regions.

The following subsections in this introduction address the role of property-composition models, property constraints implemented through models, the need for property-composition data to develop models, the forms of property-composition models, model fitting and reduction, and previous work to develop property models for Hanford HLW glasses. Section 2.0 presents a property-composition database compiled from previous studies to provide a basis for developing HLW property-composition models. Section 3.0 discusses the interim property-composition models developed for Hanford HLW glasses, the data used to develop the models, and the glass-composition regions over which the models are valid for predicting glass properties. Section 4.0 discusses the use of property-composition models and mathematically constrained optimization methods to develop glass formulations and estimate waste-glass volumes.

1.1 The Role of Property-Composition Models

The processability and acceptability of a waste glass is specified in terms of its properties. To make waste glass, the waste must be mixed with glass-forming additives in proportions to obtain a target glass composition that must have properties within prescribed limits. HLW glass compositions vary as a result of the changing composition of waste and optimization objectives of the formulation. The economic aspect of vitrification requires that waste-glass composition should reduce the expense. An optimum glass will consider that expense along with other aspects of the glass and process.

It is practically impossible to develop an optimized waste glass for each waste composition on a purely experimental basis. Mathematical, statistical, and optimization methods are extremely useful in developing optimal glass compositions. Therefore, the task of developing optimum glass compositions must be addressed within a mathematical framework (Vienna and Kim 2008). An indispensable element of such a framework is a set of property-composition models. These models should be developed for waste glasses covering both the glass composition region of interest and a sufficiently broad range of values for glass properties of interest.

Property-composition models applicable to Hanford waste glasses have been developed at Pacific Northwest National Laboratory (PNNL) for roughly two decades. Initially, only one HLW waste stream was considered that would be processed in a certain type of melter without any attempt for optimization (Chick et al. 1981, Hrma et al. 1994). However, the need for property-composition models broadened over time because the waste-composition estimates

changed, new waste streams were taken into consideration, new types of melters were tested, and economic considerations became more important. Thus, it became clear that the composition region of waste glass for the development of property-composition models was too narrow, and the ranges of existing property-composition models were not broad enough for practical applications.

The composition region of waste glass is determined by compositions and concentrations of waste and additives. These, in turn, are determined by the range of glass properties that define acceptability for waste-form storage, transport, and disposal; the processing technology related constraints; and the applicable economic considerations. These factors are not fixed; all are frequently changing, and some are interdependent. Estimated waste compositions change with new samples and chemical analyses, pretreatment methods, retrieval strategies, and blending options. The acceptability conditions for HLW glass have been relatively stable for the last decade (DOE 1996), but, the methods of meeting some of those constraints have changed (for example, see Blumenkranz 2006). Opinions vary as to how much crystallinity should be allowed in the glass and whether the glass can include immiscible amorphous phase-separation. Different melter operating strategies require different sets of glass-property values for processability. Economic considerations are often assessed in terms of waste loading in glass and processing rates. Maximizing waste loading and processing rates generally minimizes the costs of producing and disposing of the waste glass.

With each change, whether in:

- the estimated composition of waste in the tanks currently considered for vitrification
- the group of tanks being considered for processing
- the key glass components resulting from pretreatment or
- the melter operating strategy,

the set of property-composition models needs to be updated.

Extrapolation beyond the composition region on which the models are established can lead to misleading results. Hence, models should be updated if new waste glass compositions outside the current database region are considered.

There is another reason for periodic updating of property-composition models. As more glasses are being tested to support various programs, more and more glass-property data accumulate. These data can be used to validate the existing property-composition models and ultimately to update these models. The development of property-composition models must respond to continuous changes. Consequently, developing property-composition models for waste glass is a continuous process.

1.2 Property Constraints

Three kinds of constraints on waste-glass properties exist: acceptability constraints, processing constraints, and economic constraints. Each of these kinds of constraints is discussed below.[(a)]

(a) In addition to property constraints, constraints are added to confine property predictions to the range of data over which the models are valid. These are referred to as model validity constraints.

1.2.1 Acceptability Constraints

Acceptability constraints are concerned with the acceptability of the final product. Roughly, waste glass should have sufficiently high chemical durability[(a)] and should retain this durability over thousands of years. Although the engineered barriers in the repository and the geology of the repository itself are designed and selected to prevent the spreading of radioactive elements into the environment, the glass itself should have good resistance against corrosion by water. The benchmark test for U.S. HLW glass is the product consistency test (PCT) (ASTM 2008). DOE (1996) states:

> For acceptance, the mean concentrations of lithium, sodium and boron in the leachate, after normalizing for the concentrations in the glass, shall each be less than those of the benchmark glass described in the Environmental Assessment for selection of the [Defense Waste Processing Facility] DWPF waste form.

As our knowledge of glass behavior increases, glasses are routinely formulated that surpass the environmental assessment (EA) constraint by nearly an order of magnitude. However, to implement this constraint, various uncertainties must be accounted for in 1) PCT measurement s, 2) release predictions from models that are functions of glass composition, and 3) glass compositions used in predicting PCT release (see Vienna and Kim 2008).

The waste glass must be shown to not be hazardous under Resource Conservation and Recovery Act (RCRA) regulation. As stated by the U.S. Department of Energy (DOE 2008):

> The Producer shall perform the appropriate tests and procedures, as described in 40CFR261.20 through 40CFR261.24 [6], using samples from production runs or prototypical specimens to determine if the waste that will be received by DOE/RW, for transportation and disposal, has hazardous characteristics. Any waste that is shown to have hazardous characteristics shall be treated to remove such characteristics.

As Hanford tank waste is a listed hazardous waste, a delisting action is required. A draft petition for delisting specifies that the toxicity characteristic leaching procedure (TCLP) (EPA 1997) response of glasses will be below a certain limit (Blumenkranz 2006). This requires that a TCLP model be developed.

HLW glass properties may strongly depend on the temperature history of the glass. Slowly cooled glass is prone to amorphous phase separation and crystallization. Crystals are usually durable, which means that they remove components from the glass phase that endow glass with durability. Thus, the crystallization of certain minerals, such as nepheline ($NaAlSiO_4$), may produce non-durable glass. Therefore, PCT performance should be studied and modeled for glass that is quickly cooled, such as quenched glass, and glass with the slowest rate of cooling, such as canister-centerline-cooled; see Marra and Jantzen (1993), Kim et al. (1995), and Riley et al. (2001). Although the primary consideration in waste-form acceptance is its performance, the formation of additional phases impacts the ability to predict the performance,

(a) Chemical durability is typically defined as resistance to degradation caused by chemical attack. In the case of waste glasses, chemical durability can be considered the capability of the glass to withstand attack from an aqueous medium without the release of hazardous or radioactive components.

such as PCT release. This imposes a further restriction on glass composition by increasing the error margin in PCT release for which an account must be given.

1.2.2 Processing Constraints

The second type of constraint is added to make sure of adequate processability of glass in the melter. The acceptable ranges for processability-related glass properties differ for different melter types and operating strategies. Generally, glass is processable when its viscosity (η) is lower than 8 to 15 Pa·s—the lower the viscosity, the higher the rate of processing. However, when η is below 1 to 2 Pa·s, glass becomes more corrosive to those materials that are in contact with the melt (e.g., refractories, electrodes, and bubblers), and steam excursions[(a)] become more likely. Therefore, between 1 and 2 Pa·s is generally considered the lower limit for melt viscosity, although lower viscosities may be acceptable.

An often limiting property of HLW glass is its liquidus temperature (T_L), the highest temperature at which a solid phase can exist in the melt at equilibrium.[(b)] With increasing waste loading, the T_L increases until it reaches and exceeds the melter operating temperature. When this happens, solids can precipitate in the melter. If these solids are not removed from the melter as the glass is poured, they accumulate and can eventually obstruct melter operation. To prevent a premature shutdown of these melters, the T_L is historically constrained to be lower than a certain temperature appropriate for the melter. Typically, a 100°C or more safety margin is used so that $T_L \leq T_M$ - 100°C, where T_M is the nominal melter operating temperature. It has long been known that a certain amount of crystals can be tolerated within a melter. However, the exact amount of crystals tolerated by a melter was not defined nor was a technique to control the melter and model crystal accumulation. The WTP has adopted a constraint to limit the equilibrium volume percent of crystals at 950°C to less than 1% ($T_{1\%}$) (Vienna and Kim 2008) based on the work of Kot and Pegg (2001). Hrma et al. (2003) proposed a method to control crystal settling in melters; however, there is currently insufficient data to adopt this constraint in the form of mathematical models. More recently, higher crystal contents have been processed successfully, but there are not currently sufficient data to model this behavior.

Another property that has been required to be within certain limits is the electrical conductivity (ε) of the melt. Because glass is heated by an electric current passing through it, the glass conductivity must be substantially higher than that of the melter walls and sufficiently low to prevent electrode damage or thermal instability. The permitted range of ε of molten glass is wide, usually 10 to 70 S/m (Vienna and Kim 2008). With this wide range, ε is unlikely to affect the formulation of HLW glasses that meet viscosity, $T_{1\%}$, and PCT constraints.

(a) Steam excursions may occur when water from the melter feed is intimately mixed with a hot glass or salt melt. The heat from the melt is quickly transferred to the water, which abruptly transforms the liquid into a steam. This is only likely if the water and hot melt are allowed to quickly mix as might be the case with an exceedingly low-viscosity melt.

(b) Frequently, the presence of melt insolubles from the waste, such as noble metals and their oxides, are ignored. This is consistent with the definition of T_L since these components are not considered part of the melt (or thermodynamic system) and therefore are more like the crucible in which the melt is held. However, for practical purposes, the presence of melt insolubles is an important consideration in glass processing.

1.2.3 Economic Constraints

The cost of producing HLW glass depends on the total volume of glass to be produced and the required processing time. By increasing the waste loading of HLW glass (i.e., the fraction of HLW incorporated in the glass), the volume of HLW glass will be reduced, reducing the storage, transportation, and disposal costs. By increasing the waste throughput (waste loading times glass-production rate) the mission life will be reduced if HLW glass production is rate limiting (not currently the best estimate). Thus, the cost will be reduced by decreasing the time required to process the waste. Hence, constraints may be placed on the waste loading of HLW glass to control the cost of producing the glass. For example, it is often desirable to optimize glass composition to have the maximum waste loading while meeting other product acceptability and processability constraints.

Acceptability constraints and processing constraints are typically placed on waste-glass properties, whereas waste-loading (economic) constraints are placed directly on the waste-glass composition itself. For glass development and qualification work, property-composition models provide a way to implement property constraints as functions of glass composition.

1.3 Property-Composition Models

Property-composition models are constitutive equations of the form:

$$p_\alpha = \mathrm{f}_\alpha(\mathbf{x}) \tag{1.1}$$

where p_α is the α-th property, $\mathbf{x}$ is the composition vector, and f_α denotes the functional form of the model. The composition is defined as $\mathbf{x} = (x_1, x_2, \ldots, x_{N-1})$, where x_i is the i-th component mass or mole fraction, and N is the number of components. Only N-1 components are independent because the mass and mole fractions must sum to 1:

$$\sum_{i=1}^{N} x_i = 1 \tag{1.2}$$

Typically, the functional form f_α involves parameters or coefficients that are independent of state variables, such as $\mathbf{x}$. Values of these coefficients must be determined by measurement. Models in which all coefficients are estimated from data are called *empirical models*. Models in which some coefficients are derived from fundamental principles of physics and chemistry, while other coefficients are estimated from data, are called *semi-empirical models*. Models that are developed from the fundamental laws of physics (e.g., quantum and statistical mechanics), without the use of any experimental data are called *first-principle models*. First-principle models[(a)] are not applicable for predicting multi-component waste-glass properties but may be useful in understanding fundamental relationships that guide model development.

(a) A good working definition of first principles was given by Cohen (1994): “In a first principles approach, one uses fundamental quantum physics to obtain energetics and the static and dynamic properties of a system, without fitting *any* experimental data.”

1.4 Property Models as Polynomial Functions

A simple but very useful property-composition model form is given by

$$p_\alpha = \mathrm{f}_\alpha\left(\sum_{i=1}^{N} b_{\alpha i} x_i\right) \tag{1.3}$$

or, more conveniently,

$$\mathrm{g}_\alpha(p_\alpha) = \sum_{i=1}^{N} b_{\alpha i} x_i \tag{1.4}$$

where $b_{\alpha i}$ is the *i*-th component coefficient for α-th property, and g_α is the inverse of f_α. Note that the mathematical transformation, g_α, could be the identity transformation (i.e., no transformation). Also note that the sum runs from 1 to *N*, and thus not all x_i are independent. This form enabled us to write Equation (1.4) without a constant (i.e., an intercept term) because, by Equation (1.2),

$$x_{N'} = 1 - \sum_{i=1}^{N'} x_i \ . \tag{1.5}$$

where N' represents the number of components in a subset of glass components.

Models of the form (1.4) are often referred to as *first-order or linear, mixture models* (Cornell 2002) because the functional form is first-order in composition (i.e., linear). If individual components in waste glasses are confined to sufficiently narrow ranges of concentrations, non-linear functions of composition may be approximated as linear with acceptable error. As components vary over wider ranges, linear functions of composition may not adequately approximate the underlying nonlinear relationship. In such cases, nonlinear approximating functions may be required. In polynomial models (which can be thought of as polynomial expansions of the properties in composition), the second-order model form includes quadratic and cross-products terms, such as:

$$\mathrm{g}_\alpha(p_\alpha) = \sum_{i=1}^{N} b_{\alpha i} x_i + \mathrm{Selected}\left\{\sum_{i=1}^{N} b_{\alpha ii} (x_i)^2 + \sum_{i}^{N-1} \sum_{<}^{N} \sum_{j} b_{\alpha ij} x_i x_j\right\} \tag{1.6}$$

where $b_{\sigma ii}$ is the coefficient for the *i*-th component squared for α-th property, and $b_{\sigma ij}$ is the coefficient for the cross-product of the *i*-th and *j*-th components for α-th property. Piepel et al. (2002) discuss models of the form (1.6), referred to as partial quadratic mixture (PQM) models.

Glass composition (the **x** vector) can be expressed in three basic ways. Glass composition is traditionally expressed as a mixture of single metal oxides such as SiO_2, Fe_2O_3, SO_3, Na_2O, etc. and halogens (e.g., F). Multivalent oxides are all represented with the most prevalent oxidation state. Though the oxygen content in the glass is not counted accurately, the composition is uniquely defined and is probably the most suitable for technological and engineering applications, especially when mass fractions are used. Accounting for the true oxidation-reduction states of all components is not practicable because this state depends on

glass-making conditions such as the selection of raw materials, temperature, and atmosphere during glass making. However, models have been previously developed that account for variations in redox conditions by including separate terms for FeO and Fe_2O_3 and other multi-valent oxides (see Hrma et al. 2002, for example).

Glass can be viewed as a mixture of electronegative elements, such as O and F, and electropositive elements, such as Si, B, Fe, Na, etc. This may be advantageous for semi-empirical models that include fundamental properties of ionic species, such as the size or charge of the ions.

Glass composition can be resolved into simple silicates and borates (e.g., see Jantzen 1992). This representation is not unique and can be accomplished in different ways for different properties, dependent on which structural units are associated with different transport properties, hydration reactions, or crystallization behavior. This may be advantageous for modeling the effects of elements that fill multiple structural roles in glass, depending on composition. This method has not been applied to models in this report. However, this method may be useful in developing future models.

Mass fractions of single-metal oxides and halogens were used in developing models in this study. Mole fractions of electropositive elements were used in the previous study (Vienna et al. 2002), and fractions of multi-metal oxides were used by Jantzen et al. (1995) and Jantzen and Brown (2007).

Empirical models have been the most successful models to date in predicting waste glass properties. The disadvantage of an empirical model, such as Equations (1.4) and (1.6), is that a large number of coefficients must be estimated from data. Waste glass can have up to 80 elements, and some of these elements can be in multiple oxidation states. It would be difficult to cover a large composition region with enough compositions to estimate 80 or more coefficients. However, in practice, most glass properties are only significantly affected by "major" glass components (e.g., those appearing at mass fractions greater than 0.005). Hence, the number of components for which $b_{\alpha i}$ coefficients in Equation (1.4) must be estimated is usually much smaller than the total number of glass components.

The problem of estimating a large number of component coefficients in Equation (1.4) can be resolved if the coefficients are related to some basic atomic or thermodynamic characteristic of the components. If such relationships are simple, the number of empirical coefficients can drastically decrease. Suppose that

$$b_{\alpha i} = n_\alpha + m_\alpha L_i \tag{1.7}$$

where L_i is some independently known atomic or thermodynamic characteristic of the i-th component, and n_α and m_α are empirical coefficients for α-th property. Combining Equations (1.4) and (1.7), we obtain a semi-empirical relationship

$$g_\alpha(p_\alpha) = n_\alpha + m_\alpha \sum_{i=1}^{N} L_i x_i \tag{1.8}$$

Because Equation (1.8) has only two empirical coefficients (n_α and m_α), it will generally yield less accurate property predictions than the fully empirical Equations (1.4) and (1.6). However,

Equation (1.8) may yield better results if $b_{\alpha i}$ coefficients are not known or cannot be estimated empirically from data for some influential components. A semi-empirical relationship such as Equation (1.8) is easier to develop and use, and N can be larger than for an empirical relationship represented by Equations (1.4) and (1.6). Comparing empirical and semi-empirical $b_{\alpha i}$ values can identify shortcomings in the assumptions inherent in Equation (1.8); see, for example, Piepel et al. (1996 and 1997).

1.5 Property Models in Composition and Temperature

Some glass properties, such as η and ε, are functions of temperature (T) as well as composition. For such properties, models are of the form

$$p_\alpha = \mathrm{f}_\alpha(\mathbf{x}, T) \tag{1.9}$$

For a given waste glass, the temperature dependence of a property, such as viscosity, is often approximated by the Vogel-Fulcher-Tammann (VFT) equation[(a)]

$$\eta = \exp(A + \frac{B}{T - T_0}) \tag{1.10}$$

or, in a narrow temperature interval, by the Arrhenius equation

$$\eta = \exp(E + \frac{F}{T}) \tag{1.11}$$

where A, B, E, F, and T_0 are temperature-independent coefficients.

In any of these equations, the parameters A, B, T_0, E, and F can be expressed as functions of composition to also capture the dependence of the property on composition. Expanding the parameters in Equations (1.10) and (1.11) as linear functions of composition (i.e., linear mixture models), yields:

$$\ln(\eta) = \sum_{i=1}^{N} A_i x_i + \frac{\sum_{i=1}^{N} B_i x_i}{T - \sum_{i=1}^{N} T_{0,i} x_i} \tag{1.12}$$

and

(a) See H. Vogel, *Phys. Z.* **22,** 645-646 (1921), G. S. Fulcher, *J. Am. Ceram. Soc.* **8**, 339-366 (1925), G. S. Fulcher, *J. Am. Ceram. Soc.* **8**, 789-794 (1925), and G. Tammann and W. Hesse, *Z. Anorg. Allg. Chem.*, **156**, 245-257 (1926).

$$\ln(\eta) = \sum_{i=1}^{N} E_i x_i + \frac{\sum_{i=1}^{N} F_i x_i}{T} \quad . \tag{1.13}$$

Coefficients *A*, *B*, T_0, *E*, and *F* can be treated as composition-dependent properties, and thus they may be reparameterized as in Equations (1.4) or (1.6). The *A* coefficient of the VFT model is only moderately composition dependent. Hrma (2008) successfully modeled waste glass viscosity assuming *A* to be a composition-independent variable. When fitting models of the forms (1.12) and (1.13) to data, care must be taken to use the correct regression methods.

Alternatively, the ln[η] (or ln[ε]) can be measured or estimated as three fixed temperatures using Equation (1.10). The ln[η] can be expanded in composition using Equations (1.4) or (1.6). The viscosity (or conductivity) of the melt can then be estimated at any temperature by predicting the viscosities at the three fixed temperatures and interpolating using Equation (1.10) (see Fluegel 2007, for example).

1.6 Model Fit and Validation Statistics

The "goodness" of models is at least partially judged by model fit and validation statistics. A good reference for the meaning and application is given by Hrma et al. (1994). R^2 estimates the fraction of the variability in the property data accounted for by the fitted model. R^2-adjusted (R_A^2) adjusts R^2 to the number of terms in the model and the number of data points used to fit the model. It is useful for comparing models fitted with a different number of model terms. R^2-predicted (R_P^2) is the R^2 where each data point is left out of the fit in evaluating how well the model predicts that data point (one-point-at-a-time). It is useful in estimating the fraction of variability that would be explained in predicting new observations drawn from the same model composition region. R^2-validation (R_V^2) is the R^2 calculated using a validation data set, one not used to fit the model. In this report, it is taken as the average R_V^2 from five individual R_V^2 values calculated from five separate modeling and validation subsets of the model data. Each modeling and validation subset of data was obtained by taking every fifth data point out of the model fit data set and using them for model validation. The model error or root-mean-square-error (*RMSE*) is an averaged square root for model-fit data prediction and can be taken as *RMSE*-predicted ($RMSE_P$) or $RMSE_V$ if desired. The equations for these statistics are listed below:

$$R^2 = 1 - \frac{\sum_{i=1}^{n} (\hat{y}_i - y_i)^2}{\sum_{i=1}^{n} (y_i - \overline{y}_i)^2} \tag{1.14}$$

$$R_A^2 = 1 - \frac{\sum_{i=1}^{n} (\hat{y}_i - y_i)^2 \Big/ (n-N)}{\sum_{i=1}^{n} (y_i - \overline{y}_i)^2 \Big/ (n-1)} \tag{1.15}$$

$$R_P^2 = 1 - \frac{\sum_{i=1}^{n} (\hat{y}_{(i)} - y_i)^2}{\sum_{i=1}^{n} (y_i - \overline{y}_i)^2} \tag{1.16}$$

$$RMSE = \sqrt{\frac{\sum_{i=1}^{n} (\hat{y}_i - y_i)^2}{n - N}} \tag{1.17}$$

$$RMSE_V = \sqrt{\frac{\sum_{i=1}^{n} (\hat{y}_i - y_i)^2}{n_V}} \tag{1.18}$$

where n = number of data points used to fit the model
N = number of coefficients or terms in the model
y_i = the measured property value of the i-th data point
$\hat{y}_i$ = predicted property value of the i-th data point made using the model
$\hat{y}_{(i)}$ = predicted property value of the i-th data point made using a model fitted to all data points except the i-th
$\overline{y}$ = average (mean) of the measured property values.

1.7 Comment on Significant Figures

Throughout this document, a number of model coefficients and other values are reported with a higher number of figures than are significant. Ideally, the appropriate number of figures to report should be evaluated in detail. However, no such evaluation was performed. We therefore suggest using all reported figures in the model coefficients for consistency. The reader has sufficient data within this report to reproduce the calculations and to use only those figures that are deemed significant.

1.8 Need for Property-Composition Data

Property coefficients in Equations (1.4) and (1.6) can only be measured or estimated from data. The temperature dependence of a property, such as η, can be determined by 1) measuring the property at a series of constant temperatures or 2) continuously measuring the property while the temperature is gradually increasing or decreasing. To establish a η-T relationship in analytical terms, an empirical model is fitted to measured data. Such a relationship or model[(a)] is ready for use in applications, for example, in the Navier-Stokes equation for fluid flow (see Fung 1994 for example) with a variable temperature. It can also be

(a) The terms “model” and “relationship” are interchangeable in this report, though their connotations are different in materials science and statistics.

used for computing viscosity at a given temperature if such a number is needed for understanding a more complex behavior, such as the settling of solid particles.

With empirical models, it is important to be aware of uncertainties, such as the uncertainty of 1) measured data, 2) the empirical model form (i.e., how closely it represents or approximates the true behavior), and 3) model input values (e.g., the composition of the glass or the degree of uniformity of the melter feed). To determine the empirical coefficients in property-composition models, a set of property-composition data is needed. Historical data sets can be compiled for this purpose, or a test matrix of compositions can be designed and the properties measured. Unlike temperature, which is expressed by one number, composition is expressed as a vector with N-1 dimensions. The goal in compiling property-composition data to develop property-composition models is to adequately cover the (N-1)-dimensional glass-composition region with a manageable number of compositions.

Several approaches can be used to select a test matrix to explore an (N-1)-dimensional composition region. Two common approaches are to 1) vary each component one-at-a-time (i.e., adding or removing a single component to or from a baseline composition with the remaining components adjusting for the change while maintaining constant proportions), or replacing one component with another and 2) changing the fractions of several (up to N-1) components-at-a-time. Table 1.1 summarizes some advantages and disadvantages of these two approaches.

Table 1.1. Advantages and Disadvantages of Two Approaches for Exploring a Glass-Composition Region of Interest

Approach	Advantages	Disadvantages
One-at-a-time variations from baseline composition or replacing one component with another.	Component effects can be graphically visualized. The linearity or nonlinearity of component effects is immediately apparent. Does not require sophisticated software for design or evaluation. Component replacement is useful if one component makes up the majority of the glass.	Results may depend on the baseline composition. Does not provide information about non-linear blending (i.e., "interaction" effects of the components). Inefficient way to cover composition space and generate data for property-composition models.
Many-at-a-time variations within a defined glass composition region.	Provides information about nonlinear blending (i.e., "interaction" effects of the components). Provides information about linear effects of components over the region. Provides for best coverage of the composition region.	Requires statistical optimal experimental design methods and software to implement. Requires models to assess whether components have linear or non-linear (i.e., curvilinear or interaction blending effects).

The large number of components in Hanford HLW glass means that there are seldom enough data to develop highly accurate constitutive equations over the entire glass-composition region in question. Moreover, the dependence of waste-glass properties on glass composition is fundamentally nonlinear, and thus the linear representation in Equations 1.4 or 1.8 has limited validity. There is sufficient knowledge of glass composition effects on composition to rule out the impacts of many minor components. In addition, the "true," but unknown, property-composition relationships are generally expected to be smooth or piecewise smooth as functions of composition. For smooth functions of composition, first- and second-order functions

provide satisfactory approximations over sufficiently small portions of the composition space. Luckily, in many-component HLW glasses, the range of interest for each component is likely to be sufficiently narrow so that a second-order function provides a reasonable approximation to the "true" property-composition relationship.

Generally, the models reported here cover a broad enough of composition space that a small number of non-linear terms were required. The previous effort focused solely on linear terms that resulted in a reduction of the composition region over which the models were valid (Vienna et al. 2002).

1.9 Existing Property-Composition Models for Hanford HLW Glass

Historically, simple relations between properties and composition have been developed for commercial glasses for nearly a century. The book by Scholtze (1990) provides a good review of property-composition relationships for simple glasses. A similar approach became a necessity for HLW glass to deal with the large composition region of the wastes and resulting glasses. Before the Hanford experience, a semi-empirical equation, originally developed by Paul for assessing glass durability (Paul 1977), was applied to Savannah River HLW glasses (Jantzen 1992).

The Hanford HLW composition region is not fully known, but reasonable estimates of its boundaries have been made based on HLW sample analyses and process inventories. Several years ago, a glass-composition region for neutralized current acid waste (NCAW) was assessed and represented by more than 100 compositions, for which several properties were measured (Hrma et al. 1994, Piepel et al. 1995). Property-composition models were then developed from these data (Hrma et al. 1994, 1995a, 1995b).

The basic processing properties measured and modeled (Hrma et al. 1995b, Vienna et al. 1996b) were η, ε, and T_L. Other properties were also characterized and modeled: glass-transition temperature, thermal-expansion coefficients of solid and molten glass, and density (Hrma et al. 1994). Considerable attention focused on PCT response (Hrma et al. 1995a, Vienna et al. 1996a, Kot and Pegg 2001). Other studies for Hanford HLW glass have focused attention on TCLP (EPA 1997) to a lesser extent (Vienna et al. 1998, Kot and Pegg 2001, Jantzen et al. 2000). These outcomes of specific tests are, strictly speaking, not properties, but can be treated as such because they are reproducible results of well-defined experimental procedures.

The form of the function g_α in Equations (1.4), (1.6), and (1.8) is the natural logarithmic function for η, ε, and normalized PCT elemental releases. For other properties, g_α is the identity function. The transport properties, η and ε, are also functions of temperature, as discussed in Section 1.3. For η, Hrma et al. (1995a) developed property-composition-temperature models of the form (1.12) and (1.13) as presented in Section 1.3. For ε, they developed models of the form (1.13). Models for η and ε at a constant temperature were also developed. Hrma et al. (1995b) also used a model of the form (1.8) for PCT-normalized elemental releases. A semi-empirical model based on the hydration energies of silicate, borate, and oxide components of glass (Jantzen et al. 1995) did not work well for Hanford HLW glass (Piepel et al. 1996, 1997). Feng et al. (1990, 1996) developed a semi-empirical model for viscosity and PCT release based on the heat of formation of oxide components in glass. Jantzen (1991) developed a model for T_L based on the free energies of formation of three mineral phases. Jantzen (1991) also

developed a model for viscosity based on a calculation of the number of non-bridging oxygen atoms.

Hrma et al. (2001) developed a database of glass compositions and properties from the literature. This database was used to fit interim glass-property models for use in predicting the properties of projected Hanford HLW glasses. However, several shortcomings of the database used to develop the models were identified: 1) the data developed in support of the DOE Office of River Protection's (ORP's) WTP project were not included in the database because of the timing of data release, 2) there was insufficient coverage of the expected composition regions for many properties, primarily T_L, and 3) several datasets were inputted to the database, but were not verified and tested for consistency with other data, and therefore could not be used in model development. Vienna et al. (2002) updated these models to address some of these concerns. However, additional shortcomings of the work of Vienna et al. (2002) were identified, including the following: 1) a significant amount of additional data have been collected since 2002, 2) the composition region of interest has significantly expanded, 3) additional properties are needed for HLW glass, including TCLP response and $T_{1\%}$, and 4) the linear model form was forced, which caused a reduction in validity region. In the study reported here, we take the next logical step in the series of required studies to develop and refine the models for Hanford HLW glass properties.

2.0 Glass Property-Composition Database

This section describes the waste-glass property-composition database that was compiled to support developing property-composition models. Section 2.1 briefly describes the structure and contents of the database. Section 2.2 lists the major sources of data incorporated in the database and used for model development. Appendix A lists the data summarized in this section. The subsets of these data used for each model are described in the modeling sections that follow.

The database certainly does not contain all HLW glass property-composition data, but an attempt was made to include as much data as practical. Some available data sets were not included because of incomplete documentation to confirm the accuracy of the data. More data will be added as necessary after checking for accuracy or when new reports become available after this report is issued to validate and improve property-composition models. As mentioned is Section 1.0, this report is intended to document the most recent step in a continuing process.

2.1 Description of Database

The current database was compiled in an Excel spreadsheet with individual glasses in rows and compositions and properties in columns as described below.

Study, Data Source, and Glass ID: Each set of data is distinguished by a study name (i.e., the names for a group or groups of data), and the reference (source) for the data. The same Glass IDs are used as given in the original Data Source where possible.

Glass Composition (mass fraction): Target (-t) and analyzed (-a) compositions are entered in separate columns in alphabetical order for 61 components. The "Other" component is used in the database only when there is no information available to separate "Others" into individual component concentrations, and the sum of oxide components in the target composition did not equal one.

Melting Temperature (T_M in °C): The melting temperatures are the reported glass-fabrication temperatures where available. When a glass was melted two or three times, only the final melting temperature was entered.

Liquidus Temperature (T_L in °C): The T_Ls measured by a gradient-furnace method and by a uniform-temperature method are given in separate columns. The primary phase was also recorded in a column when available.

Crystallinity and Homogeneity: The information on the crystalline and amorphous phase separation was given for quenched, canister centerline cooled (CCC), and heat-treated glasses. The results from visual inspection/optical (light) microscopic (OM) observation, electron microscopy (i.e., scanning electron microscopy/electron-dispersive spectroscopy [SEM/EDS] or transmission electron microscopy [TEM]), and X-ray diffraction (XRD) were recorded in separate columns.

Density (ρ in g/cm^3): Density data are available for a limited number of glasses.

Viscosity (η in Pa·s): The coefficients for VFT and Arrhenius equations; the calculated viscosity at 1150°C; and the temperatures at 2, 5, and 10 Pa·s, based on these coefficients, were entered as provided in the references. The T_n and V_n (n ≡ data point number = 1 to 14) columns are for the viscosity-at-temperature data.

PCT Normalized Releases (r_j in g/m^2): Normalized[(a)] elemental releases of j = B, Li, Na, and Si and final pH values from standard 7-day PCT at 90°C and target surface area-to-volume ratio (S/V) of 2000 m^{-1} are given for quenched (Q) and CCC glasses. The releases are all normalized to S/V in addition to the element concentration in glass, giving r_j values in g/m^2.

TCLP Response (in mg/L or ppm): The TCLP data are available for a limited number of glasses.

The database compiled in this report contains glasses designed for the vitrification of HLW and low-activity waste (LAW) that were used for the model development. Although many LAW glasses are distinct from HLW compositions, the overlap was sufficient to include LAW glasses and expand the composition regions. The impacts of adding LAW glasses to the model datasets were not quantitatively evaluated.

2.2 Data Sets Used in Model Development

This subsection provides a list of studies represented in the database with a table that contains the number of glasses characterized for each property along with the references for the documentation of the data and the unique numbers assigned to the data in the database. Table 2.1 summarizes these studies in terms of the number of glasses tested, their compositions, and properties provided. The figures in parentheses in the "property" column indicate the number of glasses for which the property data are provided.

(a) PCT responses were normalized by dividing the elemental responses to the concentration of those elements in the glass. This gives an indication of the amount of glass in solution if release is congruent. Normalizations were based on target glass compositions when available, and the composition is analyzed when target values are not reported.

Table 2.1. Summary of Number of Glasses Tested and Properties Measured in Each Data Set[a]

Study	Reference	t	a	η	ε	PCT_Q	PCT_C	T_L	ρ	C_C	C_T	TCLP	Dbase #
INEEL[b] CVS Phase 1	Staples et al. 1999	44	44	36	-	44	-	28	-	8	-	-	1-44
INEEL CVS Phase 2	Staples et al. 2000	37	37	36	-	37	-	26	37	15	-	-	45-81
INEEL CVS Phase 3	Scholes et al. 2000	30	30	30	-	30	-	24	30	28	-	-	82-111
Hanford CVS 1 & 2	Hrma et al. 1994	146	92	122	122	146	146	122	122	146	-	-	112-257
Hanford CVS 3	Vienna et al. 1996c	40	-	39	39	40	40	31	-	38	-	-	258-297
TRU[c] Study	Crum et al. 1997	44	-	-	-	-	-	42	-	-	-	-	298-341
Zr Study	Vienna et al. 1999	29	-	-	-	28	-	29	-	-	-	-	342-370
SP[d] Study	Mika et al. 1997	41	-	-	-	-	-	41	-	-	14	-	371-411
MS[e] Study a	Hrma 1999	13	-	-	-	-	-	13	-	-	28	-	412-424
MS Study b	Wilson et al. 2002	15	-	-	-	-	-	15	-	-	-	-	425-439
SG[f] Study	Hrma et al. 1999	63	-	-	-	-	-	63	-	-	-	-	440-502
SP3, SP×4, Misc	Vienna et al. 2001a	50	-	-	-	-	-	50	-	-	-	-	503-552
DWPF PCT Model	Jantzen et al. 1995	177	177	-	-	177	-	-	-	-	-	-	553-729
Plutonium Vit	Bulkley and Vienna 1997	45	-	40	-	39	-	-	-	-	-	28	730-774
Comp vs. Prop Study	Chick et al. 1981	-	102	102	-	-	-	-	-	44	-	-	775-876
WV[g] HLW Form.	Chick et al. 1984	103	103	96	-	-	-	-	-	103	103*	-	877-979
HWVP 85[h]	Bates 1985	1	-	1	-	-	-	-	-	-	-	-	980
WV Glasses by VSL[i] & PNL	Johnston et al.[j]	128	-	-	-	128*	-	-	-	-	-	-	981-1108
WVDP[k] Support	Olson 1993, 1994	20	20	20	-	20	-	-	-	-	-	-	1109-1128
WV CVS Glasses PCT	Olson et al. 1994	-	44	-	-	44	-	-	-	-	-	-	1129-1172
West Valley WQR[l]	Barnes 1995	48	-	10	-	48	-	-	-	-	-	-	1173-1220

(a) C_C represents crystallinity after canister centerline cooling; C_T represents crystallinity after isothermal heat treatments.
(b) INEEL = Idaho National Engineering and Environmental Laboratory.
(c) TRU = transuranics.
(d) SP = spinel (study)
(e) MS = melter study.
(f) SG = Savannah River Glass.
(g) WV = West Valley
(h) HWVP = Hanford Waste Vitrification Plant.
(i) VSL = Vitreous State Laboratory at the Catholic University of America.
(j) Johnston JW, GF Piepel, and BA Pulsipher. 1990. *Evaluation of Empirical Models for Glass Durability*. Letter Report Prepared for West Valley Nuclear Services, Pacific Northwest National Laboratory, Richland, WA.
(k) WVDP = West Valley Demonstration Project.
(l) WQR = Waste Form Qualification Report.

Table 2.1 (contd)

Study	Reference	t	a	η	ε	PCT_Q	PCT_C	T_L	ρ	C_C	C_T	TCLP	Dbase #
Canonical Correlation	Oksoy et al. 1994	30	30	-	-	30	-	-	-	-	-	-	1221-1250
TWRS[a] LAW Form	Muller and Pegg 1998	51	51	46	46	-	-	-	4	-	-	4	1251-1301
TWRS LAW Form. 2	Ferrara et al. 1998	3	3	-	-	-	-	-	-	-	-	3	1302-1304
ISV[b] Glasses	Carter et al. 1988	-	4	4	-	-	-	-	-	-	-	-	1305-1308
TWRS Env D HLW Glass	Crawford et al. 1998	1	1	-	-	1	-	-	-	-	-	-	1309
SRS[c] M area Mixed Waste	Fu et al. 1997	6	6	-	-	-	-	-	-	-	-	6	1310-1315
Kinetics of Spinel Cryst.	Reynolds and Hrma 1997	1	-	-	-	-	-	1	-	-	1	-	1316
TWRS HLW Glass Form.	Fu and Pegg 1998	42	37	32	32	34	-	-	-	-	42*	8	1317-1358
INEEL DZr Process Demo.	Musick et al. 2000	28	9	-	-	18	-	9	-	25	-	-	1359-1395
INEEL CVS Phase 2a	Edwards et al. 2000	18	-	6	-	18	-	-	-	-	-	-	1396-1413
SRL[d] 165	Pye 1985	3	-	3	-	-	-	-	3	-	-	-	1414-1416
RPP[e]-WTP HLW Form.	Kot and Pegg 2001	181	140	23	23	26		142	20		115*	140	1417-1597
RPP-WTP LAW Form.	Muller et al. 2001	106	65	62	62	66	-	-	18	-	72*	4	1598-1703
DP Glasses for INEEL HLW	Pittman et al. 2001	27	27	-	-	27	27	-	-	27	-	-	1704-1730
INEEL DZr-CV Glasses	Riley et al. 2001	24	-	-	-	24	24	-	-	24	-	-	1731-1754
HLP[f] Study	Vienna et al. 2001b	78	78	-	-	75	75	-	63	78	-	-	1755-1832
Hanford LLW[g] Form.	Feng et al. 1996	79	30	51	51	78	-	-	-	-	-	-	1833-1911
SBW[h] CVS Phase 1	Scholes et al. 2002	64	64	62	-	63	-	62	63	64	-	-	1912-1975
SBW Melter Form.	Vienna et al. 2002	27	23	14	-	25	25	-	-	-	-	-	1976-2002
Waste Loading Max	Bailey and Hrma 1995	9	-	-	-	9	-	-	-	-	-	-	2003-2011
Nepheline precip.	Li et al. 1997b	20	0	-	-	11	20	-	-	20	-	-	2012-2031
CUA Data	Peters et al. 1993	-	79	-	-	55	-	-	-	-	-	-	2032-2110
HWVP	Bates 1987	9	43	52	-	-	-	-	-	-	-	-	2111-2162
West Valley Studies	Bowen et al. 1985	-	-	7	-	-	-	-	-	-	-	-	2163-2169
HWVP Comp Vari. Scope	Brouns et al. 1988	4	-	4	-	-	-	-	-	-	-	-	2170-2173
Comp. Vari. Study	Brouns and Powel 1988	24	16	-	-	24	-	-	-	-	-	-	2174-2197
Italian HLW	Cantale et al. 1991	-	2	1	-	-	-	-	2	-	-	-	2198-2199
Low Leach Rate Glasses	Chick and Buckwalter 1980	9	-	5	-	-	-	-	-	-	-	-	2200-2208
Evaluation of HLW Form	Chick et al. 1986	-	1	1	-	-	-	-	-	-	-	-	2209

(a) TWRS = Tank Waste Remediation System.
(b) ISV = *in situ* vitrification.
(c) SRS = Savannah River Site.
(d) SRL = Savahhan River Laboratory.
(e) RPP = River Protection Project.
(f) HLP = Hanford low-activity waste product acceptance
(g) LLW = low-level waste.
(h) SBW = sodium-bearing waste.

Table 2.1 (contd)

Study	Reference	t	a	η	ε	PCT_Q	PCT_C	T_L	ρ	C_C	C_T	TCLP	Dbase #
INEL TRU Study	Flinn et al. 1981	7	-	7	-	-	-	-	-	-	-	-	2210-2217
West Valley	Jain 1990	-	23	24	-	-	-	-	-	-	-	-	2218-2241
TWRS LAW Formulation	Matlack et al. 1997a	21	16	3	-	11	-	-	-	-	-	10	2242-2262
WV Reference Glass Testing	McPherson et al. 1987	-	34	25	-	-	-	25	25	-	-	-	2263-2296
Savannah River	Plodinec 1978	19	-	19	-	-	-	-	-	-	-	-	2297-2315
WV Production Glass	Reimus et al. 1988	11	34	-	-	5	6	-	-	6	22	-	2316-2349
Pamela Testing	Scheiwer 1986	4	-	4	-	-	-	-	-	-	-	-	2350-2353
Savannah River Site	Shade 1991	2	-	-	-	2	-	-	-	-	-	-	2354-2355
Savannah River Site	Soper et al. 1982	104	-	35	-	-	-	35	-	-	-	-	2356-2459
Void	-	-	-	-	-	-	-	-	-	-	-	-	2460-2485
BNFL HLW98	Fu and Pegg 1998	62	-	14	13	17	-	-	6	-	-	38	2486-2547
Fernald Glasses	Gimpel 1996	7	6	-	6	-	-	6	6	-	-	6	2548-2554
DWPF Nepheline 1	Peeler et al. 2005	12	-	-	-	-	12	-	-	-	-	-	2555-2566
DWPF Nepheline 2	Peeler et al. 2006	28	-	-	-	-	28	-	-	-	-	-	2567-2594
DWPF Nepheline 3	Fox et al. 2006	16	-	-	-	-	16	-	-	-	-	-	2595-2610
HLW Comparison Study	Kot et al. 2005a	11	7	1	1	7	4	1	-	-	1	6	2611-2621
HLW02 Initial Matrix	Kot et al. 2004	57	57	57	57	57	-	-		-	57	57	2622-2678
HLW03 Augmentation Matrix	Piepel et al. 2008a	45	45	45	45	45	-	-	-	-	45	45	2679-2723
HLW04 C106 Actual	Kot and Pegg 2004	9	3	4	1	4	-	-	2	2	-	3	2724-2731
HLW05 ThZr Matrix	Kot et al. 2005b	30	-	5	5	-	-	-	-	-	30	-	2732-2761
HLW06 Spinel Matrix	Kot et al. 2005b	35	-	5	5	35	-	-	-	-	35	-	2762-2796
WTP HLW98	Piepel et al. 2008a	45	4	16	15	21	6	11	12	-	-	16	2797-2841
Round Robin Standards	many [(a)]	8	9	1	-	3	-	1	4	-	-	-	2842-2850
Russian High Alumina Study	Fox et al. 2008	93	-	-	-	54	54	-	-	54	-	-	2851-2943
V and T Series	Kot et al. 2003b	39	-	3	3	6	-	18	18	-	-	8	2944-2982
ORP Enhanced HLW	Matlack et al. 2007	91	-	4	20	22	2	-	-	21	47	22	2983-3073
WTP Actual LAW	many [(b)]	9	8	-	-	2	7	-	1	-	-	-	3074-3082
WTP LAW CrP	Muller et al. 2006b	14	14	-	5	7	7	-	-	14	-	4	3083-3096
HLW Algorithm Testing	Kot et al. 2005a	40	40	-	40	40	10	-	-	10	37	-	3097-3136
WTP Phase II HLW Matrix	Kot et al. 2006	40	40	-	40	40	-	-	-	-	39	-	3137-3176
WTP LAW	many [(c)]	154	25	-	123	145	3	-	2	-	-	4	3177-3330
WTP LAW Augmentation	Muller et al. 2006a	21	-	-	10	21	-	-	-	-	-	-	3331-3351
WTP LAW Comparison	Muller et al. 2005	22	17	-	2	12	8	-	-	-	-	1	3352-3373
WTP LAW Correlation	Piepel et al. 2007	21	-		17	17							3374-3394
WTP Regulatory Spike	Kot et al. 2003a	12	12		-	-	-	-	-	-	-	12	3395-3406

(a) Ebert and Wolf 1999, Edwards et al. 2004, Jantzen et al. 1993, Mellinger and Daniel 1984, Smith 1993, Wald 1985, Wald and Daniel 1986.

(b) Smith et al. 2000, Urie et al. 1999, Brooks et al. 2000, Fiskum et al. 2000, TRPT-W375-00-00017, Urie et al. 2002a, 2002b, 2002c, and Crawford et al. 2000a, 2000b

(c) Muller et al. 2001, Kot et al. 2003a, Muller and Pegg 2003a, 2003b, Muller et al. 2005, Rielley et al. 2004.

3.0 Glass Property-Composition Models

Models were developed for 1) η at three different temperatures (which enables the calculation of the VFT coefficients [Section 3.1]), 2) ε at three temperatures (which enables the calculation of VFT coefficients [Section 3.2]), 3) normalized releases of B, Na, and Li by PCT (Section 3.3), 4) TCLP (Section 3.4), 5) T_L and $T_{1\%}$ for glasses in the spinel primary phase field, and 6) T_L for melts forming zirconium-containing crystals (Section 3.5). For each of these properties, linear or PQM models of glass-component mass fractions were fitted to the available data described in Section 2.0. The subsections begin with a description of initial data evaluation and screening, final model fitting, and model validation.

3.1 Viscosity—Temperature

Hrma (2008) convincingly showed that a VFT model with a constant "preexponential" term has several advantages over other methods for modeling temperature and composition effects on waste glass viscosity. However, for the purposes of this application, the viscosity at fixed temperatures, in particular 1150°C, is to be used in glass formulations using the Hanford Tank Waste Optimization Simulator (HTWOS). Viscosities at other temperatures were available and are likely of use for other applications, so the ln[η] was estimated at three fixed temperatures (950, 1150, and 1250°C) for each test glass with sufficient data. The $\ln[\eta_T]$ were then fitted to composition using linear or PQM models with a small number of non-linear terms (not more than five non-linear terms in any case). Equation (1.6) is rewritten as:

$$\ln(\eta_T) = \sum_{i=1}^{N} b_{\eta_T i} x_i + \text{Selected}\left\{ \sum_{i=1}^{N} b_{\eta_T ii} (x_i)^2 + \sum_{i}^{N-1} \sum_{<}^{N} \sum_{j} b_{\eta_T ij} x_i x_j \right\} \quad (3.1)$$

where *T* is 950°C (as described in Section 3.1.1), 1150°C (as described in Section 3.1.2), and 1250°C (as described in Section 3.1.3).

3.1.1 η at 950°C

Initial Data Screening and Evaluation

The data listed in Appendix A were first screened before use in viscosity modeling. Of the 3406 glasses in the database, 1500 contained some viscosity data. These glasses were screened according to the following procedure:

1. fit the VFT Equation (1.10) to η-T data
2. tabulate minimum (T_{min}) and maximum temperatures (T_{max}) for data for each glass
3. keep only glasses with $T_{min} \le 950°C \le T_{max}$
4. remove glasses that were found to be "inhomogeneous" or multiphasic
5. substitute the analyzed compositions for target compositions for those glasses with only analyzed compositions
6. remove nine glasses with incomplete chemical compositions

7. remove three glasses with a high deviation between target and analyzed compositions (99-78, IG3-29, LAWPC7)
8. convert multivalent oxides to preferred oxidation states for Hanford HLW glasses Fe_2O_3, As_2O_5, Ce_2O_3, CoO, MnO, MoO_3, Pr_2O_3, Re_2O_7, Rh_2O_3, Sb_2O_3, SnO_2, Tl_2O, and UO_3.

The resulting data set included 687 glasses for $\ln[\eta_{950}]$ model development. A scatterplot matrix of these data is given in Appendix B.

Model Development

Preliminary model development was performed using stepwise regression methods allowing only first-order terms. Those components with sufficient data to allow for coefficient estimates were included in the stepwise process.[(a)] Stepwise regression comparing the coefficient to the value of zero while maintaining the intercept near the average response of 3.75 ln[Pa·s] was used to reduce the influential components to:

SiO_2, Na_2O, B_2O_3, Al_2O_3, Fe_2O_3, CaO, Li_2O, K_2O, ZrO_2, MgO, P_2O_5, SrO, ZnO, BaO, MnO, PbO, UO_3, F, and La_2O_3

To generate a suitable PbO coefficient ($b_{\eta 950,PbO}$) (e.g., one that was not erratic), 14 glasses with $x_{PbO} > 0.0050$ (mass fraction) were removed. This left 673 glasses for model fitting.

Attempts were made to improve the fit of the model data by adding a limited number (up to 5) second-order terms. The terms found to most significantly improve the fit to model data were:

$Na_2O \times B_2O_3$, $Na_2O \times Fe_2O_3$, $B_2O_3 \times B_2O_3$, $B_2O_3 \times Al_2O_3$, and $Li_2O \times Li_2O$[(b)]

Table 3.1 lists the coefficients and the standard errors (i.e., deviations) of the coefficients for the final $\ln[\eta_{950}]$ model. This model was fit to all 673 glasses remaining after glass screening described above. The statistics for the model fit are summarized in Table 3.2. The R^2 coefficient of >0.95 suggests that the data are well represented by the model. The R^2-adjusted value suggests that there are not too many coefficients, or the data are not over-fit. The R^2-predicted being so close to the R^2 value suggests that there are not any very influential data points, and the model is likely to predict similarly for new data as it does for the model development data.

Figure 3.1 compares the predicted and measured $\ln[\eta_{950}]$ values. The data appear to be well represented by the model with no trends to over or under prediction. No single group of data (e.g., study) was found to be misrepresented by the model.

(a) A number of methods were used to determine if a component had sufficient variation to include in the model development. Chief among them are the visual examination of pairwise concentration plots in the form of a scatterplot matrix. The absolute maximum concentrations of the components along with the number of glasses containing the component over 10% of the maximum concentration were also considered.

(b) This process for reducing linear mixture models is not the most efficatious and in theory could inappropriately include or exclude components from the reduced linear model. However, this process generally works well in practice. The method discussed by Piepel and Cooley (2008) is more directly appropriate for reducing linear mixture models, but requires special software and is often not necessary. So, it was not implemented in this study.

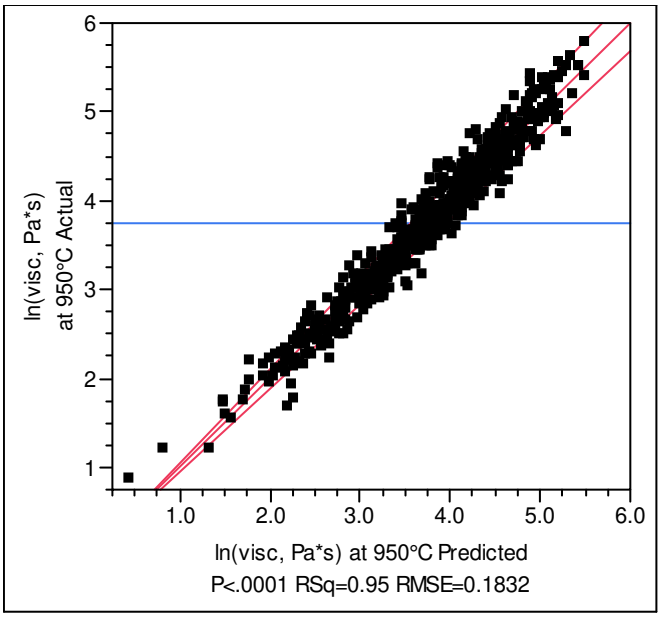


Figure 3.1. Measured vs Predicted ln[η_{950}, Pa-s]

Table 3.1. ln[η_{950}] Model Coefficients

Term (*i*)	Coefficient ($b_{\eta 950,i}$)	Std Error
Al_2O_3	18.13541298	0.576
B_2O_3	-12.13160541	1.31
BaO	-2.69661986	1.24
CaO	-4.640096602	0.279
F	-13.74526627	1.74
Fe_2O_3	2.542852069	0.474
K_2O	-3.46383498	0.446
La_2O_3	-1.48036958	1.66
Li_2O	-54.89924359	1.27
MgO	0.785950916	0.585
MnO	-4.349934915	0.677
Na_2O	-9.523194498	0.454
P_2O_5	8.837872224	1.11
PbO	-22.27753547	9.70
SiO_2	13.09016798	0.142
SrO	-3.841881893	0.576
UO_3	5.952490873	0.868
ZnO	0.664542357	0.571
ZrO_2	15.15119702	0.334
Others	3.523275465	0.465
$Na_2O \times B_2O_3$	-23.35021548	4.00
$Na_2O \times Fe_2O_3$	-9.583283843	3.41
$B_2O_3 \times B_2O_3$	44.83921231	4.95
$B_2O_3 \times Al_2O_3$	-17.94328251	4.83
$Li_2O \times Li_2O$	140.7392045	16.5

Table 3.2. Summary of ln[η_{950}] Model Fit Statistics

Statistic	Value
R^2	0.9530
R_A^2	0.9513
R_P^2	0.9491
RMSE	0.1832
Minimum	0.8643
Mean	3.750
Maximum	5.775
N	673
N	25

The ln[η_{950}] model is based on data spanning a specific glass composition region and therefore should only be relied upon within that region. The model validity region is defined as the region of data used to develop the model (including property-value ranges) with three exceptions:

1. Na_2O ranges up to 35.0 wt%, but only three glasses contain more than 25.9 wt%.
2. Others ranges to 10.5 wt%, but only six glasses exceed 7.5 wt% with a large fraction of the Others being made up of ThO_2, Bi_2O_3, Nd_2O_3, and TiO_2.
3. Three glasses contain 24 wt% of Fe_2O_3 while the next highest value is 18.4 wt%.

Table 3.3 lists the resulting model validity region. Table 3.4 lists the correlation coefficients calculated for the model data (a matrix of correlation coefficients that summarizes the strength of the linear relationships between each pair of independent variables). Only SrO-MnO have a correlation of 0.5 or above.

Table 3.3. ln[η_{950}] Model Validity Region (wt%)

Component	Min	Max
Al_2O_3	0.0	20.4
B_2O_3	0.0	20.0
BaO	0.0	4.7
CaO	0.0	15.0
F	0.0	6.0
Fe_2O_3	0.0	18.4
K_2O	0.0	10.0
La_2O_3	0.0	5.0
Li_2O	0.0	9.0
MgO	0.0	8.0
MnO	0.0	8.0
Na_2O	2.5	25.9
P_2O_5	0.0	5.0
PbO	0.0	0.5
SiO_2	32.3	60.4
SrO	0.0	10.3
UO_3	0.0	6.5
ZnO	0.0	5.8
ZrO_2	0.0	15.5
Remaining	0.0	7.5

Table 3.4. Correlation Matrix for the ln[η_{950}] Model Dataset

	SiO_2	Na_2O	B_2O_3	Al_2O_3	Fe_2O_3	CaO	Li_2O	K_2O	ZrO_2	MgO	P_2O_5	SrO	ZnO	BaO	MnO	PbO	UO_3	F	La_2O_3	Others
SiO_2	1.00																			
Na_2O	-0.31	1.00																		
B_2O_3	-0.06	-0.28	1.00																	
Al_2O_3	-0.22	0.08	0.01	1.00																
Fe_2O_3	-0.24	-0.04	-0.11	-0.33	1.00															
CaO	-0.03	-0.11	-0.06	0.01	-0.26	1.00														
Li_2O	0.36	-0.67	0.06	0.06	-0.09	-0.11	1.00													
K_2O	-0.23	0.11	-0.05	0.17	-0.07	-0.01	-0.19	1.00												
ZrO_2	-0.16	-0.06	-0.03	-0.27	-0.24	-0.07	0.13	-0.04	1.00											
MgO	0.16	-0.10	0.01	-0.10	-0.22	0.20	0.00	-0.14	-0.09	1.00										
P_2O_5	-0.21	0.12	-0.12	0.12	0.02	-0.10	-0.10	0.34	0.02	-0.15	1.00									
SrO	-0.26	-0.17	-0.15	-0.08	0.16	-0.20	0.06	-0.18	0.09	-0.22	-0.03	1.00								
ZnO	-0.11	0.00	-0.10	-0.11	-0.06	0.31	-0.28	-0.12	0.02	0.31	-0.17	-0.06	1.00							
BaO	-0.01	0.06	0.00	0.22	-0.03	-0.15	-0.02	0.23	-0.18	-0.19	0.15	-0.07	-0.26	1.00						
MnO	-0.21	-0.15	-0.06	-0.20	0.34	-0.36	0.06	-0.18	0.05	-0.27	-0.03	0.56	-0.10	0.01	1.00					
PbO	-0.15	-0.03	-0.14	-0.07	0.37	-0.33	0.01	-0.16	0.01	-0.30	-0.02	0.37	-0.03	0.10	0.49	1.00				
UO_3	-0.19	-0.15	-0.07	-0.15	0.09	-0.21	0.03	-0.11	0.16	-0.17	-0.01	0.41	-0.04	-0.03	0.35	0.26	1.00			
F	-0.11	0.08	-0.14	0.20	-0.29	0.15	-0.04	0.18	0.15	-0.10	0.20	0.04	-0.21	0.10	-0.15	-0.10	-0.10	1.00		
La_2O_3	-0.05	-0.10	-0.03	0.01	-0.12	-0.01	0.17	-0.17	0.21	-0.08	-0.02	0.21	-0.25	-0.07	0.01	0.00	0.03	0.39	1.00	
Others	-0.12	-0.15	-0.14	-0.33	0.18	-0.17	0.04	-0.12	0.04	0.05	-0.04	0.19	0.00	-0.14	0.19	0.11	0.38	-0.10	0.14	1.00

A variance-covariance matrix is required to calculate the measurement plus prediction uncertainties of this model. This matrix is defined as:

$$\mathbf{V}_\alpha = RMSE^2 \left[\mathbf{X}_\alpha^{\mathrm{T}} \mathbf{X}_\alpha \right]^{-1} \tag{3.2}$$

where $\mathbf{V}_\alpha$ is the variance-covariance matrix for the α-th property model, and $\mathbf{X}_\alpha$ is the "model matrix" for the model-fit data set. The model matrix is developed from the model-fit data set, with the columns of the matrix corresponding to the terms in the model. The use of $\mathbf{V}_\alpha$ is explained in detail elsewhere (e.g., Cornell 2002, Hrma et al. 1994, Piepel et al. 2008a, Vienna and Kim 2008). The $\mathbf{V}_{\ln[\eta 950]}$ is given in Appendix C with the other variance-covariance matrices.

Model Validation

To validate the model, data not used in model fitting must be obtained. Because all appropriate data within the desired composition region were used in model fitting, subsets of the model data were used to validate the model. The data were sorted by ln[η_{950}] value. The data were then numbered 1, 2, 3, 4, 5, 1, 2, … to split them into five roughly representative groups. The model was then refit to subsets 2 to 5 and used to predict data in subset 1. Then the model was fit to each group of four subsets and used to predict the remaining subset in sequence.

Table 3.5 summarizes the results of the model validation. The coefficients are reasonably close with a relative standard deviation (RSD) of less than 25% with the exceptions of ZnO, BaO, La_2O_3, and $Na_2O{*}Fe_2O_3$. Only the La_2O_3 coefficients show > 40% RSD.

The model fit R^2 values are all close to each other at approximately 0.95. The R_V^2 are also close to 0.95, and their average is almost identical to the R_P^2 value of 0.9491. This model is well validated and should give predictions of unknown data within the model-validity region nearly as well as for the model-fit data.

Table 3.5. Summary of $\ln[\eta_{950}]$ Model Validation

Term	All Data	Set 1	Set 2	Set 3	Set 4	Set 5	%RSD
SiO_2	13.090	13.127	13.073	13.127	13.055	13.078	0.3
Na_2O	-9.523	-10.114	-9.202	-10.114	-9.519	-9.331	-4.5
B_2O_3	-12.132	-12.137	-11.854	-12.137	-11.850	-11.767	-1.5
Al_2O_3	18.135	18.689	17.629	18.689	18.551	17.652	3.0
Fe_2O_3	2.543	2.066	2.950	2.066	2.352	2.641	15.8
CaO	-4.640	-4.689	-4.607	-4.689	-4.810	-4.489	-2.5
Li_2O	-54.899	-55.231	-55.252	-55.231	-54.824	-55.164	-0.3
K_2O	-3.464	-3.478	-3.233	-3.478	-3.614	-3.323	-4.3
ZrO_2	15.151	14.838	15.054	14.838	15.159	15.526	1.9
MgO	0.786	0.744	1.050	0.744	0.642	0.823	19.2
P_2O_5	8.838	9.283	8.306	9.283	8.336	8.906	5.5
SrO	-3.842	-3.880	-3.519	-3.880	-4.052	-4.387	-8.0
ZnO	0.665	0.811	0.210	0.811	0.805	0.693	39.0
BaO	-2.697	-3.605	-3.443	-3.605	-2.463	-1.551	-30.9
MnO	-4.350	-3.905	-4.395	-3.905	-4.230	-4.431	-6.1
PbO	-22.278	-25.420	-19.118	-25.420	-28.269	-16.024	-22.2
UO_3	5.952	7.201	5.164	7.201	6.154	5.155	16.5
F	-13.745	-12.909	-13.745	-12.909	-15.059	-12.821	-7.1
La_2O_3	-1.480	-1.690	-1.686	-1.690	-0.396	-1.832	-41.0
Others	3.523	3.825	3.395	3.825	3.523	3.438	5.8
$Na_2O \times B_2O_3$	-23.350	-18.956	-24.704	-18.956	-24.082	-26.663	-15.5
$Na_2O \times Fe_2O_3$	-9.583	-5.929	-13.186	-5.929	-8.148	-9.759	-35.3
$B_2O_3 \times B_2O_3$	44.839	43.660	43.230	43.660	44.516	44.111	1.1
$B_2O_3 \times Al_2O_3$	-17.943	-21.398	-14.193	-21.398	-20.661	-15.864	-18.3
$Li_2O \times Li_2O$	140.739	145.416	146.730	145.416	142.422	141.086	1.6
R^2	0.9530	0.9534	0.9532	0.9534	0.9523	0.9557	
R^2_A	0.9513	0.9512	0.9510	0.9512	0.9501	0.9537	
RMSE	0.1832	0.1824	0.1835	0.1824	0.1862	0.1795	
Mean	3.750	3.752	3.750	3.752	3.750	3.749	
Obs, n	673	538	538	538	539	539	
R^2_V	0.9491	0.9484	0.9498	0.9564	0.9529	0.9379	

3.1.2 η at 1150°C

Model development and validation for the $\ln[\eta_{1150}]$ follows the same methods described in Section 3.1.1 for $\ln[\eta_{950}]$ model development.

Initial Data Screening and Evaluation

The data listed in Appendix A were first screened before use in viscosity modeling. Of the 3406 glasses in the database, 1500 contained some viscosity data. These glasses were screened according to the following procedure:

1. fitting the VFT Equation (1.10) to η-T data
2. tabulating minimum (T_{min}) and maximum temperatures (T_{max}) for data for each glass
3. keeping only glasses with $T_{min} \le 1150°C \le T_{max}$
4. removing 94 glasses that were found to be “inhomogeneous” or multiphasic
5. substituting analyzed compositions for target compositions for those glasses with only analyzed compositions

6. removing nine glasses with incomplete chemical compositions
7. removing three glasses with a high deviation between target and analyzed compositions (99-78, IG3-29, LAWPC7)
8. converting multivalent oxides to preferred oxidation states for Hanford HLW glasses Fe_2O_3, As_2O_5, Ce_2O_3, CoO, MnO, MoO_3, Pr_2O_3, Re_2O_7, Rh_2O_3, Sb_2O_3, SnO_2, Tl_2O, and UO_3.

The resulting data set included 1069 glasses for $\ln[\eta_{1150}]$ model development.

Model Development

Preliminary model development was performed with stepwise regression methods, allowing only first-order terms. Those components with sufficient data to allow for coefficient estimates were included in the stepwise process:

SiO_2, Na_2O, B_2O_3, Al_2O_3, Fe_2O_3, CaO, Li_2O, K_2O, ZrO_2, MgO, P_2O_5, SrO, ZnO, BaO, TiO_2, NiO, MnO, PbO, ThO_2, UO_3, Nd_2O_3, Bi_2O_3, Ce_2O_3, F, and La_2O_3

Outliers were identified during the initial model fitting as summarized in Table 3.6. In addition, 63 glasses containing $x_{PbO} > 0.0050$ (mass fraction) were removed because of unrealistic PbO and "Others" coefficients. This left 991 data points for model fitting.

Stepwise regression comparing the coefficient to the value of zero while maintaining the intercept near the average response of 1.67 ln[Pa·s] was used to reduce the influential components to the same set used in the final $\ln[\eta_{1150}]$ model except Fe_2O_3 - SiO_2, Na_2O, B_2O_3, Al_2O_3, CaO, Li_2O, K_2O, ZrO_2, MgO, P_2O_5, SrO, ZnO, BaO, MnO, PbO, UO_3, F, and La_2O_3.

Attempts were made to improve the fit of the model data by adding a limited number (up to 5) second-order terms. The terms found to most significantly improve the fit to model data were:

$Na_2O \times B_2O_3$, $Na_2O \times Al_2O_3$, $B_2O_3 \times B_2O_3$, $CaO \times Al_2O_3$, and $Li_2O \times Li_2O$

Through this process, 24 additional glasses were found to be outliers. These all contained extreme concentrations of the second-order terms listed above. The final model was then fit to the remaining 967 datapoints with coefficients $b_{ln[\eta 1150],i}$, listed in Table 3.7. A scatterplot matrix of these data is given in Appendix B.

Table 3.6. Composition Extreme Outliers

Glass ID	Composition Extreme
HLW98-96B	glass containing HfO_2
SRC-Eu-1	glass containing Eu_2O_3
LAWA46	glass containing Ga_2O_3 above 0.6%
HLW99-15	high NiO concentration with strong influence on model
W-Fe/159	high NiO concentration with strong influence on model
W-Fe/151	high NiO concentration with strong influence on model
W-Fe/145	high NiO concentration with strong influence on model
W-Fe/143	high NiO concentration with strong influence on model
W-Fe/156	high NiO concentration with strong influence on model
W-Fe/152	high NiO concentration with strong influence on model
W-Fe/160	high NiO concentration with strong influence on model
W-Fe/158	high NiO concentration with strong influence on model
W-Fe/147	high NiO concentration with strong influence on model
W-Fe/154	high NiO concentration with strong influence on model
W-Fe/146	high NiO concentration with strong influence on model

Table 3.7. $\ln[\eta_{1150}]$ Model Coefficients

Term (i)	Coefficient ($b_{ln[\eta 1150],i}$)	Std Error
Al_2O_3	10.60850109	0.3922
B_2O_3	-9.375292157	0.6860
BaO	-3.418158325	0.9650
CaO	-6.932801478	0.3012
F	-12.34448744	1.559
K_2O	-3.824906136	0.3447
La_2O_3	-4.969542588	1.227
Li_2O	-39.02491029	0.8721
MgO	-3.231407331	0.4429
MnO	-6.886774142	0.4695
Na_2O	-9.632750972	0.2954
P_2O_5	5.305006777	0.6427
PbO	-23.14362222	6.139
SiO_2	9.368088941	0.07994
SrO	-4.350515691	0.3299
UO_3	2.151455253	0.4839
ZnO	-2.696255253	0.4011
ZrO_2	7.140440337	0.2299
Remaining	-0.090267559	0.1220
$Na_2O \times B_2O_3$	-26.95708996	2.706
$Na_2O \times Al_2O_3$	17.5171818	2.625
$B_2O_3 \times B_2O_3$	24.5926202	2.669
$CaO \times Al_2O_3$	-8.134744021	2.930
$Li_2O \times Li_2O$	47.35918258	12.11

The statistics for the model fit are summarized in Table 3.8. The R^2 coefficient of >0.95 suggests that the data are well represented by the model. The R^2-adjusted value suggests that there are not too many coefficients, or the data are not over-fit. The R^2-predicted being so close to the R^2 value suggests that there are not any very influential data points, and the model is likely to predict similarly for new data as it does for the model development data.

Figure 3.2 compares the predicted and measured ln[η_{1150}] values. The data appear to be well represented by the model with no trends to over or under prediction. No single group of data (e.g., study) was found to be misrepresented by the model.

Table 3.8. Summary of ln[η_{1150}] Model Fit Statistics

Statistic	Value
R^2	0.9619
R_A^2	0.9610
R_P^2	0.9586
RMSE	0.1632
Minimum	-0.4588
Mean	1.673
Maximum	4.599
N	967
N	24

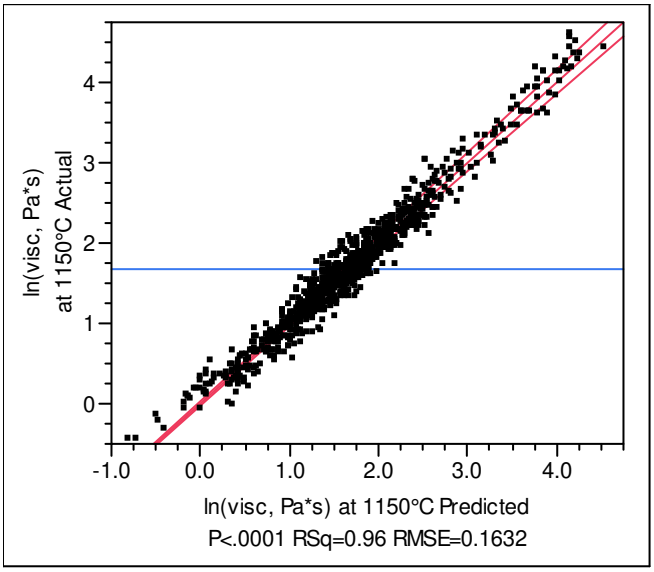


Figure 3.2. Measured vs Predicted ln[η_{1150}, Pa-s]

This model is based on data spanning a specific glass composition region and therefore should only be relied upon within that region. The validity region is defined as the range of data within the model with 10 exceptions:

1. Al_2O_3 ranges to 30.3 wt% in one glass but up to 26.6 wt% with continuous data.
2. Three glasses increase the range of F from 2.4 to 4.7 wt%.
3. Only two glasses increase the range of MnO from 8 to 13.6 wt%.
4. Only four glasses reduce the lower level of Na_2O from 3.4 to 1 wt%.
5. Seven glasses increase the upper level of Na_2O from 25.5 to 35.0 wt%.
6. Only three glasses increase the range of P_2O_5 from 5 to 6.7 wt%.
7. Four glasses reduce the lower SiO_2 level from 25 to 19.4 wt%.
8. Only two glasses increase the range of SrO from 10.3 to 29.9 wt%.

9. The UO_3 upper bound is increased from 7 to 9.6 wt% by two glasses.
10. Only one glass increases the range of ZnO from 5.8 to 9.8 wt%.

The Others component ranges from 10.0 to 33.3 wt%, being dominated by Fe_2O_3 (0 to 24.3 wt%), ThO_2 (0 to 6.8 wt%), Bi_2O_3 (0 to 16.4 wt%), Nd_2O_3 (0 to 8.6 wt%), and TiO_2 (0 to 10 wt%). Only five glasses increase the range of Fe_2O_3 from 20 to 24.3 wt%, and two glasses increase the range of Bi_2O_3 from 7.4 to 16.4 wt%. Excluding those seven glasses, one high Others glass, and excluding the five major contributors to Others yields an Others component that ranges from 0 to 7.1 wt%. It is recommended that the five major contributors to Others be used as separate components when defining the model validity region.

Table 3.9 lists the model validity range while Table 3.10 lists the correlation coefficients calculated for the model data. Only SrO-MnO have a correlation of 0.5 or above.

Table 3.9. $\ln[\eta_{1150}]$ Model Data and Validity Regions (wt%)

	Model Data		**Validity Region**	
	Min	**Max**	**Min**	**Max**
Al_2O_3	0.0	30.3	0	26.6
B_2O_3	0.0	20.2	0	20.2
BaO	0.0	4.7	0	4.7
Bi_2O_3	0.0	16.4	0	7.4
CaO	0.0	18.2	0	18.2
F	0.0	4.7	0	2.4
Fe_2O_3	0.0	24.3	0	20
K_2O	0.0	10.0	0	10
La_2O_3	0.0	5.0	0	5
Li_2O	0.0	8.9	0	8.9
MgO	0.0	8.2	0	8.2
MnO	0.0	13.6	0	8
Na_2O	1.0	35.0	3.4	25.5
Nd_2O_3	0.0	8.6	0	8.6
P_2O_5	0.0	6.7	0	5
SiO_2	19.4	62.8	25	62.8
SrO	0.0	29.9	0	10.3
ThO_2	0.0	6.8	0	6.8
TiO_2	0.0	10.0	0	10
UO_3	0.0	9.6	0	7
ZnO	0.0	9.8	0	5.8
ZrO_2	0.0	15.5	0	15.5
Remainer	0.0	12.0	0	7.1

The $\mathbf{V}_{\ln[\eta 1150]}$ is given in Appendix C with the other variance-covariance matrices.

Table 3.10. Correlation Matrix for $\ln[\eta_{1150}]$ Model Data

$\ln[\eta_{1150}]$	SiO_2	Na_2O	B_2O_3	Al_2O_3	CaO	Li_2O	K_2O	ZrO_2	MgO	P_2O_5	SrO	ZnO	BaO	MnO	PbO	UO_3	F	La_2O_3	Others
SiO_2	**1.00**																		
Na_2O	-0.07	**1.00**																	
B_2O_3	-0.23	-0.34	**1.00**																
Al_2O_3	-0.35	0.10	0.10	**1.00**															
CaO	-0.02	-0.03	-0.10	0.11	**1.00**														
Li_2O	0.15	-0.69	0.17	0.02	-0.13	**1.00**													
K_2O	-0.20	0.06	0.05	0.04	-0.05	-0.14	**1.00**												
ZrO_2	-0.10	-0.12	-0.04	-0.27	-0.08	0.14	-0.02	**1.00**											
MgO	0.12	-0.14	0.10	-0.13	0.15	0.01	-0.07	-0.05	**1.00**										
P_2O_5	-0.26	0.06	-0.03	0.04	-0.06	-0.15	0.31	-0.09	-0.10	**1.00**									
SrO	-0.24	-0.20	-0.07	-0.06	-0.19	0.10	-0.18	0.13	-0.18	-0.10	**1.00**								
ZnO	-0.06	-0.03	0.00	-0.14	0.19	-0.11	-0.09	0.11	0.30	-0.24	-0.02	**1.00**							
BaO	-0.10	0.00	0.05	0.10	-0.12	-0.01	0.19	-0.13	-0.15	0.12	-0.01	-0.20	**1.00**						
MnO	-0.20	-0.18	-0.07	-0.14	-0.35	0.11	-0.17	0.05	-0.24	-0.07	**0.57**	-0.10	0.02	**1.00**					
PbO	-0.35	-0.10	0.01	0.11	-0.17	0.04	-0.15	0.01	-0.24	0.00	0.27	-0.01	0.16	0.35	**1.00**				
UO_3	-0.25	-0.11	-0.10	-0.18	-0.20	0.00	-0.12	0.13	-0.19	0.03	0.26	-0.08	0.07	0.33	0.28	**1.00**			
F	-0.12	0.04	-0.16	0.18	0.20	-0.05	0.21	0.13	-0.09	0.15	0.00	-0.16	0.13	-0.15	0.04	-0.03	**1.00**		
La_2O_3	-0.06	-0.13	-0.01	-0.04	-0.01	0.13	-0.14	0.21	-0.08	-0.04	0.13	-0.17	-0.01	0.03	0.04	0.10	0.43	**1.00**	
Others	-0.30	-0.17	-0.15	-0.35	-0.32	0.00	-0.03	-0.14	-0.13	0.20	0.09	-0.12	0.02	0.27	0.28	0.30	-0.21	-0.02	**1.00**

Model Validation

To validate the model, data not used in model fitting must be obtained. Because all appropriate data within the desired composition region were used in model fitting, subsets of the model data were used to validate the model. The data were sorted by $\ln[\eta_{1150}]$ value. The data were then numbered 1, 2, 3, 4, 5, 1, 2, … to split them into five roughly representative groups. The model was then refit to subsets 2 to 5 and used to predict data in subset 1. Then the model was fit to each group of four subsets and used to predict the remaining subset in sequence. Table 3.11 summarizes the results of the model validation. The coefficients are reasonably close with an RSD of less than 25% with the exceptions of UO_3 and Others.

The model fit R^2 values are all close to each other at 0.96. The R_V^2 are also close to 0.96, and their average is close to the R_P^2 value of 0.9586. This model is well validated and should give predictions of unknown data within the model validity region nearly as well as model fit data.

Table 3.11. Summary of $\ln[\eta_{1150}]$ Model Validation

Term	Full	Set 1	Set 2	Set 3	Set 4	Set 5	%RSD
SiO_2	9.3681	9.3364	9.4406	9.3553	9.3931	9.3146	0.5
Na_2O	-9.6328	-9.5071	-9.7526	-9.7104	-9.7022	-9.4382	-1.5
B_2O_3	-9.3753	-8.4168	-9.8816	-9.8190	-9.6537	-8.8802	-7.0
Al_2O_3	10.6085	10.2879	10.9346	10.5060	10.4918	10.6676	2.3
CaO	-6.9328	-7.2417	-6.9281	-6.8793	-6.7513	-6.8827	-2.6
Li_2O	-39.0249	-39.3440	-38.9421	-38.9438	-39.2712	-38.8607	-0.6
K_2O	-3.8249	-3.9651	-4.0004	-3.8227	-3.3992	-3.8991	-6.4
ZrO_2	7.1404	7.0472	6.9700	7.1554	7.3700	7.0909	2.1
MgO	-3.2314	-3.3789	-3.7320	-2.8759	-2.7723	-3.3797	-12.3
P_2O_5	5.3050	5.4761	5.2643	4.6221	5.2025	5.7383	7.9
SrO	-4.3505	-3.9248	-4.2216	-4.6062	-4.4388	-4.7077	-7.2
ZnO	-2.6963	-3.0052	-2.4468	-2.6692	-2.8656	-2.5553	-8.4
BaO	-3.4182	-3.5772	-3.2042	-2.7007	-4.1152	-3.6735	-15.4
MnO	-6.8868	-7.2545	-6.7956	-6.6870	-6.6422	-7.0921	-3.9
PbO	-23.1436	-22.5627	-29.3399	-22.8896	-21.1889	-17.9551	-18.2
UO_3	2.1515	1.4359	1.6532	2.4394	2.5022	2.6310	25.6
F	-12.3445	-14.1716	-11.4438	-10.6373	-12.2919	-12.5777	-10.9
La_2O_3	-4.9695	-5.0992	-4.3789	-5.3426	-5.3613	-4.9734	-7.9
Others	-0.0903	-0.1109	-0.0650	0.0188	-0.1140	-0.1845	-82.1
$Na_2O \times B_2O_3$	-26.9571	-29.6713	-24.6098	-25.5386	-27.7063	-28.5939	-7.7
$Na_2O \times Al_2O_3$	17.5172	19.8134	15.3487	17.9607	18.5592	16.5910	9.8
$B_2O_3 \times B_2O_3$	24.5926	20.8049	25.6446	27.0574	26.6569	22.8969	10.9
$Al_2O_3 \times CaO$	-8.1347	-5.8228	-8.4772	-8.6202	-8.9364	-8.9493	-16.2
$Li_2O \times Li_2O$	47.3592	52.7654	41.3129	50.1104	49.8875	45.3391	9.5
R^2	0.9619	0.9619	0.9634	0.9630	0.9604	0.9625	
R^2_A	0.9610	0.9608	0.9622	0.9618	0.9591	0.9614	
RMSE	0.1632	0.1631	0.1599	0.1619	0.1674	0.1626	
Mean	1.6732	1.6735	1.6723	1.6748	1.6734	1.6720	
n	967	773	773	774	774	774	
R^2_V	0.9619	0.9531	0.9546	0.9539	0.9674	0.9638	

3.1.3 η at 1250°C

Model development and validation for the $\ln[\eta_{1250}]$ follows the same methods described in Section 3.1.1 for $\ln[\eta_{950}]$ and Section 3.1.2 for $\ln[\eta_{1150}]$ model development.

Initial Data Screening and Evaluation

The data listed in Appendix A were first screened before use in viscosity modeling. Of the 3406 glasses in the database, 1500 contained some viscosity data. These glasses were screened according to the following procedure:

1. fitting the VFT Equation (1.10) to η-T data
2. tabulating minimum (T_{min}) and maximum temperatures (T_{max}) for data for each glass
3. keeping only glasses with $T_{min} \leq 1250°C \leq T_{max}$
4. removing glasses that were found to be "inhomogeneous" or multiphasic
5. substituting the analyzed compositions for target compositions for those glasses with only analyzed compositions
6. removing nine glasses with incomplete chemical compositions
7. removing three glasses with a high deviation between target and analyzed compositions (99-78, IG3-29, LAWPC7)
8. converting multivalent oxides to preferred oxidation states for Hanford HLW glasses Fe_2O_3, As_2O_5, Ce_2O_3, CoO, MnO, MoO_3, Pr_2O_3, Re_2O_7, Rh_2O_3, Sb_2O_3, SnO_2, Tl_2O, and UO_3.

The resulting data set included 892 glasses for $\ln[\eta_{1250}]$ model development. A scatterplot matrix of these data is given in Appendix B.

Model Development

Preliminary model development was performed using stepwise regression methods allowing only first-order terms. Those components with sufficient data to allow for coefficient estimates were included in the stepwise process. Stepwise regression comparing the coefficient to the value of zero while maintaining the intercept near the average response of 1.01 ln[Pa·s] was used to reduce the influential components to:

> *SiO_2, Na_2O, B_2O_3, Al_2O_3, Fe_2O_3, CaO, Li_2O, K_2O, ZrO_2, MgO, P_2O_5, SrO, ZnO, BaO, TiO_2, NiO, MnO, PbO, ThO_2, UO_3, Nd_2O_3, Bi_2O_3, Ce_2O_3, Gd_2O_3, F, and La_2O_3*

Three outliers were identified during the initial model fitting (HLW98-96B, SRC-Eu-1, and LAWA46). In addition, 53 glasses with $x_{PbO} > 0.0050$ (mass fraction) were removed, leaving 836 data points for model fitting.

Attempts were made to improve the fit of the model data by adding a limited number (up to 5) second-order terms. The terms found to most significantly improve the fit to model data were:

> *$Na_2O \times B_2O_3$, $Na_2O \times Al_2O_3$, $B_2O_3 \times B_2O_3$, and $Li_2O \times Li_2O$*

Through this process, 19 additional glasses were found to be outliers. These all contained extreme concentrations of the second-order terms listed above. The final model was then fit to the remaining 817 datapoints with coefficients $b_{ln[\eta 1250],i}$, listed in Table 3.12.

The statistics for the model fit are summarized in Table 3.13. The R^2 coefficient of >0.95 suggests that the data are well represented by the model. The R^2-adjusted value suggests that there are not too many coefficients, or the data are not over-fit. The R^2-predicted being so close to the R^2 value suggests that there are not any very influential data points, and the model is likely to predict similarly for new data as it does for the model development data.

Table 3.12. $\ln[\eta_{1250}]$ Model Coefficients

Term (i)	Coefficient ($b_{\eta 1250,i}$)	Std Error
Al_2O_3	8.94357	0.377517
B_2O_3	-7.66615	0.714886
BaO	-3.89304	0.96681
Bi_2O_3	-3.54929	0.790447
CaO	-7.96797	0.206528
F	-12.3147	1.607114
Fe_2O_3	-1.29457	0.153089
K_2O	-3.45232	0.362315
La_2O_3	-4.70143	1.297667
Li_2O	-34.7926	0.888125
MgO	-4.85407	0.437357
MnO	-7.14845	0.508207
Na_2O	-8.81239	0.28903
PbO	-35.1899	7.331512
SiO_2	7.719283	0.077338
SrO	-6.42168	0.416158
TiO_2	-2.96399	0.655929
UO_3	1.061988	0.436435
ZnO	-2.91064	0.413253
Others	2.681183	0.164159
$Na_2O \times B_2O_3$	-25.4993	2.681469
$Na_2O \times Al_2O_3$	14.98563	2.744072
$B_2O_3 \times B_2O_3$	17.33823	2.868211
$Li_2O \times Li_2O$	35.43191	12.77803

Table 3.13. Summary of $\ln[\eta_{1250}]$ Model Fit Statistics

Statistic	Value
R^2	0.9678
R_A^2	0.9669
R_P^2	0.9649
RMSE	0.1612
Minimum	-1.055
Mean	1.007
Maximum	4.159
n	817
N	24

Figure 3.3 compares the predicted and measured ln[η_{1250}] values. The data appear to be well represented by the model with no trends to over or under prediction. No single group of data (e.g., study) was found to be misrepresented by the model.

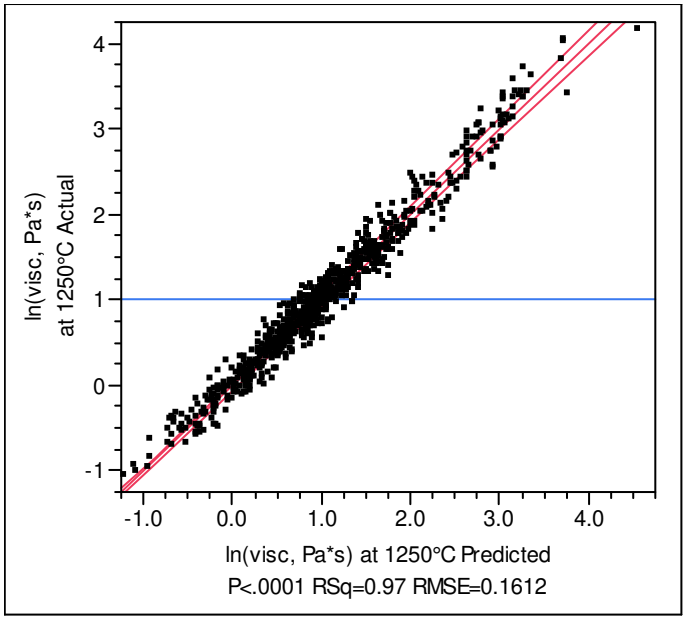


Figure 3.3. Measured vs. Predicted ln[η_{1250}]

This model is based on data spanning a specific glass composition region and therefore should only be relied upon within that region. The validity region is defined as the composition region of data used to develop the model with three exceptions:

1. Al_2O_3 ranges to 30.3 wt%, but only one glass contains more than 25.9 wt%.
2. Eight glasses increase the upper bound of Na_2O from 25.5 to 30.0 wt%.
3. The Others component ranges up to 22 wt% with most of Others composed of Nd_2O_3, ThO_2, and ZrO_2. These three components should be taken as separate limits. Then one glass increases the "Others" component concentrations from 9.4 to 12.3 wt%.

Table 3.14 lists the model validity region while Table 3.15 lists the correlation coefficients calculated for the model data. Only SrO-MnO have a correlation of 0.5 or above.

Table 3.14. ln[η_{1250}] Model Validity Region (wt%)

Component	Min	Max
Al_2O_3	0.0	25.9
B_2O_3	0.0	20.0
BaO	0.0	4.7
Bi_2O_3	0.0	16.4
CaO	0.0	15.0
F	0.0	4.7
Fe_2O_3	0.0	24.3
K_2O	0.0	10.0
La_2O_3	0.0	5.0
Li_2O	0.0	8.9
MgO	0.0	8.2
MnO	0.0	8.0
Na_2O	2.5	25.5
Nd_2O_3	0.0	8.6
PbO	0.0	0.5
SiO_2	26.0	64.1
SrO	0.0	10.3
ThO_2	0.0	7.8
TiO_2	0.0	9.6
UO_3	0.0	15.6
ZnO	0.0	9.8
ZrO_2	0.0	15.5
Remaining	0.0	9.4

A variance-covariance matrix is required to calculate the measurement plus prediction uncertainties of this model. The $\mathbf{V}_{\ln[\eta 1250]}$ is given in Appendix C with the other variance-covariance matrices.

Model Validation

To validate the model, data not used in model fitting must be obtained. Because all appropriate data within the desired composition region were used in model fitting, subsets of the model data were used to validate the model. The data were sorted by ln[η_{1250}] value. The data were then numbered 1, 2, 3, 4, 5, 1, 2, … to split them into five roughly representative groups. The model was then refit to subsets 2 to 5 and used to predict data in subset 1. Then the model was fit to each group of four subsets and used to predict the remaining subset in sequence. Table 3.16 summarizes the results of the model validation. The coefficients are reasonably close with an RSD of less than 25% with the exception of UO_3.

The model fit R^2 values are all close to each other at just under 0.97. The R_V^2 are also close to the 0.965, and their average is almost identical to the R_P^2 value of 0.9649. This model is well validated and should give predictions of unknown data within the model validity region nearly as well as model fit data.

Table 3.15. Correlation Matrix for the ln[η_{1250}] Model Dataset

	SiO_2	Na_2O	B_2O_3	Al_2O_3	Fe_2O_3	CaO	Li_2O	K_2O	MgO	SrO	ZnO	BaO	TiO_2	MnO	PbO	UO_3	Bi_2O_3	F	La_2O_3	Others
SiO_2	**1.00**																			
Na_2O	-0.11	**1.00**																		
B_2O_3	-0.19	-0.33	**1.00**																	
Al_2O_3	-0.25	0.16	0.01	**1.00**																
Fe_2O_3	-0.29	-0.11	-0.09	-0.33	**1.00**															
CaO	-0.01	-0.11	-0.10	0.09	-0.26	**1.00**														
Li_2O	0.13	-0.68	0.18	-0.07	0.02	-0.14	**1.00**													
K_2O	-0.24	0.09	0.05	0.12	-0.08	0.01	-0.12	**1.00**												
MgO	0.05	-0.15	0.10	-0.11	-0.09	0.18	-0.01	-0.07	**1.00**											
SrO	-0.29	-0.18	-0.05	-0.08	0.18	-0.21	0.12	-0.16	-0.19	**1.00**										
ZnO	-0.15	-0.07	0.09	-0.12	-0.04	0.23	-0.12	-0.04	0.33	-0.06	**1.00**									
BaO	-0.12	-0.01	0.07	0.14	0.05	-0.12	0.02	0.22	-0.16	-0.02	-0.22	**1.00**								
TiO_2	-0.09	0.09	0.09	-0.03	-0.08	0.11	-0.22	0.05	0.26	-0.15	0.44	-0.11	**1.00**							
MnO	-0.21	-0.16	-0.03	-0.19	0.32	-0.35	0.14	-0.18	-0.25	**0.53**	-0.09	0.03	-0.17	**1.00**						
PbO	-0.29	-0.07	-0.02	-0.09	0.40	-0.29	0.07	-0.08	-0.22	0.37	-0.05	0.16	-0.18	0.47	**1.00**					
UO_3	-0.21	-0.11	-0.13	-0.17	0.15	-0.20	0.01	-0.12	-0.18	0.28	-0.11	0.03	-0.10	0.30	0.28	**1.00**				
Bi_2O_3	0.03	-0.05	-0.23	-0.06	0.03	-0.06	0.01	-0.07	-0.08	-0.02	-0.11	0.03	-0.06	0.02	-0.02	0.06	**1.00**			
F	-0.12	0.04	-0.17	0.15	-0.20	0.15	-0.03	0.28	-0.07	0.03	-0.19	0.12	-0.16	-0.14	-0.02	-0.04	0.03	**1.00**		
La_2O_3	-0.09	-0.14	0.02	-0.04	-0.06	0.00	0.16	-0.13	-0.09	0.19	-0.20	-0.03	-0.15	0.03	0.05	0.09	0.02	0.45	**1.00**	
Others	-0.20	-0.16	-0.21	-0.31	-0.01	-0.19	0.16	-0.05	-0.16	0.18	-0.19	-0.10	-0.26	0.18	0.12	0.31	0.23	0.14	0.23	**1.00**

Table 3.16. Summary of ln[η_{1250}] Model Validation

Term	Full	Set 1	Set 2	Set 3	Set 4	Set 5	%RSD
SiO_2	7.7193	7.6468	7.6838	7.7524	7.8208	7.6923	0.9
Na_2O	-8.8124	-8.4085	-8.6725	-8.9225	-9.0827	-8.9652	-3.1
B_2O_3	-7.6662	-7.2424	-7.5826	-8.1540	-8.0485	-7.4374	-5.1
Al_2O_3	8.9436	8.9317	9.8818	8.7561	8.6773	8.6629	5.7
Fe_2O_3	-1.2946	-1.3477	-1.2258	-1.3273	-1.2697	-1.2780	-3.8
CaO	-7.9680	-8.1592	-8.0171	-7.8551	-7.8166	-8.0409	-1.8
Li_2O	-34.7926	-34.3975	-35.6451	-34.5208	-35.0070	-34.3351	-1.6
K_2O	-3.4523	-3.8026	-3.5126	-3.1419	-3.4487	-3.4771	-6.8
MgO	-4.8541	-5.1009	-4.7712	-5.0280	-4.9118	-4.3786	-5.9
SrO	-6.4217	-6.5340	-6.6174	-6.0932	-6.6025	-6.4128	-3.4
ZnO	-2.9106	-3.0286	-2.9079	-2.9571	-2.6950	-2.9849	-4.5
BaO	-3.8930	-3.4883	-4.0765	-3.8516	-4.5016	-3.6186	-10.3
TiO_2	-2.9640	-2.2435	-3.3046	-2.8394	-3.2405	-2.9019	-14.5
MnO	-7.1484	-7.1929	-7.1408	-6.9119	-7.2598	-7.1166	-1.8
PbO	-35.1899	-36.8197	-33.2197	-35.0035	-32.0734	-38.1779	-7.1
UO_3	1.0620	0.7868	1.3071	0.7843	0.9721	1.3121	25.6
Bi_2O_3	-3.5493	-3.5797	-3.8360	-3.4960	-3.3885	-3.5428	-4.6
F	-12.3147	-10.3063	-13.2017	-12.1572	-12.9962	-12.0347	-9.4
La_2O_3	-4.7014	-6.8186	-4.4621	-4.4748	-4.1042	-4.3040	-23.2
Others	2.6812	2.7828	2.6951	2.5956	2.5905	2.7601	3.3
$Na_2O \times B_2O_3$	-25.4993	-28.5896	-25.8705	-22.6264	-23.4713	-26.6182	-9.5
$Na_2O \times Al_2O_3$	14.9856	13.9477	10.2240	15.1635	16.3217	18.2907	20.4
$B_2O_3 \times B_2O_3$	17.3382	16.9739	16.3538	18.3905	18.0544	17.2305	4.7
$Li_2O \times Li_2O$	35.4319	32.1499	39.9658	36.6515	38.0167	27.7052	14.2
R^2	0.9678	0.9678	0.9686	0.9685	0.9680	0.9678	
R^2_A	0.9669	0.9666	0.9674	0.9674	0.9668	0.9666	
RMSE	0.1612	0.1614	0.1593	0.1606	0.1620	0.1622	
Mean	1.0074	1.0076	1.0060	1.0094	1.0079	1.0060	
n	817	653	653	654	654	654	
R^2_V	0.9649	0.9606	0.9607	0.9664	0.9673	0.9697	

3.1.4 Viscosity as a Function of Temperature

The preceding subsections discussed the prediction of ln[η_T, Pa-s] where T is given as 950, 1150, and 1250°C. The models are summarized in Table 3.17. The models are similar in many respects. The fit and validation statistics are similar, and the coefficients are similar with the exception of the high $B_2O_3 \times B_2O_3$ and $Li_2O \times Li_2O$ coefficients of the ln[η_{950}] model as shown in Figure 3.4.

Table 3.17. ln[η_T] Model Coefficient Summary

Term	ln[η_{950}]	ln[η_{1150}]	ln[η_{1250}]
Al_2O_3	18.14	10.61	8.94
B_2O_3	-12.13	-9.38	-7.67
BaO	-2.70	-3.42	-3.89
Bi_2O_3			-3.55
CaO	-4.64	-6.93	-7.97
F	-13.75	-12.34	-12.31
Fe_2O_3	2.54		-1.29
K_2O	-3.46	-3.82	-3.45
La_2O_3	-1.48	-4.97	-4.70
Li_2O	-54.90	-39.02	-34.79
MgO	0.79	-3.23	-4.85
MnO	-4.35	-6.89	-7.15
Na_2O	-9.52	-9.63	-8.81
P_2O_5	8.84	5.31	
PbO	-22.28	-23.14	-35.19
SiO_2	13.09	9.37	7.72
SrO	-3.84	-4.35	-6.42
TiO_2			-2.96
UO_3	5.95	2.15	1.06
ZnO	0.66	-2.70	-2.91
ZrO_2	15.15	7.14	
Others	3.52	-0.09	2.68
$Na_2O \times B_2O_3$	-23.35	-26.96	-25.50
$Na_2O \times Al_2O_3$		17.52	14.99
$Na_2O \times Fe_2O_3$	-9.58		
$B_2O_3 \times B_2O_3$	44.84	24.59	17.34
$Al_2O_3 \times CaO$		-8.13	
$B_2O_3 \times Al_2O_3$	-17.94		
$Li_2O \times Li_2O$	140.74	47.36	35.43
R^2	0.953	0.962	0.968
R^2_A	0.951	0.961	0.967
RMSE	0.183	0.163	0.161
Mean	3.750	1.673	1.007
n	673	967	817
R^2_V	0.949	0.959	0.965

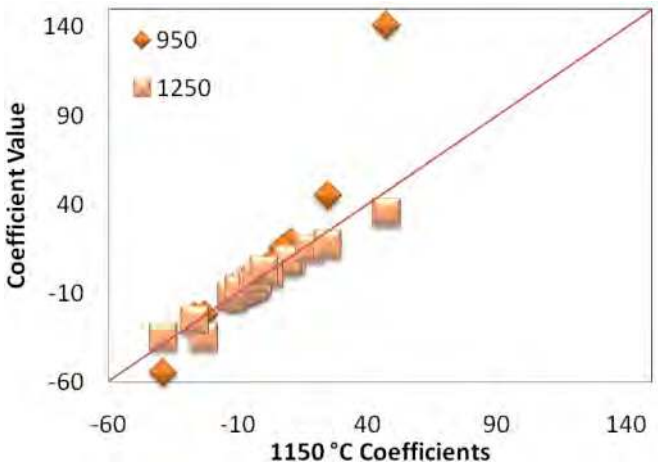


Figure 3.4. ln[η_T] Model Coefficient Comparison

To estimate the viscosity at temperatures between 950 and 1250°C, the ln[η] is predicted at each of the three temperatures. Then using Equation (1.10), the ln[η] is interpolated:

$$\ln[\eta_T, \text{Pa-s}] = A + \frac{B}{T - T_0}; \tag{3.3}$$

replacing for the predicted properties

$$\ln[\eta_{950}] = A + \frac{B}{950 - T_0}; \ln[\eta_{1150}] = A + \frac{B}{1150 - T_0}; \ln[\eta_{1250}] = A + \frac{B}{1250 - T_0}; \tag{3.4}$$

and solving for A, B, and T_0; we get

$$A = \frac{3 \cdot \ln[\eta_{950}] \cdot \ln[\eta_{1250}] - \ln[\eta_{1150}]\left(2 \cdot \ln[\eta_{950}] + \ln[\eta_{1250}]\right)}{-3 \cdot \ln[\eta_{1150}] + \ln[\eta_{950}] + 2 \cdot \ln[\eta_{1250}]}, \tag{3.5}$$

$$B = \frac{-600 \cdot \left(\ln[\eta_{1150}] - \ln[\eta_{950}]\right) \cdot \left(\ln[\eta_{1150}] - \ln[\eta_{1250}]\right) \cdot \left(\ln[\eta_{950}] - \ln[\eta_{1250}]\right)}{\left(-3 \cdot \ln[\eta_{1150}] + \ln[\eta_{950}] + 2 \cdot \ln[\eta_{1250}]\right)^2}, \text{ and} \tag{3.6}$$

$$T_0 = \frac{50\left(69 \cdot \ln[\eta_{1150}] - 19 \cdot \ln[\eta_{950}] - 50 \cdot \ln[\eta_{1250}]\right)}{3 \cdot \ln[\eta_{1150}] - \ln[\eta_{950}] - 2 \cdot \ln[\eta_{1250}]}. \tag{3.7}$$

These values for *A*, *B*, and T_0 are then substituted into Equation (3.3) to obtain viscosity at any temperature between 950 and 1250°C.

3.2 Electrical Conductivity–Temperature

Model development and validation for the $\ln[\varepsilon_T]$ follow the same methods described in Section 3.1 for $\ln[\eta_T]$.

3.2.1 Initial Data Screening and Evaluation

The data listed in Appendix A were first screened before use in electrical conductivity modeling. Of the 3406 glasses in the database, 591 contained some electrical conductivity data. These glasses were screened according to the following procedure:

1. fitting the VFT Equation (1.10) to ε-T data
2. tabulating minimum (T_{min}) and maximum temperatures (T_{max}) for data for each glass
3. substituting the analyzed compositions for target compositions for those glasses with only analyzed compositions
4. converting multivalent oxides to preferred oxidation states for Hanford HLW glasses Fe_2O_3, As_2O_5, Ce_2O_3, CoO, MnO, MoO_3, Pr_2O_3, Re_2O_7, Rh_2O_3, Sb_2O_3, SnO_2, Tl_2O, and UO_3.

3.2.2 ε at 1000°C

Model Development

The data set included 531 glasses with $\ln[\varepsilon_{1000}]$ for model development. Preliminary model development was performed using stepwise regression methods allowing only first-order terms. Those components with sufficient data to allow for coefficient estimates were included in the stepwise process.[(a)]

Al_2O_3, B_2O_3, Bi_2O_3, CaO, F, Fe_2O_3, K_2O, La_2O_3, Li_2O, MgO, MnO, Na_2O, Nd_2O_3, NiO, P_2O_5, PbO, SiO_2, SrO, ThO_2, UO_3, ZnO, and ZrO_2

Stepwise regression comparing the coefficient to the value of zero while maintaining the intercept near the average response of 2.85 ln[S/m] was used to reduce the influential components to:

Al_2O_3, B_2O_3, CaO, Fe_2O_3, Li_2O, MgO, Na_2O, NiO, SiO_2, SrO, ZnO, and ZrO_2

Attempts were made to improve the fit of the model data by adding a limited number (up to 5) second-order terms. The term found to most significantly improve the fit to model data was $Na_2O \times Li_2O$. The final set of terms was exactly the same as other electrical conductivity (EC) models for different temperatures.

Four glasses were found to be outliers for both the first-order and first-order plus $Na_2O \times Li_2O$ models: CVS2-81, LAWM30, HLW07-28, and HLW07-40. These data points were removed from the model fitting dataset, leaving 527 datapoints. A scatterplot matrix of these data is given in Appendix B.

(a) A number of methods were used to determine if a component had sufficient variation to include in the model development. Chief among them are the visual examination of pairwise concentration plots in the form of a scatterplot matrix. The absolute maximum concentrations of the components along with the number of glasses containing the component over 10% of the maximum concentration were also considered.

Table 3.18 lists the coefficients and the standard errors of the coefficients for the final $\ln[\varepsilon_{1000}]$ model. This model was fit to the 527 glasses remaining after the glass screening described above. The statistics for the model fit are summarized in Table 3.19. The R^2 coefficient of >0.89 suggests that the data are well represented by the model. The R^2_A value suggests that there are not too many coefficients, or the data are not over-fit. The R^2_P being so close to the R^2 value suggests that there are not any very influential data points, and the model is likely to predict similarly for new data as it does for the model development data.

Table 3.18. $\ln[\varepsilon_{1000}]$ Model Coefficients

Term (i)	Coefficient ($b_{\varepsilon 1000,i}$)	Std Error
Al_2O_3	-0.234445	0.252654
B_2O_3	0.8170189	0.218903
CaO	-0.812738	0.314498
Fe_2O_3	1.7770346	0.223832
Li_2O	37.351081	1.017349
MgO	-1.153956	0.519692
Na_2O	16.053203	0.26576
NiO	-4.78784	2.762766
SiO_2	-0.649396	0.108254
SrO	0.564366	0.386148
ZnO	4.7824589	0.561489
ZrO_2	0.2999368	0.306204
Others	1.9602265	0.229278
$Na_2O \times Li_2O$	-111.9769	7.452845

Table 3.19. Summary of $\ln[\varepsilon_{1000}]$ Model Fit Statistics

Statistic	Value
R^2	0.8962
R^2_A	0.8936
R^2_P	0.8899
RMSE	0.1732
Minimum	0.840
Mean	2.854
Maximum	4.058
n	527
N	14

Figure 3.5 compares the predicted and measured $\ln[\varepsilon_{1000}]$ values. The data appear to be well represented by the model with no trends to over or under prediction. No single group of data (e.g., study) was found to be misrepresented by the model.

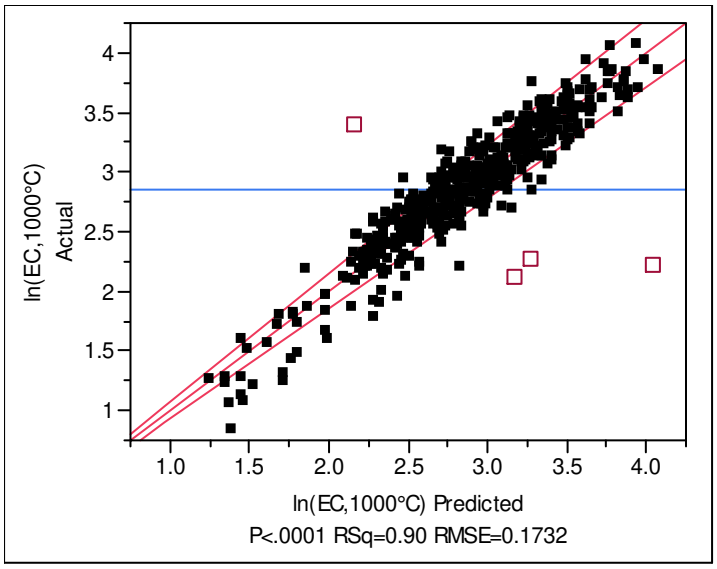


Figure 3.5. Measured vs. Predicted $\ln[\varepsilon_{1000}]$

This model is based on data spanning a specific glass composition region and therefore should only be relied upon within that region. The validity region, defined as the composition region of data used to develop the model, is listed in Table 3.20. Table 3.21 lists the correlation coefficients calculated for the model data. Only Na_2O-Li_2O and NiO-ZnO have a correlation of 0.5 or above.

Table 3.20. $\ln[\varepsilon_{1000}]$ Model Validity Region (wt%)

Component	Min	Max
Al_2O_3	0.0	25.9
B_2O_3	0.0	20.0
Bi_2O_3	0.0	16.4
CaO	0.0	11.9
Fe_2O_3	0.0	15.0
K_2O	0.0	5.4
Li_2O	0.0	7.9
MgO	0.0	8.0
MnO	0.0	8.0
Na_2O	2.5	23.0
Nd_2O_3	0.0	7.8
NiO	0.0	1.8
P_2O_5	0.0	4.0
SiO_2	26.0	60.0
SrO	0.0	10.3
ThO_2	0.0	6.0
UO_3	0.0	6.5
ZnO	0.0	5.8
ZrO_2	0.0	15.5
Remaining	0.3	6.4

Table 3.21. Correlation Matrix for the ln[ε_{1000}] Model Dataset

Corr	Al_2O_3	B_2O_3	CaO	Fe_2O_3	Li_2O	MgO	Na_2O	NiO	SiO_2	SrO	ZnO	ZrO_2	Others
Al_2O_3	1.000												
B_2O_3	0.245	1.000											
CaO	0.191	0.155	1.000										
Fe_2O_3	-0.275	-0.195	-0.325	1.000									
Li_2O	0.028	0.001	-0.030	-0.037	1.000								
MgO	-0.069	0.106	0.236	-0.256	-0.046	1.000							
Na_2O	-0.037	-0.157	-0.244	-0.014	-0.575	-0.078	1.000						
NiO	-0.102	-0.377	-0.322	0.208	0.121	-0.240	-0.058	1.000					
SiO_2	-0.493	-0.242	-0.086	-0.092	0.237	0.161	-0.201	0.062	1.000				
SrO	-0.066	-0.149	-0.296	0.221	0.016	-0.253	-0.158	0.105	-0.305	1.000			
ZnO	-0.130	0.061	0.343	-0.139	-0.210	0.155	0.026	-0.506	-0.040	-0.111	1.000		
ZrO_2	-0.350	-0.212	-0.176	-0.079	0.033	-0.140	0.007	0.129	-0.091	0.116	-0.029	1.000	
Others	-0.098	-0.442	-0.325	0.088	-0.098	-0.309	-0.055	0.489	-0.267	0.369	-0.247	0.212	1.000

A variance-covariance matrix is required to calculate the measurement plus prediction uncertainties of this model. This matrix is defined as:

$$\mathbf{V}_\alpha = RMSE^2 \left[\mathbf{X}_\alpha^{\mathrm{T}} \mathbf{X}_\alpha \right]^{-1} \tag{3.8}$$

The use of $\mathbf{V}_\alpha$ is explained in detail elsewhere (e.g., Cornell 2002, Hrma et al. 1994, Piepel et al. 2008a, Vienna and Kim 2008). The $\mathbf{V}_{\ln[\varepsilon 1000]}$ is given in Appendix C with the other variance-covariance matrices.

Model Validation

To validate the model, data not used in model fitting must be obtained. Because all appropriate data within the desired composition region were used in model fitting, subsets of the model data were used to validate the model. The data were sorted by ln[ε_{1000}] value. The data were then numbered 1, 2, 3, 4, 5, 1, 2, … to split them into five roughly representative groups. The model was then refit to subsets 2 to 5 and used to predict data in subset 1. Then the model was fit to each group of four subsets and used to predict the remaining subset in sequence.

Table 3.22 summarizes the results of the model validation. The coefficients are reasonably close with an RSD of less than 25% with the exceptions of Al_2O_3, MgO, SrO, and ZrO_2 which are all very near zero and NiO that has a high standard error.

The model fit R^2 and R_P^2 values are all close to each other at 0.89. The R_V^2 are all between 0.88 and 0.90. This model is well validated and should give predictions of unknown data within the model validity region nearly as well as model fit data.

Table 3.22. Summary of $\ln[\varepsilon_{1000}]$ Model Validation

Term	All Data	Set 1	Set 2	Set 3	Set 4	Set 5	%RSD
Al_2O_3	-0.23	-0.23	-0.14	-0.35	-0.31	-0.16	-38.2
B_2O_3	0.82	0.91	0.78	0.75	0.83	0.76	8.3
CaO	-0.81	-1.02	-0.74	-0.62	-0.85	-0.77	-18.3
Fe_2O_3	1.78	1.63	1.82	2.04	1.59	1.75	10.1
Li_2O	37.35	37.08	37.00	37.24	37.98	37.72	1.1
MgO	-1.15	-1.23	-1.66	-0.77	-1.11	-0.96	-29.0
Na_2O	16.05	16.08	15.87	16.09	16.23	16.06	0.8
NiO	-4.79	-0.19	-6.39	-5.93	-4.51	-6.61	-55.6
SiO_2	-0.65	-0.66	-0.58	-0.69	-0.66	-0.67	-6.5
SrO	0.56	1.00	0.23	0.34	0.67	0.61	53.8
ZnO	4.78	5.58	4.63	4.40	4.56	4.66	9.7
ZrO_2	0.30	0.31	0.52	0.34	0.05	0.32	55.9
Others	1.96	1.72	2.02	1.99	1.92	2.15	8.0
Na_2OxLi_2O	-112	-111	-111	-109.	-115	-114	-2.3
R^2	0.8962	0.8933	0.8960	0.8990	0.8940	0.8993	
R^2_A	0.8936	0.8899	0.8927	0.8958	0.8906	0.8961	
R^2_P	0.8899	0.8855	0.8879	0.8912	0.8860	0.8911	
RMSE	0.1732	0.1744	0.1739	0.1717	0.1762	0.1720	
Mean	2.8533	2.8540	2.8548	2.8535	2.8521	2.8505	
n	527	421	422	422	422	422	
R^2_V	0.8917	0.9003	0.8937	0.8807	0.9030	0.8808	

3.2.3 ε at 1100°C

Model Development

The data set included 548 glasses with $\ln[\varepsilon_{1100}]$ for model development. Preliminary model development was performed using stepwise regression methods allowing only first-order terms. Those components with sufficient data to allow for coefficient estimates were included in the stepwise process.[(a)]

Al_2O_3, B_2O_3, Bi_2O_3, CaO, F, Fe_2O_3, K_2O, La_2O_3, Li_2O, MgO, MnO, Na_2O, Nd_2O_3, NiO, P_2O_5, PbO, SiO_2, SrO, ThO_2, UO_3, ZnO, and ZrO_2

Stepwise regression comparing the coefficient to the value of zero while maintaining the intercept near the average response of 3.29 ln[S/m] was used to reduce the influential components to:

Al_2O_3, B_2O_3, CaO, Fe_2O_3, Li_2O, MgO, Na_2O, NiO, SiO_2, SrO, ZnO, and ZrO_2

Attempts were made to improve the fit of the model data by adding a limited number (up to 5) second-order terms. The term found to most significantly improve the fit to model data was $Na_2O \times Li_2O$. The final set of terms was exactly the same as other EC models.

(a) A number of methods were used to determine if a component had sufficient variation to include in the model development. Chief among them are the visual examination of pairwise concentration plots in the form of a scatterplot matrix. The absolute maximum concentrations of the components along with the number of glasses containing the component over 10% of the maximum concentration were also considered.

Six glasses were found to be outliers in both first-order and first-order plus $Na_2O \times Li_2O$ models: CVS2-81, LAWM30, HLW07-28, HLW07-40, C4D-04, and C4D-15.[(a)] These data points were removed from the model fitting dataset, leaving 542 datapoints. A scatterplot matrix of these data is given in Appendix B.

Table 3.23 lists the coefficients and the standard errors of the coefficients for the final $\ln[\varepsilon_{1100}]$ model. This model was fit to the 527 glasses remaining after glass screening described above. The statistics for the model fit are summarized in Table 3.24. The R^2 coefficient of >0.88 suggests that the data are well represented by the model. The R^2-adjusted value suggests that there are not too many coefficients, or the data are not over-fit. The R^2-predicted of ~0.88 being so close to the R^2 value suggests that there are not any very influential data points, and the model is likely to predict similarly for new data as it does for the model development data.

Table 3.23. $\ln[\varepsilon_{1100}]$ Model Coefficients

Term (i)	Coefficient ($b_{\varepsilon 1100,i}$)	Std Error
Al_2O_3	0.0821118	0.240141
B_2O_3	1.7269964	0.200007
CaO	0.4816237	0.2933
Fe_2O_3	2.3177094	0.21044
Li_2O	35.619913	0.964786
MgO	0.1206499	0.488016
Na_2O	15.435281	0.251401
NiO	-3.347901	2.468248
SiO_2	-0.067465	0.100487
SrO	1.8585572	0.362634
ZnO	6.0673766	0.530546
ZrO_2	0.9202707	0.286307
Others	2.4486435	0.213806
$Na_2O \times Li_2O$	-101.2064	7.176916

Table 3.24. Summary of $\ln[\varepsilon_{1100}]$ Model Fit Statistics

Statistic	Value
R^2	0.8856
R_A^2	0.8828
R_P^2	0.8789
RMSE	0.1673
Minimum	1.53
Mean	3.30
Maximum	4.42
n	542
N	14

Figure 3.6 compares the predicted and measured $\ln[\varepsilon_{1100}]$ values. The data appear to be well represented by the model with no trends to over or under prediction. No single group of data (e.g., study) was found to be misrepresented by the model.

(a) The first four glasses were also outliers for $\ln[\varepsilon_{1000}]$ model development while the last two glasses did not contain $\ln[\varepsilon_{1000}]$ data.

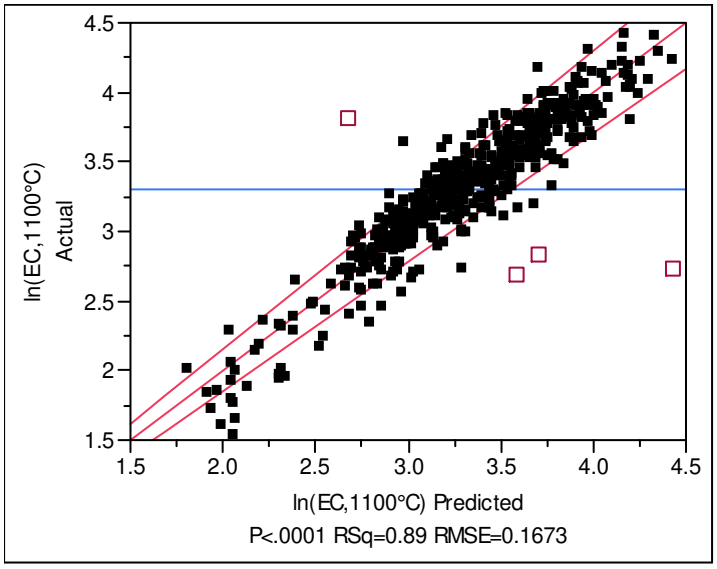


Figure 3.6. Measured vs. Predicted $\ln[\varepsilon_{1100}]$

This model is based on data spanning a specific glass composition region and therefore should only be relied upon within that region. The validity region, defined as the composition region of data used to develop the model, is listed in Table 3.20. Table 3.26 lists the correlation coefficients calculated for the model data. Only Na_2O-Li_2O and NiO-ZnO have a correlation of 0.5 or above.

Table 3.25. $\ln[\varepsilon_{1100}]$ Model Validity Region (wt%)

Component	Min	Max
Al_2O_3	0.0	25.9
B_2O_3	0.0	20.0
Bi_2O_3	0.0	16.4
CaO	0.0	13.9
Fe_2O_3	0.0	15.0
K_2O	0.0	5.4
Li_2O	0.0	7.9
MgO	0.0	8.0
MnO	0.0	8.0
Na_2O	2.5	23.0
Nd_2O_3	0.0	8.6
NiO	0.0	2.0
P_2O_5	0.0	4.0
PbO	0.0	5.2
SiO_2	26.0	60.0
SrO	0.0	10.3
ThO_2	0.0	6.0
UO_3	0.0	6.5
ZnO	0.0	5.8
ZrO_2	0.0	15.5
Remaining	0.3	6.1

Table 3.26. Correlation Matrix for the ln[ε_{1100}] Model Dataset

Corr	Al_2O_3	B_2O_3	CaO	Fe_2O_3	Li_2O	MgO	Na_2O	NiO	SiO_2	SrO	ZnO	ZrO_2	Others
Al_2O_3	**1.000**												
B_2O_3	0.244	**1.000**											
CaO	0.186	0.152	**1.000**										
Fe_2O_3	-0.274	-0.194	-0.324	**1.000**									
Li_2O	0.035	0.005	-0.023	-0.039	**1.000**								
MgO	-0.080	0.102	0.228	-0.256	-0.036	**1.000**							
Na_2O	-0.033	-0.155	-0.240	-0.016	**-0.584**	-0.070	**1.000**						
NiO	-0.103	-0.378	-0.324	0.209	0.122	-0.242	-0.057	**1.000**					
SiO_2	-0.490	-0.239	-0.080	-0.094	0.232	0.173	-0.207	0.062	**1.000**				
SrO	-0.064	-0.148	-0.295	0.220	0.014	-0.252	-0.160	0.106	-0.308	**1.000**			
ZnO	-0.126	0.064	0.350	-0.141	-0.216	0.164	0.022	**-0.507**	-0.045	-0.113	**1.000**		
ZrO_2	-0.347	-0.210	-0.171	-0.081	0.027	-0.134	0.003	0.130	-0.097	0.114	-0.033	**1.000**	
Others	-0.105	-0.450	-0.336	0.091	-0.091	-0.325	-0.049	0.490	-0.261	0.373	-0.243	0.219	**1.000**

The $\mathbf{V}_{\ln[\varepsilon 1100]}$ is given in Appendix C with the other variance-covariance matrices.

Model Validation

Table 3.27 summarizes the results of the model validation. The coefficients are reasonably close with an RSD of less than 25% with the exceptions of Al_2O_3, CaO, MgO, SiO_2, and ZrO_2, which are all very near zero, and NiO that has a high standard error.

The model fit R^2 and R_P^2 values are all close to each other at 0.88. The R_V^2 are all between 0.86 and 0.89. This model is well validated and should give predictions of unknown data within the model validity region nearly as well as the model fit data.

Table 3.27. Summary of ln[ε_{1100}] Model Validation

Term	All Data	Set 1	Set 2	Set 3	Set 4	Set 5	%RSD
Al_2O_3	0.08	0.24	0.01	-0.05	0.20	0.01	153.2
B_2O_3	1.73	1.74	1.90	1.67	1.70	1.63	6.0
CaO	0.48	0.81	0.45	0.31	0.21	0.66	51.2
Fe_2O_3	2.32	2.34	2.35	2.26	2.22	2.41	3.3
Li_2O	35.62	35.48	35.86	34.95	35.25	36.37	1.6
MgO	0.12	0.19	-0.11	0.02	0.17	0.35	144.6
Na_2O	15.44	15.40	15.49	15.42	15.35	15.48	0.4
NiO	-3.35	-4.73	-3.01	-4.40	-0.74	-3.99	-48.1
SiO_2	-0.07	-0.10	-0.14	0.02	-0.02	-0.11	-97.6
SrO	1.86	2.02	1.55	1.79	2.01	1.94	10.7
ZnO	6.07	5.67	6.15	5.81	6.62	6.11	6.1
ZrO_2	0.92	0.92	0.89	1.05	0.80	0.94	9.7
Others	2.45	2.64	2.53	2.43	2.24	2.41	6.1
Na_2OxLi_2O	-101.21	-100.79	-100.09	-97.58	-100.18	-105.47	-2.8
R^2	0.8856	0.8841	0.8914	0.8831	0.8858	0.8869	
R^2_A	0.8828	0.8805	0.8881	0.8795	0.8822	0.8834	
R^2_P	0.8789	0.8760	0.8834	0.8746	0.8772	0.8782	
RMSE	0.1673	0.1677	0.1627	0.1700	0.1684	0.1679	
Mean	3.2979	3.2991	3.2976	3.2988	3.2975	3.2963	
n	542	433	433	434	434	434	
R^2_V	0.8793	0.8871	0.8607	0.8917	0.8808	0.8761	

3.2.4 ε at 1150°C

Model Development

The data set included 583 glasses with $\ln[\varepsilon_{1150}]$ for model development. Preliminary model development was performed using stepwise regression methods allowing only first-order terms. Those components with sufficient data to allow for coefficient estimates were included in the stepwise process.[(a)]

Al_2O_3, B_2O_3, Bi_2O_3, CaO, F, Fe_2O_3, K_2O, La_2O_3, Li_2O, MgO, MnO, Na_2O, Nd_2O_3, NiO, P_2O_5, PbO, SiO_2, SrO, ThO_2, UO_3, ZnO, and ZrO_2

Stepwise regression comparing the coefficient to the value of zero while maintaining the intercept near the average response of 3.46 ln[S/m] was used to reduce the influential components to:

Al_2O_3, B_2O_3, CaO, Fe_2O_3, Li_2O, MgO, Na_2O, NiO, SiO_2, SrO, ZnO, and ZrO_2

Attempts were made to improve the fit of the model data by adding a limited number (up to 5) second-order terms. The term found to most significantly improve the fit to model data was $Na_2O \times Li_2O$. The final set of terms was exactly the same as other EC models.

Eight glasses were found to be outliers in both first-order and first-order plus $Na_2O \times Li_2O$ models: CVS1-10, CVS2-81, LAWM30, HLW07-28, HLW07-40, C4D-04, C4D-15, and HLW-E-Al-06.[b] These data points were removed from the model fitting dataset leaving 575 datapoints. A scatterplot matrix of these data is given in Appendix B.

Table 3.28 lists the coefficients and the standard errors of the coefficients for the final $\ln[\varepsilon_{1150}]$ model. This model was fit to the 575 glasses remaining after glass screening described above. The statistics for the model fit are summarized in Table 3.29. The R^2 coefficient of 0.88 suggests that the data are well represented by the model. The R^2-adjusted value suggests that there are not too many coefficients, or the data are not over-fit. The R^2-predicted of 0.87 being so close to the R^2 value suggests that there are not any very influential data points, and the model is likely to predict similarly for new data as it does for the model development data.

(a) A number of methods were used to determine if a component had sufficient variation to include in the model development. Chief among them are the visual examination of pairwise concentration plots in the form of a scatterplot matrix. The absolute maximum concentrations of the components along with the number of glasses containing the component over 10% of the maximum concentration were also considered.

(b) The outlier glasses were also outliers for $\ln[\varepsilon_{1000}]$ and $\ln[\varepsilon_{1100}]$ model development with the exception of four glasses not in the ε_{1000} model set and two glasses not in the ε_{1100} model set.

Table 3.28. $\ln[\varepsilon_{1150}]$ Model Coefficients

Term (i)	Coefficient ($b_{\varepsilon 1150,i}$)	Std Error
Al_2O_3	0.3447447	0.193725
B_2O_3	2.2131363	0.1869
CaO	1.1386022	0.265163
Fe_2O_3	2.4167485	0.198137
Li_2O	35.108383	0.931871
MgO	0.2090895	0.451666
Na_2O	15.226886	0.243131
NiO	0.284527	2.280322
SiO_2	0.1665476	0.0909
SrO	2.2279737	0.35226
ZnO	6.4620647	0.514638
ZrO_2	1.0944233	0.27449
Others	2.6305908	0.20218
$Na_2O \times Li_2O$	-100.2325	6.978406

Table 3.29. Summary of $\ln[\varepsilon_{1150}]$ Model Fit Statistics

Statistic	Value
R^2	0.8802
R_A^2	0.8774
R_P^2	0.8735
RMSE	0.1668
Minimum	1.70
Mean	3.47
Maximum	4.58
n	575
N	14

Figure 3.7 compares the predicted and measured $\ln[\varepsilon_{1150}]$ values. The data appear to be well represented by the model with no trends to over or under prediction. No single group of data (e.g., study) was found to be misrepresented by the model.

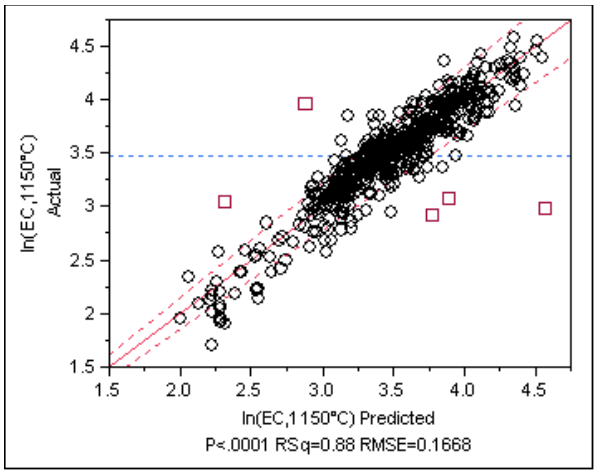


Figure 3.7. Measured vs. Predicted $\ln[\varepsilon_{1150}]$

This model is based on data spanning a specific glass composition region and therefore should only be relied upon within that region. The validity region, defined as the composition region of data used to develop the model, is listed in Table 3.30. Table 3.31 lists the correlation coefficients calculated for the model data. Only Na_2O-Li_2O has a correlation of 0.5 or above.

Table 3.30. $\ln[\varepsilon_{1150}]$ Model Validity Region (wt%)

Component	Min	Max
Al_2O_3	0.0	26.6
B_2O_3	0.0	20.2
Bi_2O_3	0.0	16.4
CaO	0.0	18.2
Fe_2O_3	0.0	15.0
K_2O	0.0	6.1
Li_2O	0.0	7.9
MgO	0.0	9.6
MnO	0.0	8.0
Na_2O	2.5	23.0
Nd_2O_3	0.0	8.6
NiO	0.0	2.1
P_2O_5	0.0	9.0
PbO	0.0	8.6
SiO_2	19.4	60.0
SrO	0.0	10.3
ThO_2	0.0	6.0
UO_3	0.0	6.5
ZnO	0.0	5.8
ZrO_2	0.0	15.5
Remaining	0.3	6.4

The $\mathbf{V}_{\ln[\varepsilon 1150]}$ is given in Appendix C with the other variance-covariance matrices.

Table 3.31. Correlation Matrix for the ln[ε_{1150}] Model Dataset

Corr	Al_2O_3	B_2O_3	CaO	Fe_2O_3	Li_2O	MgO	Na_2O	NiO	SiO_2	SrO	ZnO	ZrO_2	Others
Al_2O_3	**1.000**												
B_2O_3	0.284	**1.000**											
CaO	0.166	0.141	**1.000**										
Fe_2O_3	-0.279	-0.207	-0.334	**1.000**									
Li_2O	0.054	-0.008	-0.015	-0.043	**1.000**								
MgO	-0.071	0.086	0.234	-0.260	-0.043	**1.000**							
Na_2O	-0.017	-0.170	-0.237	-0.018	**-0.595**	-0.076	**1.000**						
NiO	-0.137	-0.335	-0.329	0.224	0.145	-0.231	-0.046	**1.000**					
SiO_2	-0.495	-0.215	-0.047	-0.093	0.241	0.187	-0.215	0.029	**1.000**				
SrO	-0.058	-0.169	-0.302	0.220	0.010	-0.258	-0.164	0.124	-0.312	**1.000**			
ZnO	-0.112	0.034	0.362	-0.147	-0.229	0.155	0.014	-0.496	-0.033	-0.122	**1.000**		
ZrO_2	-0.355	-0.194	-0.166	-0.083	0.028	-0.132	0.003	0.115	-0.112	0.121	-0.026	**1.000**	
Others	-0.118	-0.437	-0.336	0.095	-0.085	-0.320	-0.044	0.478	-0.291	0.384	-0.233	0.214	**1.000**

Model Validation

Table 3.32 summarizes the results of the model validation. The coefficients are reasonably close with an RSD of less than 25% with the exceptions of Al_2O_3, MgO, and SiO_2, which are all very near zero and NiO that has a high standard error.

The model fit R^2 and R_P^2 values are all close to each other at 0.87 to 0.88. The R_V^2 are all between 0.845 and 0.88. This model is well validated and should give predictions of unknown data within the model validity region nearly as well as model fit data.

Table 3.32. Summary of ln[ε_{1150}] Model Validation

Term	All Data	Set 1	Set 2	Set 3	Set 4	Set 5	%RSD
Al_2O_3	0.34	0.43	0.32	0.45	0.23	0.21	31.9
B_2O_3	2.21	2.23	2.30	2.05	2.47	2.04	8.1
CaO	1.14	1.04	1.24	1.31	1.26	0.85	17.0
Fe_2O_3	2.42	2.48	2.41	2.42	2.25	2.48	3.9
Li_2O	35.11	35.06	34.97	35.09	34.80	35.61	0.9
MgO	0.21	0.63	0.05	0.28	0.12	-0.03	126.4
Na_2O	15.23	15.29	15.17	15.29	15.13	15.25	0.5
NiO	0.28	1.56	0.77	2.03	0.94	-4.73	968
SiO_2	0.17	0.12	0.15	0.15	0.19	0.25	30.8
SrO	2.23	2.30	2.06	1.92	2.41	2.46	10.4
ZnO	6.46	6.85	6.49	6.47	6.27	6.10	4.3
ZrO_2	1.09	0.91	1.20	1.32	0.83	1.22	19.5
Others	2.63	2.58	2.71	2.61	2.68	2.60	2.1
Na_2OxLi_2O	-100.23	-100.36	-98.94	-102.42	-96.98	-102.03	-2.2
R^2	0.8802	0.8806	0.8830	0.8772	0.8795	0.8854	
R^2_A	0.8774	0.8771	0.8796	0.8736	0.8760	0.8821	
R^2_P	0.8735	0.8726	0.8743	0.8684	0.8709	0.8776	
RMSE	0.1668	0.1662	0.1653	0.1695	0.1679	0.1640	
Mean	3.4745	3.4771	3.4755	3.4745	3.4733	3.4720	
n	575	460	460	460	460	460	
R^2_V	0.8708	0.8751	0.8674	0.8874	0.8784	0.8455	

3.2.5 ε at 1200°C

Model Development

The data set included 565 glasses with $\ln[\varepsilon_{1200}]$ for model development. Preliminary model development was performed using stepwise regression methods allowing only first-order terms. Those components with sufficient data to allow for coefficient estimates were included in the stepwise process.[(a)]

Al_2O_3, B_2O_3, Bi_2O_3, CaO, F, Fe_2O_3, K_2O, La_2O_3, Li_2O, MgO, MnO, Na_2O, Nd_2O_3, NiO, P_2O_5, PbO, SiO_2, SrO, ThO_2, UO_3, ZnO, and ZrO_2

Stepwise regression comparing the coefficient to the value of zero while maintaining the intercept near the average response of 3.64 ln[S/m] was used to reduce the influential components to:

Al_2O_3, B_2O_3, CaO, Fe_2O_3, Li_2O, MgO, Na_2O, NiO, SiO_2, SrO, ZnO, and ZrO_2

Attempts were made to improve the fit of the model data by adding a limited number (up to 5) second-order terms. The term found to most significantly improve the fit to model data was $Na_2O \times Li_2O$. The final set of terms was exactly the same as other EC models.

Seven glasses were found to be outliers in both first-order and first-order plus $Na_2O \times Li_2O$ models: CVS1-10, CVS2-81, LAWM30, HLW07-28, HLW07-40, C4D-04, and C4D-15.[(b)] These data points were removed from the model fitting dataset, leaving 558 datapoints. A scatterplot matrix of these data is given in Appendix B.

Table 3.33 lists the coefficients and the standard errors of the coefficients for the final $\ln[\varepsilon_{1200}]$ model. This model was fit to the 527 glasses remaining after the glass screening described above. The statistics for the model fit are summarized in Table 3.34. The R^2 coefficient of ~0.88 suggests that the data are well represented by the model. The R^2-adjusted value suggests that there are not too many coefficients, or the data are not over-fit. The R^2-predicted of 0.87 being so close to the R^2 value suggests that there are not any very influential data points, and the model is likely to predict similarly for new data as it does for the model development data.

(a) A number of methods were used to determine if a component had sufficient variation to include in the model development. Chief among them are the visual examination of pairwise concentration plots in the form of a scatterplot matrix. The absolute maximum concentrations of the components along with the number of glasses containing the component over 10% of the maximum concentration were also considered.

(b) All seven outliers were found to be outliers at all temperatures for which they had existing data.

Table 3.33. ln[ε_{1200}] Model Coefficients

Term (*i*)	Coefficient ($b_{\varepsilon 1200,i}$)	Std Error
Al_2O_3	0.3312382	0.219805
B_2O_3	2.380146	0.181394
CaO	1.7033775	0.281154
Fe_2O_3	2.5149398	0.195437
Li_2O	33.714638	0.921843
MgO	0.9980765	0.44056
Na_2O	14.801322	0.237223
NiO	-1.239448	2.278039
SiO_2	0.534619	0.092159
SrO	2.7731117	0.342327
ZnO	6.5598526	0.505838
ZrO_2	1.4700505	0.261058
Others	2.8441506	0.198924
$Na_2O \times Li_2O$	-91.29459	6.898661

Table 3.34. Summary of ln[ε_{1200}] Model Fit Statistics

Statistic	Value
R^2	0.8770
R_A^2	0.8740
R_P^2	0.8704
RMSE	0.1600
Minimum	2.13
Mean	3.65
Maximum	4.73
n	558
N	14

Figure 3.8 compares the predicted and measured ln[ε_{1200}] values. The data appear to be well represented by the model with no trends to over or under prediction. No single group of data (e.g., study) was found to be misrepresented by the model.

This model is based on data spanning a specific glass composition region and therefore should only be relied upon within that region. The validity region, defined as the composition region of data used to develop the model, is listed in Table 3.35.

Table 3.36 lists the correlation coefficients calculated for the model data. Only Na_2O-Li_2O and NiO-ZnO have a correlation of 0.5 or above.

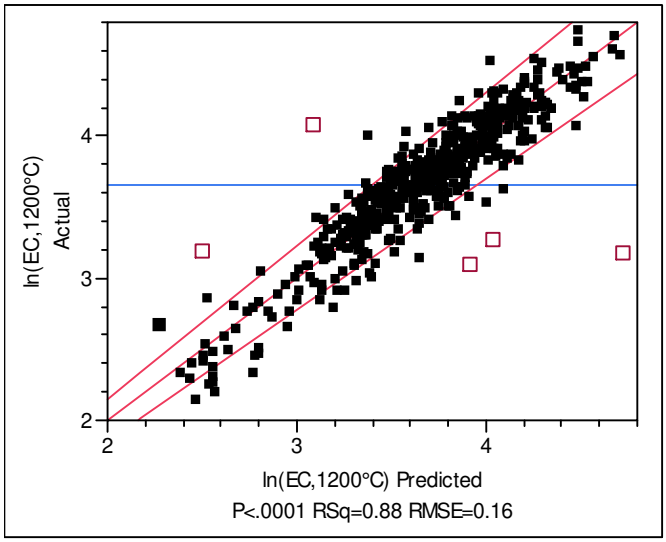


Figure 3.8. Measured vs. Predicted $\ln[\varepsilon_{1200}]$

Table 3.35. $\ln[\varepsilon_{1200}]$ Model Validity Region (wt%)

Component	Min	Max
Al_2O_3	0.0	25.9
B_2O_3	0.0	20.0
Bi_2O_3	0.0	16.4
CaO	0.0	13.9
Fe_2O_3	0.0	15.0
K_2O	0.0	5.4
Li_2O	0.0	7.9
MgO	0.0	9.6
MnO	0.0	8.0
Na_2O	2.5	23.0
Nd_2O_3	0.0	8.6
NiO	0.0	2.0
P_2O_5	0.0	9.0
PbO	0.0	5.2
SiO_2	26.0	60.1
SrO	0.0	10.3
ThO_2	0.0	6.0
UO_3	0.0	6.5
ZnO	0.0	5.8
ZrO_2	0.0	16.0
Remaining	0.3	6.1

The $\mathbf{V}_{\ln[\varepsilon 1200]}$ is given in Appendix C with the other variance-covariance matrices.

Model Validation

Table 3.37 summarizes the results of the model validation. The coefficients are reasonably close with an RSD of less than 25% with the exception of Al_2O_3, which is all very near zero, and NiO that has a high standard error.

Table 3.36. Correlation Matrix for the ln[ε_{1200}] Model Dataset

Corr	Al_2O_3	B_2O_3	CaO	Fe_2O_3	Li_2O	MgO	Na_2O	NiO	SiO_2	SrO	ZnO	ZrO_2	Others
Al_2O_3	**1.000**												
B_2O_3	0.125	**1.000**											
CaO	0.082	0.098	**1.000**										
Fe_2O_3	-0.275	-0.184	-0.372	**1.000**									
Li_2O	0.029	-0.031	-0.031	-0.041	**1.000**								
MgO	-0.033	0.117	0.283	-0.265	-0.050	**1.000**							
Na_2O	0.029	-0.135	-0.198	-0.019	**-0.600**	-0.075	**1.000**						
NiO	-0.165	-0.385	-0.366	0.219	0.171	-0.243	-0.057	**1.000**					
SiO_2	-0.293	-0.124	0.068	-0.148	0.295	0.161	-0.291	0.069	**1.000**				
SrO	-0.011	-0.137	-0.309	0.216	0.015	-0.266	-0.175	0.122	-0.396	**1.000**			
ZnO	-0.013	0.118	0.428	-0.167	-0.224	0.154	-0.001	**-0.521**	-0.134	-0.137	**1.000**		
ZrO_2	-0.320	-0.162	-0.157	-0.106	0.034	-0.156	-0.014	0.146	-0.211	0.098	-0.077	**1.000**	
Others	-0.131	-0.467	-0.348	0.099	-0.066	-0.327	-0.055	0.473	-0.333	0.391	-0.243	0.236	**1.000**

The model fit R^2 and R_P^2 values are all close to each other at 0.87. The R_V^2 are quite scattered (between 0.835 and 0.90) with set 3 being notably low. This model is well validated and should give predictions of unknown data within the model validity region nearly as well as model fit data.

Table 3.37. Summary of ln[ε_{1200}] Model Validation

Term	All Data	Set 1	Set 2	Set 3	Set 4	Set 5	%RSD
Al_2O_3	0.33	0.40	0.52	0.31	0.22	0.23	37.9
B_2O_3	2.38	2.32	2.29	2.41	2.44	2.43	2.9
CaO	1.70	1.54	2.06	1.52	1.79	1.60	13.3
Fe_2O_3	2.51	2.55	2.65	2.47	2.39	2.52	3.9
Li_2O	33.71	33.82	33.00	33.88	33.52	34.26	1.4
MgO	1.00	1.37	0.73	1.08	0.97	0.83	24.8
Na_2O	14.80	14.81	14.62	14.87	14.75	14.91	0.8
NiO	-1.24	-0.74	-1.68	-1.84	-1.02	-1.29	-36.6
SiO_2	0.53	0.53	0.56	0.52	0.56	0.53	3.7
SrO	2.77	2.74	2.86	2.79	2.80	2.65	2.9
ZnO	6.56	6.64	6.42	6.52	6.47	6.73	2.0
ZrO_2	1.47	1.59	1.91	1.37	1.33	1.15	19.8
Others	2.84	2.89	2.65	2.91	2.85	2.91	3.9
$Na_2O \times Li_2O$	-91.29	-93.64	-86.49	-92.16	-86.55	-97.20	-5.1
R^2	0.8770	0.8726	0.8782	0.8874	0.8714	0.8789	
R^2_A	0.8740	0.8688	0.8745	0.8840	0.8675	0.8753	
R^2_P	0.8704	0.8642	0.8701	0.8794	0.8626	0.8708	
RMSE	0.1600	0.1625	0.1592	0.1532	0.1649	0.1602	
Mean	3.6511	3.6526	3.6514	3.6501	3.6514	3.6502	
N	558	446	446	446	447	447	
R^2_V	0.8708	0.8909	0.8654	0.8352	0.8976	0.8646	

3.2.6 Electrical Conductivity as a Function of Temperature

The preceding subsections discussed the prediction of $\ln[\varepsilon_T, S/m]$ where T is given as 1000, 1100, 1150, and 1200°C. The models are summarized in Table 3.38. The models are similar in many respects. The fit and validation statistics are similar, and the coefficients are similar as shown in Figure 3.9.

Table 3.38. $\ln[\varepsilon_T]$ Model Coefficient Summary

Term	$\ln[\varepsilon_{1000}]$	$\ln[\varepsilon_{1100}]$	$\ln[\varepsilon_{1150}]$	$\ln[\varepsilon_{1200}]$
Al_2O_3	-0.23	0.34	0.08	0.33
B_2O_3	0.82	2.21	1.73	2.38
CaO	-0.81	1.14	0.48	1.70
Fe_2O_3	1.78	2.42	2.32	2.51
Li_2O	37.35	35.11	35.62	33.71
MgO	-1.15	0.21	0.12	1.00
Na_2O	16.05	15.23	15.44	14.80
NiO	-4.79	0.28	-3.35	-1.24
SiO_2	-0.65	0.17	-0.07	0.53
SrO	0.56	2.23	1.86	2.77
ZnO	4.78	6.46	6.07	6.56
ZrO_2	0.30	1.09	0.92	1.47
Others	1.96	2.63	2.45	2.84
$Na_2O \times Li_2O$	-112	-100	-101	-91
R^2	0.896	0.880	0.886	0.877
R^2_A	0.894	0.877	0.883	0.874
R^2_P	0.890	0.873	0.879	0.870
RMSE	0.173	0.167	0.167	0.160
Mean	2.85	3.47	3.30	3.65
N	527	575	542	558
R^2_V	0.892	0.871	0.879	0.871

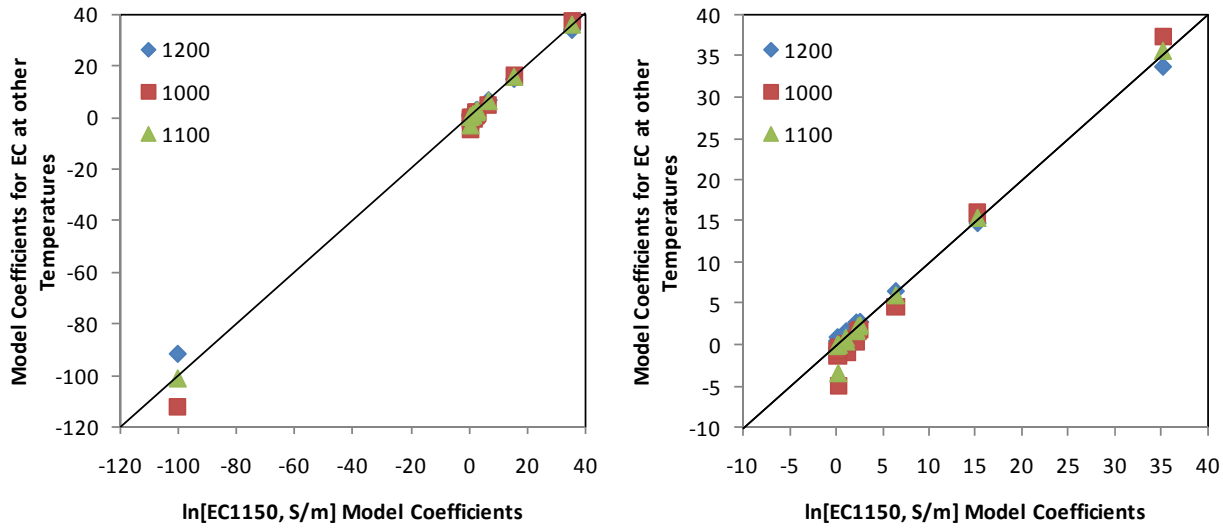


Figure 3.9. $\ln[\varepsilon_T]$ Model Coefficient Comparison

To estimate the electrical conductivity at any temperature between 1000 and 1200°C, the ln[ε] is predicted at three temperatures (1000, 1100, and 1200°C). The ln[ε] is interpolated in much the same manner as ln[η] described in Section 3.1.4:

$$\ln[\varepsilon_T, \text{Pa-s}] = A + \frac{B}{T - T_0} \tag{3.9}$$

replacing for the predicted properties

$$\ln[\varepsilon_{1000}] = A + \frac{B}{1000 - T_0}; \ln[\varepsilon_{1100}] = A + \frac{B}{1100 - T_0}; \ln[\varepsilon_{1200}] = A + \frac{B}{1200 - T_0} \tag{3.10}$$

and solving for A, B, and T_0; we get

$$A = \frac{2 \cdot \ln[\varepsilon_{1000}] \cdot \ln[\varepsilon_{1200}] - \ln[\varepsilon_{1100}]\left(\ln[\varepsilon_{1000}] + \ln[\varepsilon_{1200}]\right)}{-2 \cdot \ln[\varepsilon_{1100}] + \ln[\varepsilon_{1000}] + \ln[\varepsilon_{1200}]} \tag{3.11}$$

$$B = \frac{-200 \cdot \left(\ln[\varepsilon_{1100}] - \ln[\varepsilon_{1000}]\right) \cdot \left(\ln[\varepsilon_{1100}] - \ln[\varepsilon_{1200}]\right) \cdot \left(\ln[\varepsilon_{1000}] - \ln[\varepsilon_{1200}]\right)}{\left(-2 \cdot \ln[\varepsilon_{1100}] + \ln[\varepsilon_{1000}] + \ln[\varepsilon_{1200}]\right)^2} \text{ and} \tag{3.12}$$

$$T_0 = \frac{-200\left(11 \cdot \ln[\varepsilon_{1100}] - 5 \cdot \ln[\varepsilon_{1000}] - 6 \cdot \ln[\varepsilon_{1200}]\right)}{-2 \cdot \ln[\varepsilon_{1100}] + \ln[\varepsilon_{1000}] + \ln[\varepsilon_{1200}]} \tag{3.13}$$

These values for *A*, *B*, and T_0 are then substituted into Equation (3.9) to obtain viscosity at any temperature between 1000 and 1200°C.

3.3 Product Consistency Test

3.3.1 PCT Data Screening and Evaluation

Of the initial 3406 glasses in the database (Appendix A), 1938 contained PCT responses on quenched glass. These data were screened for use in ln[PCT] model development in the order listed in Table 3.39. After this data screening, 1127 glasses were available for model development. Different releases have a different number of glasses remaining in this set:

PCT-B dataset contains 1119 glasses
PCT-Na dataset contains 1127 glasses
PCT-Li dataset contains 770 glasses.

Table 3.39. Summary of Data Screening for ln[PCT] Model Development

#	Process	Glasses
1	Start with all glasses containing quenched glass PCT data	1938
2	Removed 147 inhomogeneous (multiphasic) glasses	1791
3	Removed 110 glasses with incomplete compositions	1681
4	Removed 5 glasses with substantial differences between target and measured compositions	1676
5	Removed 55 glasses with incongruence between PCT-B, -Na, and –Li > 4×	1621
6	Removed 10 glasses with PCT-B > 30 g/m^2	1611
7	Removed 262 glasses with extreme compositions	1349
8	Removed 11 glasses reported by Matlack et al. (1997a,b) due to systematic offset	1338
9	Removed 15 “BNFL HLW” glasses due to systematic offset	1321
10	Removed 33 additional glasses with > 5 wt% differences between target and measured component concentration	1288
11	Removed 23 glasses because of highly reduced conditions	1263
12	Removed SBW1-38B because of excessive foaming	1262
13	Removed glasses reported by Bulkley and Vienna (1997) because of extreme composition	1223
14	Removed INEEL CVS Phase 2a glasses because of systematic offset	1207
15	Removed data from Johnston et al.[(a)] because of systematic offset	1152
16	Removed the 25 “PX” study glasses due to systematic offset	1127

3.3.2 PCT-Boron

Model Development

Initial ln[PCT_B, g/m^2] models were fit with the 1119 data using stepwise regression methods allowing only first-order terms. Those components with sufficient data to allow for coefficient estimates were included in the stepwise process. Stepwise regression comparing the coefficient to the value of zero while maintaining the intercept near the average response of -0.76 ln[g/m^2] was used to reduce the influential components to:

Al_2O_3, B_2O_3, BaO, Bi_2O_3, CaO, CdO, F, Fe_2O_3, K_2O, La_2O_3, Li_2O, MgO, MnO, Na_2O, Nd_2O_3, P_2O_5, SiO_2, SO_3, SrO, ThO_2, TiO_2, UO_3, ZnO, and ZrO_2

Further narrowing removed the coefficients for Bi_2O_3 and La_2O_3 as insignificant, while removing 19 glasses found to be outliers left 1100 data points for model fitting.

Attempts were made to improve the fit of the model data by adding a limited number (up to 5) second- and third-order terms. The terms found to most significantly improve the fit to model data were:

Al_2O_3×Al_2O_3, ThO_2×Al_2O_3, MnO×MnO, and Al_2O_3×Al_2O_3×Al_2O_3

A scatterplot matrix of these data is given in Appendix B. The final model was then fit to the remaining 1100 datapoints with coefficients $b_{ln[PCTB],i}$, listed in Table 3.40. The statistics for the model fit are summarized in

(a) JW Johnston, GF Piepel, and BA Pulsipher. 1990. *Evaluation of Empirical Models for Glass Durability*. Letter Report Prepared for West Valley Nuclear Services, Pacific Northwest National Laboratory, Richland, WA.

Table 3.41. The R^2 coefficient of 0.81 suggests that the data are well represented by the model. The R^2-adjusted value (0.80) suggests that there are not too many coefficients, or the data are not over-fit. The R^2-predicted being so close to the R^2 value (0.79) suggests that there are not any very influential data points, and the model is likely to predict similarly for new data as it does for the model development data.

Table 3.40. ln[PCT_B, g/m^2] Model Coefficients

Term	Coefficient	Std Error
Al_2O_3	-88.27106	4.449629
B_2O_3	13.015106	0.404034
BaO	5.6578777	2.777042
CaO	-3.389582	0.737565
CdO	12.664775	4.860392
F	28.721522	5.02168
Fe_2O_3	-1.970029	0.406756
K_2O	10.911932	0.919621
Li_2O	26.084546	0.910804
MgO	10.329709	1.321522
MnO	-11.942	2.927281
Na_2O	15.666007	0.380501
Nd_2O_3	-6.943853	2.309245
P_2O_5	-3.934373	1.820589
SiO_2	-3.273545	0.186615
SO_3	26.096922	6.217899
SrO	-1.698829	0.965119
ThO_2	-14.21879	2.322881
TiO_2	-11.0803	1.970779
UO_3	2.5059609	1.659739
ZnO	0.5480525	1.272039
ZrO_2	-6.449192	0.623514
Others	-0.419909	1.626648
$Al_2O_3 \times Al_2O_3$	705.34448	52.89769
$Al_2O_3 \times ThO_2$	193.75149	31.02577
MnO×MnO	286.06257	54.14021
$Al_2O_3 \times Al_2O_3 \times Al_2O_3$	-1974.555	184.0609

Table 3.41. Summary of ln[PCT_B] Model Statistics

Statistic	Value
R^2	0.801
R^2_A	0.796
R^2_P	0.789
RMSE	0.411
Min	-2.954
Mean	-0.788
Max	2.923
n	1100
N	27

Figure 3.10 compares the predicted and measured ln[PCT_B] values. The data appear to be well represented by the model with no trends to over or under prediction. No single group of data (e.g., study) was found to be misrepresented by the model.

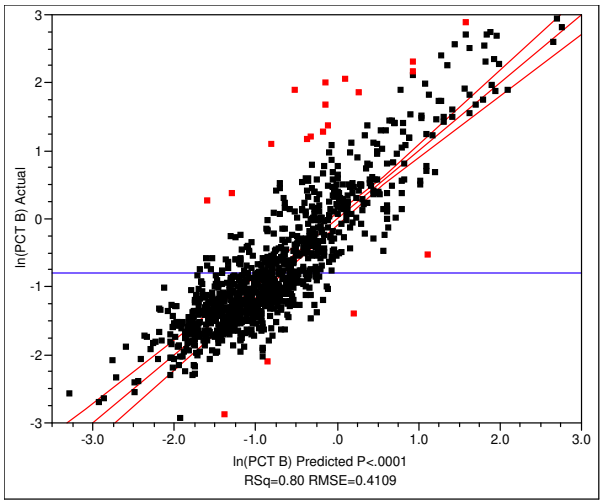


Figure 3.10. Measured vs. Predicted ln[PCT_B]

This model is based on data spanning a specific glass composition region and therefore should only be relied upon within that region. The validity region is defined as the composition region of data used to develop the model.

Table 3.42 lists the model validity region while Table 3.43 lists the correlation coefficients calculated for the model data. Only Li_2O-Na_2O, CaO-SO_3, Nd_2O_3-Others, and ThO_2-UO_3 have a correlation of 0.5 or above.

Table 3.42. ln[PCT_B] Model Validity Region (wt%)

Comp	Min	Max
Al_2O_3	1.6	20.0
B_2O_3	4.0	20.0
BaO	0.0	4.7
CaO	0.0	10.4
CdO	0.0	1.5
F	0.0	2.5
Fe_2O_3	0.0	17.4
K_2O	0.0	6.9
Li_2O	0.0	9.0
MgO	0.0	8.0
MnO	0.0	7.0
Na_2O	4.1	23.0
Nd_2O_3	0.0	5.9
P_2O_5	0.0	5.0
SiO_2	30.3	62.8
SO_3	0.0	2.5
SrO	0.0	10.1
ThO_2	0.0	6.0
TiO_2	0.0	4.0
UO_3	0.0	6.5
ZnO	0.0	5.8
ZrO_2	0.0	13.5
Remaining	0.0	9.4

Table 3.43. Correlation Matrix for the ln[PCT_B] Model Dataset

	Al_2O_3	B_2O_3	BaO	CaO	CdO	F	Fe_2O_3	K_2O	Li_2O	MgO	MnO	Na_2O	Nd_2O_3	P_2O_5	SiO_2	SO_3	SrO	ThO_2	TiO_2	UO_3	ZnO	ZrO_2	Others
Al_2O_3	**1.000**	0.055	0.094	0.010	-0.114	0.158	-0.246	-0.013	-0.111	-0.145	-0.055	0.179	-0.131	0.107	-0.248	0.026	-0.046	-0.075	-0.075	-0.089	-0.207	-0.300	-0.109
B_2O_3	0.055	**1.000**	0.027	-0.058	-0.111	-0.133	-0.002	0.072	0.061	0.011	-0.114	-0.271	0.038	0.059	-0.231	0.077	-0.154	0.039	0.032	-0.166	-0.025	-0.080	-0.116
BaO	0.094	0.027	**1.000**	-0.085	0.074	0.145	-0.016	0.243	0.040	-0.171	-0.022	0.002	0.081	0.160	-0.058	0.089	-0.052	-0.026	-0.105	-0.034	-0.193	-0.125	-0.013
CaO	0.010	-0.058	-0.085	**1.000**	-0.168	0.232	-0.399	-0.094	0.003	0.274	-0.379	-0.108	-0.031	-0.112	0.077	**0.542**	-0.182	-0.274	0.136	-0.227	0.448	0.053	-0.231
CdO	-0.114	-0.111	0.074	-0.168	**1.000**	0.073	0.090	-0.260	0.158	-0.123	0.159	-0.077	0.154	-0.099	-0.009	-0.068	0.356	-0.091	-0.324	0.132	-0.127	0.098	0.385
F	0.158	-0.133	0.145	0.232	0.073	**1.000**	-0.328	0.068	0.008	-0.131	-0.175	0.081	0.005	0.124	-0.033	0.106	0.046	-0.151	-0.215	-0.047	-0.146	0.184	0.247
Fe_2O_3	-0.246	-0.002	-0.016	-0.399	0.090	-0.328	**1.000**	0.203	0.087	-0.062	0.397	-0.277	-0.193	0.094	-0.275	-0.247	0.105	0.282	-0.105	0.155	-0.188	-0.284	0.047
K_2O	-0.013	0.072	0.243	-0.094	-0.260	0.068	0.203	**1.000**	-0.061	-0.033	-0.048	-0.083	-0.181	0.266	-0.183	0.004	-0.193	0.220	0.132	-0.070	-0.202	-0.205	-0.201
Li_2O	-0.111	0.061	0.040	0.003	0.158	0.008	0.087	-0.061	**1.000**	-0.054	0.144	**-0.634**	0.191	-0.062	0.128	-0.047	0.007	0.006	-0.340	-0.041	-0.218	0.119	0.195
MgO	-0.145	0.011	-0.171	0.274	-0.123	-0.131	-0.062	-0.033	-0.054	**1.000**	-0.254	-0.072	-0.059	-0.096	0.098	0.288	-0.237	-0.138	0.294	-0.193	0.327	-0.099	-0.236
MnO	-0.055	-0.114	-0.022	-0.379	0.159	-0.175	0.397	-0.048	0.144	-0.254	**1.000**	-0.199	-0.112	-0.057	-0.198	-0.320	0.392	0.174	-0.246	0.271	-0.186	-0.056	0.232
Na_2O	0.179	-0.271	0.002	-0.108	-0.077	0.081	-0.277	-0.083	**-0.634**	-0.072	-0.199	**1.000**	-0.105	-0.095	-0.101	-0.125	-0.104	-0.231	0.191	-0.081	0.069	0.006	-0.139
Nd_2O_3	-0.131	0.038	0.081	-0.031	0.154	0.005	-0.193	-0.181	0.191	-0.059	-0.112	-0.105	**1.000**	-0.033	0.097	-0.105	-0.040	-0.081	0.195	-0.057	-0.093	0.020	**0.526**
P_2O_5	0.107	0.059	0.160	-0.112	-0.099	0.124	0.094	0.266	-0.062	-0.096	-0.057	-0.095	-0.033	**1.000**	-0.227	0.097	-0.054	0.338	-0.033	0.067	-0.220	-0.063	0.045
SiO_2	-0.248	-0.231	-0.058	0.077	-0.009	-0.033	-0.275	-0.183	0.128	0.098	-0.198	-0.101	0.097	-0.227	**1.000**	-0.003	-0.319	-0.354	-0.080	-0.330	-0.112	-0.157	-0.176
SO_3	0.026	0.077	0.089	**0.542**	-0.068	0.106	-0.247	0.004	-0.047	0.288	-0.320	-0.125	-0.105	0.097	-0.003	**1.000**	-0.156	-0.106	0.103	-0.149	0.392	-0.012	-0.234
SrO	-0.046	-0.154	-0.052	-0.182	0.356	0.046	0.105	-0.193	0.007	-0.237	0.392	-0.104	-0.040	-0.054	-0.319	-0.156	**1.000**	0.140	-0.216	0.395	-0.010	0.192	0.345
ThO_2	-0.075	0.039	-0.026	-0.274	-0.091	-0.151	0.282	0.220	0.006	-0.138	0.174	-0.231	-0.081	0.338	-0.354	-0.106	0.140	**1.000**	-0.066	**0.519**	-0.177	0.064	0.074
TiO_2	-0.075	0.032	-0.105	0.136	-0.324	-0.215	-0.105	0.132	-0.340	0.294	-0.246	0.191	0.195	-0.033	-0.080	0.103	-0.216	-0.066	**1.000**	-0.167	0.388	-0.144	-0.126
UO_3	-0.089	-0.166	-0.034	-0.227	0.132	-0.047	0.155	-0.070	-0.041	-0.193	0.271	-0.081	-0.057	0.067	-0.330	-0.149	0.395	**0.519**	-0.167	**1.000**	-0.050	0.203	0.256
ZnO	-0.207	-0.025	-0.193	0.448	-0.127	-0.146	-0.188	-0.202	-0.218	0.327	-0.186	0.069	-0.093	-0.220	-0.112	0.392	-0.010	-0.177	0.388	-0.050	**1.000**	0.185	-0.231
ZrO_2	-0.300	-0.080	-0.125	0.053	0.098	0.184	-0.284	-0.205	0.119	-0.099	-0.056	0.006	0.020	-0.063	-0.157	-0.012	0.192	0.064	-0.144	0.203	0.185	**1.000**	0.144
Others	-0.109	-0.116	-0.013	-0.231	0.385	0.247	0.047	-0.201	0.195	-0.236	0.232	-0.139	**0.526**	0.045	-0.176	-0.234	0.345	0.074	-0.126	0.256	-0.231	0.144	**1.000**

A variance-covariance matrix is required to calculate the measurement plus prediction uncertainties of this model. This matrix is defined as:

$$\mathbf{V}_{\alpha} = RMSE^2 \left[\mathbf{X}_{\alpha}^{\mathbf{T}} \mathbf{X}_{\alpha} \right]^{-1} \tag{3.14}$$

The use of $\mathbf{V}_{\alpha}$ is explained in detail elsewhere (e.g., Cornell 2002, Hrma et al. 1994, Piepel et al. 2008a, Vienna and Kim 2008). The $\mathbf{V}_{\ln[PCTB]}$ is given in Appendix C with the other variance-covariance matrices.

Model Validation

To validate the model, data not used in model fitting must be obtained. Because all appropriate data within the desired composition region were used in model fitting, subsets of the model data were used to validate the model. The data were sorted by $\ln[PCT_B]$ value. The data were then numbered 1, 2, 3, 4, 5, 1, 2, … to split them into five roughly representative groups. The model was then refit to subsets 2 to 5 and used to predict data in subset 1. Then the model was fit to each group of four subsets and used to predict the remaining subset in sequence. Table 3.44 summarizes the results of the model validation. The coefficients are reasonably close with an RSD of less than 25% with the exceptions of:

- CdO, which has a low value for set 4
- P_2O_5, which has a low value for set 1 and a high value for set 3
- SrO
- UO_3, which has a low value for set 3 and a high value for set 1
- ZnO with values near zero
- Others with values near zero.

The model fit R^2 values are all close to each other at 0.80. The R_V^2 are also close to the 0.785, and their average (0.788) is close to the R_P^2 value of 0.789. This model is well validated and should give predictions of unknown data within the model validity region nearly as well as model fit data.

Table 3.44. Summary of ln[PCT_B] Model Validation

Term	Full	Set 1	Set 2	Set 3	Set 4	Set 5	%RSD
Al_2O_3	-88.27	-91.27	-86.33	-88.10	-89.28	-87.84	-2
B_2O_3	13.02	13.09	13.31	12.80	13.04	12.95	1
BaO	5.66	6.11	4.96	5.32	5.11	7.26	17
CaO	-3.39	-3.15	-3.35	-3.39	-3.44	-3.49	-4
CdO	12.66	13.78	13.14	16.24	5.67	14.75	32
F	28.72	25.61	29.09	29.35	28.97	30.68	7
Fe_2O_3	-1.97	-2.10	-2.26	-1.89	-1.79	-1.77	-11
K_2O	10.91	10.94	11.28	10.33	10.79	11.00	3
Li_2O	26.08	25.90	25.67	26.75	26.06	25.95	2
MgO	10.33	10.23	10.21	10.04	9.54	12.42	11
MnO	-11.94	-12.21	-11.40	-11.30	-11.79	-13.67	-8
Na_2O	15.67	15.53	15.62	15.83	15.90	15.42	1
Nd_2O_3	-6.94	-7.38	-7.97	-7.54	-6.07	-5.77	-14
P_2O_5	-3.93	-5.64	-3.59	-2.45	-3.85	-4.36	-30
SiO_2	-3.27	-3.09	-3.34	-3.35	-3.19	-3.34	-4
SO_3	26.10	27.57	21.53	27.79	27.71	24.33	11
SrO	-1.70	-2.02	-2.54	-1.50	-1.14	-1.35	-33
ThO_2	-14.22	-13.59	-13.38	-12.70	-18.06	-12.74	-16
TiO_2	-11.08	-10.89	-11.20	-9.86	-11.34	-12.19	-8
UO_3	2.51	5.39	2.16	-0.26	3.52	2.21	83
ZnO	0.55	-0.36	0.62	1.46	0.29	0.46	120
ZrO_2	-6.45	-6.98	-6.27	-6.56	-6.29	-6.26	-5
Others	-0.42	0.09	0.08	-0.56	-1.18	-0.49	-126
$Al_2O_3 \times Al_2O_3$	705.3	758.2	681.6	691.4	706.8	709.1	4
$Al_2O_3 \times ThO_2$	193.8	180.9	177.5	195.9	235.1	173.0	13
MnO×MnO	286.1	285.5	278.7	283.3	282.6	313.4	5
$Al_2O_3 \times Al_2O_3 \times Al_2O_3$	-1974.6	-2217.4	-1889.5	-1896.0	-1963.1	-1989.7	-7
R^2	0.8007	0.7984	0.8041	0.8026	0.8031	0.8024	
R^2_A	0.7959	0.7922	0.7982	0.7965	0.7971	0.7963	
R^2_P	0.7889	0.7834	0.7894	0.7879	0.7883	0.7874	
RMSE	0.4109	0.4153	0.4092	0.4106	0.4094	0.4092	
R^2_V	0.7879	0.7977	0.7829	0.7850	0.7856	0.7881	

3.3.3 PCT - Sodium

Model Development

Initial ln[PCT_{Na}, g/m^2] models were fit with the 1127 data using stepwise regression methods allowing only first-order terms. Those components with sufficient data to allow for coefficient estimates were included in the stepwise process. Stepwise regression comparing the coefficient to the value of zero while maintaining the intercept near the average response of -0.818 ln[g/m^2] was used to reduce the influential components to:

Al_2O_3, B_2O_3, BaO, Bi_2O_3, CaO, CdO, F, Fe_2O_3, K_2O, La_2O_3, Li_2O, MgO, MnO, Na_2O, Nd_2O_3, P_2O_5, SiO_2, SO_3, SrO, ThO_2, TiO_2, UO_3, ZnO, and ZrO_2

Further narrowing removed the coefficients for BaO, Bi_2O_3, CdO, and La_2O_3 as insignificant, while removing 23 glasses found to be outliers left 1104 data points for model fitting.

Attempts were made to improve the fit of the model data by adding a limited number (up to 5) second- and third-order terms. The terms found to most significantly improve the fit to model data were:

$Al_2O_3 \times Al_2O_3$, $B_2O_3 \times B_2O_3$, $ThO_2 \times Al_2O_3$, and $Al_2O_3 \times Al_2O_3 \times Al_2O_3$

A scatterplot matrix of these data is given in Appendix B. The final model was then fit to the remaining 1104 datapoints with coefficients $b_{ln[PCTNa],i}$, listed in Table 3.45. The statistics for the model fit are summarized in Table 3.46. The R^2 coefficient of 0.81 suggests that the data are well represented by the model. The R^2-adjusted value (0.806) suggests that there are not too many coefficients, or the data are not over-fit. The R^2-predicted being so close to the R^2 value (0.8) suggests that there are not any very influential data points, and the model is likely to predict similarly for new data as it does for the model development data.

Table 3.45. ln[PCT_{Na}, g/m^2] Model Coefficients

Term	Estimate	Std Error
Al_2O_3	-69.768	3.734
B_2O_3	-13.224	1.781
CaO	2.60598	0.605
Fe_2O_3	-1.6767	0.344
K_2O	11.9701	0.74
Li_2O	22.5717	0.766
MgO	9.44187	1.064
MnO	1.43131	0.989
Na_2O	16.9404	0.315
Nd_2O_3	-2.8519	1.891
P_2O_5	-2.3946	1.482
SiO_2	-2.0965	0.18
SrO	2.04919	0.788
ThO_2	-13.455	1.934
TiO_2	-11.347	1.61
UO_3	1.49105	1.382
ZnO	-0.9934	1.083
ZrO_2	-5.2997	0.527
F	25.9327	4.127
SO_3	22.3441	5.087
Other	2.73564	1.109
$Al_2O_3 \times Al_2O_3$	557.465	44.34
$B_2O_3 \times B_2O_3$	96.3525	8.35
$Al_2O_3 \times ThO_2$	201.149	25.98
$Al_2O_3 \times Al_2O_3 \times Al_2O_3$	-1590.6	154.3

Table 3.46. Summary of ln[PCT_{Na}] Model Statistics

Statistic	Value
R^2	0.8105
R^2_A	0.8062
R^2_P	0.7996
RMSE	0.3431
Min	-2.749
Mean	-0.8525
Max	2.551
n	1104
N	25

Figure 3.11 compares the predicted and measured ln[PCT_{Na}] values. The data appears to be well represented by the model with no trends to over or under prediction. No single group of data (e.g., study) was found to be misrepresented by the model.

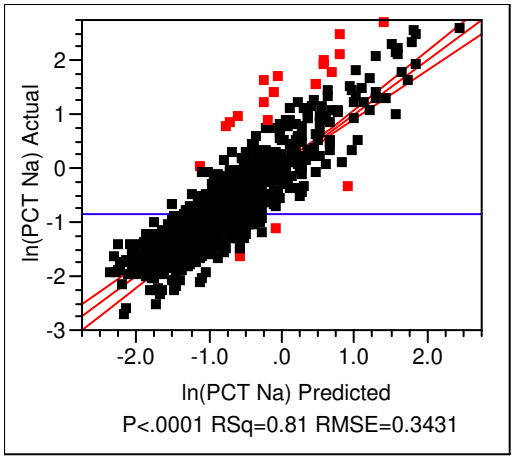


Figure 3.11. Measured vs. Predicted ln[PCT_{Na}]

This model is based on data spanning a specific glass composition region and therefore should only be relied upon within that region. The validity region is defined as the composition region of data used to develop the model.

Table 3.47 lists the model validity region while Table 3.48 lists the correlation coefficients calculated for the model data. Only Li_2O-Na_2O, CaO-SO_3, and ThO_2-UO_3 have a correlation of 0.5 or above.

A variance-covariance matrix is required to calculate the measurement plus prediction uncertainties of this model. The $\mathbf{V}_{ln[PCTNa]}$ is given in Appendix C with the other variance-covariance matrices.

Table 3.47. ln[PCT_{Na}] Model Validity Region (wt%)

Comp	Min	Max
Al_2O_3	1.6	20.0
B_2O_3	4.0	20.0
CaO	0.0	10.4
F	0.0	2.5
Fe_2O_3	0.0	17.4
K_2O	0.0	6.9
Li_2O	0.0	9.0
MgO	0.0	8.0
MnO	0.0	7.0
Na_2O	4.1	23.0
Nd_2O_3	0.0	5.9
P_2O_5	0.0	5.0
SiO_2	30.3	62.8
SO_3	0.0	2.5
SrO	0.0	10.1
ThO_2	0.0	6.0
TiO_2	0.0	4.0
UO_3	0.0	6.5
ZnO	0.0	5.8
ZrO_2	0.0	13.5
Other	0.0	9.4

Table 3.48. Correlation Matrix for the ln[PCT_{Na}] Model Dataset

Comp	Al_2O_3	B_2O_3	CaO	Fe_2O_3	K_2O	Li_2O	MgO	MnO	Na_2O	Nd_2O_3	P_2O_5	SiO_2	SrO	ThO_2	TiO_2	UO_3	ZnO	ZrO_2	F	SO_3	Other
Al_2O_3	**1.000**	0.061	0.011	-0.259	-0.024	-0.105	-0.145	-0.059	0.184	-0.127	0.086	-0.243	-0.046	-0.075	-0.075	-0.089	-0.202	-0.300	0.164	0.029	-0.081
B_2O_3	0.061	**1.000**	-0.049	0.009	0.070	0.065	0.000	-0.112	-0.279	0.039	0.054	-0.241	-0.151	0.044	0.036	-0.163	-0.022	-0.085	-0.137	0.078	-0.113
CaO	0.011	-0.049	**1.000**	-0.406	-0.101	0.009	0.256	-0.380	-0.107	-0.029	-0.120	0.072	-0.181	-0.273	0.144	-0.226	0.451	0.058	0.235	**0.542**	-0.256
Fe_2O_3	-0.259	0.009	-0.406	**1.000**	0.218	0.086	-0.067	0.396	-0.279	-0.196	0.108	-0.275	0.101	0.278	-0.104	0.151	-0.193	-0.274	-0.329	-0.252	0.057
K_2O	-0.024	0.070	-0.101	0.218	**1.000**	-0.056	-0.037	-0.047	-0.089	-0.180	0.277	-0.180	-0.195	0.218	0.130	-0.072	-0.213	-0.200	0.061	-0.002	-0.143
Li_2O	-0.105	0.065	0.009	0.086	-0.056	**1.000**	-0.058	0.147	**-0.634**	0.188	-0.060	0.121	0.008	0.008	-0.338	-0.040	-0.219	0.112	0.009	-0.046	0.213
MgO	-0.145	0.000	0.256	-0.067	-0.037	-0.058	**1.000**	-0.252	-0.063	-0.057	-0.089	0.109	-0.234	-0.139	0.279	-0.192	0.312	-0.099	-0.131	0.277	-0.281
MnO	-0.059	-0.112	-0.380	0.396	-0.047	0.147	-0.252	**1.000**	-0.199	-0.112	-0.057	-0.196	0.391	0.172	-0.247	0.270	-0.187	-0.053	-0.176	-0.321	0.222
Na_2O	0.184	-0.279	-0.107	-0.279	-0.089	**-0.634**	-0.063	-0.199	**1.000**	-0.102	-0.098	-0.097	-0.102	-0.230	0.186	-0.079	0.071	0.007	0.082	-0.122	-0.134
Nd_2O_3	-0.127	0.039	-0.029	-0.196	-0.180	0.188	-0.057	-0.112	-0.102	**1.000**	-0.036	0.095	-0.039	-0.080	0.197	-0.056	-0.089	0.018	0.005	-0.105	0.499
P_2O_5	0.086	0.054	-0.120	0.108	0.277	-0.060	-0.089	-0.057	-0.098	-0.036	**1.000**	-0.216	-0.060	0.324	-0.028	0.059	-0.232	-0.053	0.114	0.085	0.067
SiO_2	-0.243	-0.241	0.072	-0.275	-0.180	0.121	0.109	-0.196	-0.097	0.095	-0.216	**1.000**	-0.318	-0.353	-0.082	-0.329	-0.109	-0.165	-0.031	0.000	-0.170
SrO	-0.046	-0.151	-0.181	0.101	-0.195	0.008	-0.234	0.391	-0.102	-0.039	-0.060	-0.318	**1.000**	0.140	-0.217	0.395	-0.008	0.193	0.048	-0.155	0.349
ThO_2	-0.075	0.044	-0.273	0.278	0.218	0.008	-0.139	0.172	-0.230	-0.080	0.324	-0.353	0.140	**1.000**	-0.067	**0.519**	-0.175	0.063	-0.149	-0.105	0.033
TiO_2	-0.075	0.036	0.144	-0.104	0.130	-0.338	0.279	-0.247	0.186	0.197	-0.028	-0.082	-0.217	-0.067	**1.000**	-0.168	0.379	-0.138	-0.215	0.103	-0.208
UO_3	-0.089	-0.163	-0.226	0.151	-0.072	-0.040	-0.192	0.270	-0.079	-0.056	0.059	-0.329	0.395	**0.519**	-0.168	**1.000**	-0.049	0.203	-0.045	-0.148	0.232
ZnO	-0.202	-0.022	0.451	-0.193	-0.213	-0.219	0.312	-0.187	0.071	-0.089	-0.232	-0.109	-0.008	-0.175	0.379	-0.049	**1.000**	0.185	-0.144	0.395	-0.285
ZrO_2	-0.300	-0.085	0.058	-0.274	-0.200	0.112	-0.099	-0.053	0.007	0.018	-0.053	-0.165	0.193	0.063	-0.138	0.203	0.185	**1.000**	0.184	-0.012	0.103
F	0.164	-0.137	0.235	-0.329	0.061	0.009	-0.131	-0.176	0.082	0.005	0.114	-0.031	0.048	-0.149	-0.215	-0.045	-0.144	0.184	**1.000**	0.106	0.265
SO_3	0.029	0.078	**0.542**	-0.252	-0.002	-0.046	0.277	-0.321	-0.122	-0.105	0.085	0.000	-0.155	-0.105	0.103	-0.148	0.395	-0.012	0.106	**1.000**	-0.184
Other	-0.081	-0.113	-0.256	0.057	-0.143	0.213	-0.281	0.222	-0.134	0.499	0.067	-0.170	0.349	0.033	-0.208	0.232	-0.285	0.103	0.265	-0.184	**1.000**

Model Validation

To validate the model, data not used in model fitting must be obtained. Because all appropriate data within the desired composition region were used in model fitting, subsets of the model data were used to validate the model. The data were sorted by ln[PCT_{Na}] value. The data were then numbered 1, 2, 3, 4, 5, 1, 2, … to split them into five roughly representative groups. The model was then refit to subsets 2 to 5 and used to predict data in subset 1. Then the model was fit to each group of four subsets and used to predict the remaining subset in sequence. Table 3.49 summarizes the results of the model validation. The coefficients are reasonably close with an RSD of less than 25% with the exceptions of:

- MnO with low values for sets 4 and 5
- P_2O_5 with a high value for set 3
- UO_3 with a low value for set 1
- ZnO with low values for sets 2 and 4.

The model fit R^2 values are all close to each other at 0.81. The R_V^2 are also close with values near 0.79, and their average (0.795) is close to the R_P^2 value for the full model of 0.80. This model is well validated and should give predictions of unknown data within the model validity region nearly as well as model fit data.

Table 3.49. Summary of ln[PCT_{Na}] Model Validation

Term	Full	1st	2nd	3rd	4th	5th	%RSD
Al_2O_3	-69.77	-77.75	-67.71	-72.47	-66.90	-67.18	6.7
B_2O_3	-13.22	-12.25	-12.41	-12.88	-13.09	-15.46	9.8
CaO	2.61	3.35	2.69	2.58	2.78	1.74	22.2
F	25.93	23.72	27.88	24.83	24.32	28.69	8.7
Fe_2O_3	-1.68	-1.50	-1.97	-1.89	-1.43	-1.66	14.2
K_2O	11.97	12.47	11.82	12.34	11.44	11.94	3.5
Li_2O	22.57	21.98	22.93	22.79	21.96	23.31	2.7
MgO	9.44	9.10	8.98	10.22	9.22	10.10	6.2
MnO	1.43	1.72	1.84	2.30	0.38	0.89	54.2
Na_2O	16.94	16.93	16.97	16.95	16.89	17.03	0.3
Nd_2O_3	-2.85	-2.58	-2.95	-2.62	-2.79	-3.33	10.8
P_2O_5	-2.39	-2.77	-3.21	-0.76	-3.11	-2.03	42.4
SiO_2	-2.10	-1.96	-2.15	-2.03	-2.21	-2.07	4.8
SO_3	22.34	19.53	23.71	22.96	23.86	21.43	8.2
SrO	2.05	2.08	1.65	2.32	2.59	1.75	19.2
ThO_2	-13.46	-13.57	-11.37	-15.14	-13.43	-13.86	10.1
TiO_2	-11.35	-10.69	-12.22	-10.60	-11.60	-11.55	6.0
UO_3	1.49	0.05	1.58	2.15	2.14	1.75	58.1
ZnO	-0.99	-0.74	-1.33	-0.85	-1.65	-0.25	54.5
ZrO_2	-5.30	-4.84	-6.38	-4.90	-5.09	-5.28	11.9
Other	2.74	2.70	2.62	2.40	2.94	3.20	11.2
$Al_2O_3 \times Al_2O_3$	557.47	666.14	531.94	577.49	526.27	528.67	10.7
$B_2O_3 \times B_2O_3$	96.35	94.41	91.43	95.79	94.78	106.09	5.8
$Al_2O_3 \times ThO_2$	201.15	204.95	181.94	223.30	193.02	206.25	7.7
$Al_2O_3 \times Al_2O_3 \times Al_2O_3$	-1590.64	-2017.15	-1511.68	-1621.11	-1478.58	-1494.93	14.2
R^2	0.8105	0.8098	0.8119	0.8142	0.8108	0.8136	
R^2_A	0.8062	0.8045	0.8066	0.8090	0.8055	0.8084	
R^2_P	0.7996	0.7969	0.7984	0.8003	0.7973	0.8003	
RMSE	0.3431	0.3450	0.3426	0.3399	0.3428	0.3432	
R^2_V	0.7949	0.7943	0.7972	0.7892	0.8028	0.7908	

3.3.4 PCT - Lithium

Model Development

Initial ln[PCT_{Li}, g/m^2] models were fit with the 770 data using stepwise regression methods allowing only first-order terms. Those components with sufficient data to allow for coefficient estimates were included in the stepwise process. Stepwise regression comparing the coefficient to the value of zero while maintaining the intercept near the average response of -0.72 ln[g/m^2] was used to reduce the influential components to:

Al_2O_3, B_2O_3, BaO, Bi_2O_3, CaO, CdO, F, Fe_2O_3, K_2O, La_2O_3, Li_2O, MgO, MnO, Na_2O, Nd_2O_3, P_2O_5, SiO_2, SO_3, SrO, ThO_2, TiO_2, UO_3, ZnO, and ZrO_2

Further narrowing removed the coefficients for BaO, Bi_2O_3, CdO, La_2O_3, MnO, Nd_2O_3, P_2O_5, SrO, UO_3, and ZnO as insignificant, while removing 11 glasses found to be outliers left 759 data points for model fitting.

Attempts were made to improve the fit of the model data by adding a limited number (up to 5) second- and third-order terms. The terms found to most significantly improve the fit to model data were:

$Al_2O_3 \times Al_2O_3$, $B_2O_3 \times B_2O_3$, $B_2O_3 \times Na_2O$, $ThO_2 \times Al_2O_3$, and $Al_2O_3 \times Al_2O_3 \times Al_2O_3$

A scatterplot matrix of these data is given in Appendix B. The final model was then fit to the remaining 759 datapoints with coefficients $b_{ln[PCTLi],i}$, listed in Table 3.50. The statistics for the model fit are summarized in Table 3.51. The R^2 coefficient of 0.803 suggests that the data are well represented by the model. The R^2-adjusted value (0.798) suggests that there are not too many coefficients, or the data are not over-fit. The R^2-predicted being so close to the R^2 value (0.79) suggests that there are not any very influential data points, and the model is likely to predict similarly for new data as it does for the model development data.

Table 3.50. ln[PCT_{Li}, g/m^2] Model Coefficients

Term	Estimate	Std Error
Al_2O_3	-71.80358	4.065619
B_2O_3	-15.88115	2.518614
CaO	0.4612474	1.045549
F	29.676446	4.684815
Fe_2O_3	-0.588641	0.427145
K_2O	10.211474	0.931885
Li_2O	24.236504	0.983968
MgO	6.8614839	1.409214
Na_2O	5.8154351	0.961167
SiO_2	-0.63572	0.262725
SO_3	42.822925	8.399326
ThO_2	-14.11654	2.001598
TiO_2	-15.98701	2.544938
ZrO_2	-4.149619	0.613619
Others	2.1636268	0.416881
$Al_2O_3 \times Al_2O_3$	586.1739	49.16406
$Al_2O_3 \times Al_2O_3 \times Al_2O_3$	-1640.968	172.1203
$Al_2O_3 \times ThO_2$	236.62771	28.38881
$B_2O_3 \times B_2O_3$	88.683572	9.676586
$B_2O_3 \times Na_2O$	74.407878	10.18339

Table 3.51. Summary of ln[PCT_{Li}] Model Statistics

Statistic	Value
R^2	0.8034
R^2_A	0.7983
R^2_P	0.7895
RMSE	0.3565
Min	-2.534
Mean	-0.726
Max	2.521
n	759
N	20

Figure 3.12 compares the predicted and measured ln[PCT_{Li}] values. The data appear to be well represented by the model with no trends to over or under prediction. No single group of data (e.g., study) was found to be misrepresented by the model.

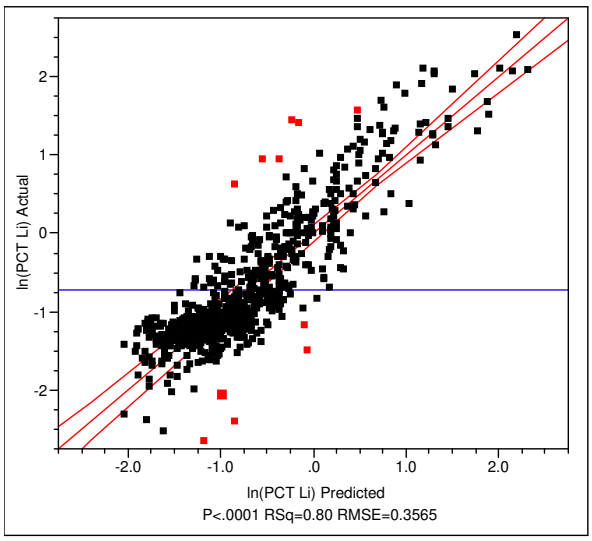


Figure 3.12. Measured vs. Predicted ln[PCT_{Li}]

This model is based on data spanning a specific glass composition region and therefore should only be relied upon within that region. The validity region is defined as the composition region of data used to develop the model. Note that due to the relatively large concentrations of "Others" in model glasses, additional components were broken out of "Others" in defining the model validity region (BaO, Bi_2O_3, MnO, P_2O_5, SrO, UO_3, and ZnO).

Table 3.52 lists the model validity region while Table 3.53 lists the correlation coefficients calculated for the model data. Only CaO-F have a correlation of 0.5 or above.

A variance-covariance matrix is required to calculate the measurement plus prediction uncertainties of this model. The $\mathbf{V}_{\ln[PCTLi]}$ is given in Appendix C with the other variance-covariance matrices.

Table 3.52. ln[PCT_{Li}] Model Validity Region (wt%)

Comp	Min	Max
Al_2O_3	1.6	20.0
B_2O_3	4.0	20.0
BaO	0.0	4.7
Bi_2O_3	0.0	3.2
CaO	0.0	10.0
F	0.0	2.5
Fe_2O_3	0.0	17.4
K2O	0.0	6.9
La_2O_3	0.0	3.5
Li_2O	0.1	9.0
MgO	0.0	8.0
MnO	0.0	7.0
Na_2O	4.1	21.4
Nd_2O_3	0.0	5.9
P_2O_5	0.0	4.3
SiO_2	30.3	60.4
SO_3	0.0	1.0
SrO	0.0	10.1
ThO_2	0.0	6.0
TiO_2	0.0	3.3
UO_3	0.0	6.3
ZnO	0.0	5.7
ZrO_2	0.0	13.5
Others	0.0	6.3

Table 3.53. Correlation Matrix for the ln[PCT_{Li}] Model Dataset

	Al_2O_3	B_2O_3	CaO	F	Fe_2O_3	K_2O	Li_2O	MgO	Na_2O	SiO_2	SO_3	ThO_2	TiO_2	ZrO_2	Others
Al_2O_3	1.000														
B_2O_3	0.089	1.000													
CaO	0.156	-0.088	1.000												
F	0.164	-0.124	0.550	1.000											
Fe_2O_3	-0.249	-0.049	-0.415	-0.418	1.000										
K_2O	0.000	0.089	0.008	0.045	0.203	1.000									
Li_2O	-0.088	-0.092	0.098	0.005	-0.286	-0.102	1.000								
MgO	-0.084	0.003	-0.061	-0.098	0.106	0.084	0.048	1.000							
Na_2O	0.204	-0.260	0.045	0.131	-0.165	-0.202	-0.236	-0.143	1.000						
SiO_2	-0.379	-0.230	0.063	-0.061	-0.160	-0.131	0.321	0.135	-0.258	1.000					
SO_3	0.214	0.132	0.202	0.274	-0.136	0.193	-0.174	-0.056	0.048	-0.141	1.000				
ThO_2	-0.081	0.026	-0.231	-0.185	0.189	0.234	-0.219	-0.025	-0.203	-0.362	0.069	1.000			
TiO_2	0.009	0.137	-0.102	-0.236	0.080	0.289	-0.072	0.066	-0.225	-0.128	-0.034	0.157	1.000		
ZrO_2	-0.276	-0.097	0.051	0.216	-0.396	-0.260	0.142	-0.182	0.079	-0.095	-0.113	0.044	-0.280	1.000	
Others	-0.163	-0.242	-0.176	-0.005	-0.004	-0.321	-0.180	-0.238	-0.030	-0.370	-0.100	0.179	0.091	0.198	1.000

Model Validation

To validate the model, data not used in model fitting must be obtained. Because all appropriate data within the desired composition region were used in model fitting, subsets of the model data were used to validate the model. The data were sorted by ln[PCT_{Li}] value. The data were then numbered 1, 2, 3, 4, 5, 1, 2, … to split them into five roughly representative groups. The model was then refit to subsets 2 to 5 and used to predict data in subset 1. Then the model was fit to each group of four subsets and used to predict the remaining subset in sequence.

Table 3.54 summarizes the results of the model validation. The coefficients are reasonably close with an RSD of less than 25% with the exceptions of:

- CaO with values near zero
- Fe_2O_3 with a high value for set 3
- SiO_2 with values near zero.

The model fit R^2 values are all close to each other at 0.805. The R_V^2 are also close with values near 0.79 (except set 3), and their average (0.786) is close to the R_P^2 value for the full model of 0.79. This model is well validated and should give predictions of unknown data within the model validity region nearly as well as model fit data.

Table 3.54. Summary of ln[PCT_{Li}] Model Validation

Term	Full	1st	2nd	3rd	4th	5th	%RSD
Al_2O_3	-71.80	-70.75	-72.01	-72.60	-70.12	-74.38	2.3
B_2O_3	-15.88	-16.82	-14.08	-19.00	-16.39	-14.64	12.3
CaO	0.46	0.01	0.40	1.66	-0.85	1.09	210.2
F	29.68	28.73	30.93	30.29	32.07	27.06	6.6
Fe_2O_3	-0.59	-0.69	-0.93	0.29	-0.76	-0.72	82.1
K_2O	10.21	10.57	10.66	9.48	10.21	10.19	4.5
Li_2O	24.24	24.97	24.27	24.69	24.18	23.08	3.0
MgO	6.86	7.26	8.63	7.18	6.18	5.28	18.3
Na_2O	5.82	5.76	6.81	4.44	5.03	6.87	18.5
SiO_2	-0.64	-0.70	-0.83	-0.44	-0.45	-0.62	26.1
SO_3	42.82	37.28	44.75	46.56	45.51	40.47	9.1
ThO_2	-14.12	-15.35	-13.92	-13.42	-15.39	-11.79	10.6
TiO_2	-15.99	-16.94	-16.55	-13.66	-16.33	-16.16	8.1
ZrO_2	-4.15	-4.00	-4.01	-4.19	-4.32	-4.12	3.2
Others	2.16	2.41	2.06	2.20	2.24	2.03	7.1
$Al_2O_3 \times Al_2O_3$	586.17	576.65	584.91	596.19	566.90	617.41	3.3
$Al_2O_3 \times Al_2O_3 \times Al_2O_3$	-1641.0	-1621.9	-1619.9	-1658.8	-1588.0	-1752.1	3.9
$Al_2O_3 \times ThO_2$	236.63	251.70	234.04	235.78	247.73	205.99	7.6
$B_2O_3 \times B_2O_3$	88.68	89.65	86.81	97.65	88.74	86.83	5.1
$B_2O_3 \times Na_2O$	74.41	80.55	59.57	89.05	80.46	65.07	16.4
R^2	0.8034	0.8048	0.8060	0.8119	0.8015	0.8017	
R^2_A	0.7983	0.7985	0.7997	0.8058	0.7951	0.7953	
R^2_P	0.7895	0.7883	0.7894	0.7943	0.7830	0.7844	
RMSE	0.3565	0.3568	0.3552	0.3495	0.3574	0.3613	
R^2_V	0.7864	0.7903	0.7809	0.7572	0.8031	0.8005	

3.4 Toxicity Characteristic Leaching Procedure

3.4.1 Data Conversion, Screening, and Evaluation

Of the initial 3406 glasses in the database (Appendix A), 313 contained TCLP responses on quenched glass. The data were first converted into a normalized TCLP response by taking those responses that are known to release at the same rate as the glass (see Kim and Vienna 2004)—Ba, Cd, and B according to:

$$N_{TCLP} = \frac{\sum_{i=B,Ba,Cd}^{R} \frac{r_i(\text{mg/L})}{g_i(\text{g/g})}}{R} \qquad (3.15)$$

where N_{TCLP} = normalized TCLP response
r_i = i-th component TCLP response
g_i = i-th component mass fraction in glass
R = number of components for which reliable TCLP response is available from the three components evaluated.

In most cases, $r_B/g_B \approx r_{Ba}/g_{Ba} \approx r_{Cd}/g_{Cd}$. In those cases where two of the r_i/g_i values closely matched and the third did not, the average of the two was used (this occurred for 71 of the 313 data points). It was the N_{TCLP} values that represented the rate of glass release in TCLP conditions that were modeled.

The compositions of glasses contained several different species for multivalent elements (in most cases, these were self inconsistent [e.g., oxidized Mn and reduced U]). The multivalent elements were converted to one set of assumed states consistent with those used by WTP (Vienna and Kim 2008) → As_2O_5, Ce_2O_3, Fe_2O_3, MnO, MoO_3, Re_2O_7, RuO_2, Sb_2O_3, Tl_2O, and UO_3.

The resulting data were screened for use in ln[N_{TCLP}] model development. Five glasses were removed from the model dataset as shown in Table 3.55. After this data screening, 308 glasses were available for model development.

Table 3.55. Summary of Data Screening for ln[TCLP] Model

Glass ID	Reason
HLW98-79	no TCLP value
HLW98-V06	no TCLP value
Envelope D	K_2O (target) = 0.0086; K_2O (analyzed) = 0.0845
HLW99-55	Na_2O (target) = 0.2; Na_2O (analyzed) = 0.1612
HLW98-96C	$HfO_2 > 0$

3.4.2 Model Development

Initial ln[N_{TCLP}, mg/L] models were fit with the 308 data using stepwise regression methods allowing only first-order terms. Those components with sufficient data to allow for coefficient estimates were included in the stepwise process. Stepwise regression comparing the coefficient to the value of zero while maintaining the intercept near the average response of 1.39 ln[mg/L] was used to reduce the influential components to:

Al_2O_3, B_2O_3, BaO, Bi_2O_3, CaO, CdO, Fe_2O_3, K_2O, La_2O_3, Li_2O, MgO, MnO, Na_2O, Nd_2O_3, NiO, P_2O_5, PbO, SiO_2, SO_3, SrO, ThO_2, TiO_2, UO_3, ZnO, and ZrO_2

Further narrowing removed the coefficients to *Al_2O_3, B_2O_3, CaO, Fe_2O_3, Li_2O, Na_2O, SiO_2, ThO_2, and ZrO_2* as insignificant, while removing 17 glasses found to be outliers left 291 data points for model fitting. A scatterplot matrix of these data is given in Appendix B.

Attempts were made to improve the fit of the model data by adding a limited number (up to 5) second- and third-order terms. No significant improvements were made.

The final model was then fit to the remaining 291 datapoints with coefficients $b_{ln[NTCLP],i}$, listed in Table 3.56. The statistics for the model fit are summarized in Table 3.57. The R^2 coefficient of 0.89 suggests that the data are well represented by the model. The R^2_A value (0.89) suggested that there are not too many coefficients, or the data are not over-fit. The R^2_P value (0.88) being so close to the R^2 value (0.89) suggests that there are not any very influential data points, and the model is likely to predict similarly for new data as it does for the model development data.

Table 3.56. ln[N_{TCLP}, mg/L] Model Coefficients

Term	Estimate	Std Error
Al_2O_3	-0.524992	0.628355
B_2O_3	12.003262	0.448488
CaO	11.147865	1.033483
Fe_2O_3	-1.209342	0.519293
Li_2O	20.870752	1.184471
Na_2O	15.242625	0.526148
SiO_2	-2.004927	0.221359
ThO_2	2.468589	1.323125
ZrO_2	-0.661848	0.821379
Others	9.2805424	0.22558

Table 3.57. Summary of ln[N_{TCLP}] Model Statistics

Statistic	Value
R^2	0.8941
R^2_A	0.8907
R^2_P	0.8840
RMSE	0.308
Min	2.624
Mean	3.896
Max	7.712
n	291
N	10

Figure 3.13 compares the predicted and measured ln[N_{TCLP}] values. The data appear to be well represented by the model with no trends to over or under prediction. No single group of data (e.g., study) was found to be misrepresented by the model.

This model is based on data spanning a specific glass composition region and therefore should only be relied upon within that region. The validity region is defined as the composition region of data used to develop the model.

Table 3.58 lists the model validity region while
Table 3.59 lists the correlation coefficients calculated for the model data. Only pairs containing Li_2O, Na_2O, and SiO_2 have a correlation of 0.5 or above.

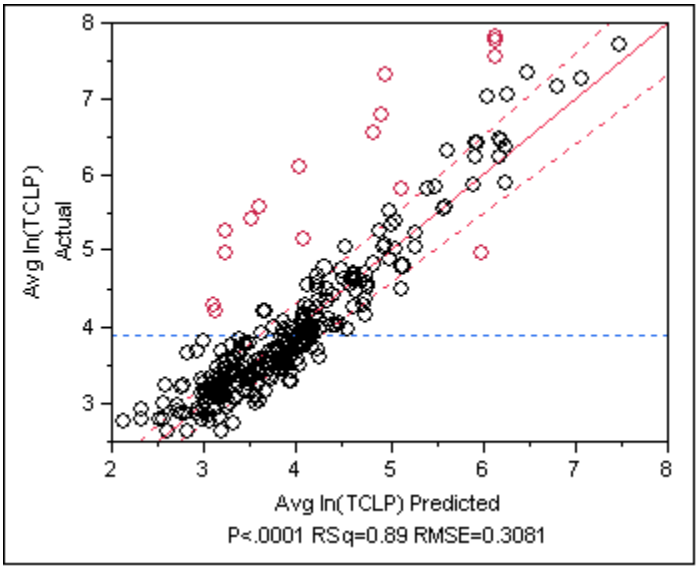


Figure 3.13. Measured vs. Predicted ln[N_{TCLP}]

Table 3.58. ln[N_{TCLP}] Model Validity Region (wt%)

Comp	Min	Max
Al_2O_3	0.0	16.3
B_2O_3	2.0	21.0
BaO	0.0	4.5
Bi_2O_3	0.0	2.4
CaO	0.0	13.9
CdO	0.0	4.0
F	0.0	1.5
Fe_2O_3	1.9	18.7
K_2O	0.0	8.7
Li_2O	0.0	7.4
MgO	0.0	5.0
MnO	0.0	7.6
Na_2O	2.9	20.0
NiO	0.0	3.0
P_2O_5	0.0	3.9
PbO	0.0	8.6
SiO_2	29.4	55.0
SO_3	0.0	2.1
SrO	0.0	14.2
ThO_2	0.0	6.0
TiO_2	0.0	2.0
UO_3	0.0	8.4
ZnO	0.0	4.9
ZrO_2	0.0	10.4
Remaining	0.0	5.0

Table 3.59. Correlation Matrix for the ln[N_{TCLP}] Model Dataset

	Al_2O_3	B_2O_3	CaO	Fe_2O_3	Li_2O	Na_2O	SiO_2	ThO_2	ZrO_2	Others
Al_2O_3	**1.000**									
B_2O_3	-0.190	**1.000**								
CaO	-0.164	-0.126	**1.000**							
Fe_2O_3	-0.037	-0.125	0.320	**1.000**						
Li_2O	-0.218	-0.032	0.155	-0.042	**1.000**					
Na_2O	-0.256	-0.022	0.023	-0.059	**0.534**	**1.000**				
SiO_2	-0.103	-0.209	-0.192	-0.469	**-0.516**	**-0.538**	**1.000**			
ThO_2	0.218	0.175	0.099	0.192	-0.126	-0.045	-0.205	**1.000**		
ZrO_2	0.157	-0.150	0.073	0.107	-0.275	-0.328	0.026	-0.269	**1.000**	
Others	0.007	-0.089	-0.300	-0.004	-0.197	-0.140	-0.037	-0.066	-0.039	**1.000**

A variance-covariance matrix is required to calculate the measurement plus prediction uncertainties of this model. This matrix is defined as:

$$\mathbf{V}_\alpha = RMSE^2 \left[\mathbf{X}_\alpha^{\mathrm{T}} \mathbf{X}_\alpha \right]^{-1} \tag{3.16}$$

The use of $\mathbf{V}_\alpha$ is explained in detail elsewhere (e.g., Cornell 2002, Hrma et al. 1994, Piepel et al. 2008a, Vienna and Kim 2008). The $\mathbf{V}_{\ln[NTCLP]}$ is given in Appendix C with the other variance-covariance matrices.

3.4.3 Model Validation

To validate the model, data not used in model fitting must be obtained. Because all appropriate data within the desired composition region were used in model fitting, subsets of the model data were used to validate the model. The data were sorted by the ln[N_{TCLP}] value. The data were then numbered 1, 2, 3, 4, 5, 1, 2, … to split them into five roughly representative groups. The model was then refit to subsets 2 to 5 and used to predict data in subset 1. Then the model was fit to each group of four subsets and used to predict the remaining subset in sequence. Table 3.60 summarizes the results of the model validation. The coefficients are reasonably close with an RSD of less than 25% with the exceptions of Al_2O_3 and ZrO_2 that are both close to zero.

The model fit R^2 values are all close to each other at ~0.89. The R_V^2 are also close to each other, and their average (0.885) is close to the R_P^2 value of 0.884. This model is well validated and should give predictions of unknown data within the model validity region nearly as well as model fit data.

Table 3.60. Summary of ln[N_{TCLP}] Model Validation

Term	Full	Set 1	Set 2	Set 3	Set 4	Set 5	%RSD
Al_2O_3	-0.52	-0.63	-0.89	-0.32	-0.23	-0.45	-49.9
B_2O_3	12.00	11.97	12.18	11.87	12.05	11.88	1.1
CaO	11.15	11.86	9.55	10.82	11.87	11.74	9.0
Fe_2O_3	-1.21	-1.35	-1.47	-1.12	-1.21	-0.91	-17.7
Li_2O	20.87	21.86	20.57	20.63	20.07	21.07	3.2
Na_2O	15.24	15.15	15.45	15.42	15.11	15.05	1.2
SiO_2	-2.00	-2.00	-1.93	-2.06	-1.93	-2.08	-3.4
ThO_2	2.47	1.72	2.85	2.68	2.63	2.50	17.8
ZrO_2	-0.66	-1.25	-1.40	-0.43	-0.34	-0.02	-91.2
Others	9.28	9.33	9.47	9.31	9.09	9.21	1.5
R^2	0.8941	0.8897	0.9047	0.8897	0.8919	0.8985	
R^2_A	0.8907	0.8853	0.9009	0.8852	0.8876	0.8944	
R^2_P	0.8840	0.8766	0.8933	0.8757	0.8783	0.8862	
RMSE	0.3081	0.3097	0.2967	0.3178	0.3136	0.3029	
Mean	3.8957	3.8894	3.9024	3.8987	3.8960	3.8918	
N	291	232	233	233	233	233	
R^2_V	0.8853	0.9036	0.8381	0.9115	0.8991	0.8741	

3.4.4 Application of ln[N_{TCLP}, mg/L] Model to Regulatory Compliance

The normalized TCLP response is an indication of the amount of glass released per unit volume if all elements are released congruently. Kim and Vienna (2004) found that the releases of Ba, Cd, Ni, Zn, and B release more-or-less congruently while other RCRA hazardous metals were released at concentrations below those of the congruent components. The slightly high releases of some metals at low boron release are due to detection limits being reported for less-than-detection-limit results as these components are generally limited by solubility. The TCLP response of each RCRA element (c_r, mg/L) is estimated by the relation:

$$c_r = N_{TCLP} f_r = f_r \exp\left[\sum_{i=1}^{N} b_{NTCLP,i} x_i\right] \qquad (3.17)$$

where f_r is the mass fraction of r-th element in glass. As shown in Figure 3.14b, this estimate is conservative for solubility-limited metals such as Ag, As, Cr, Pb, Se, and Tl.

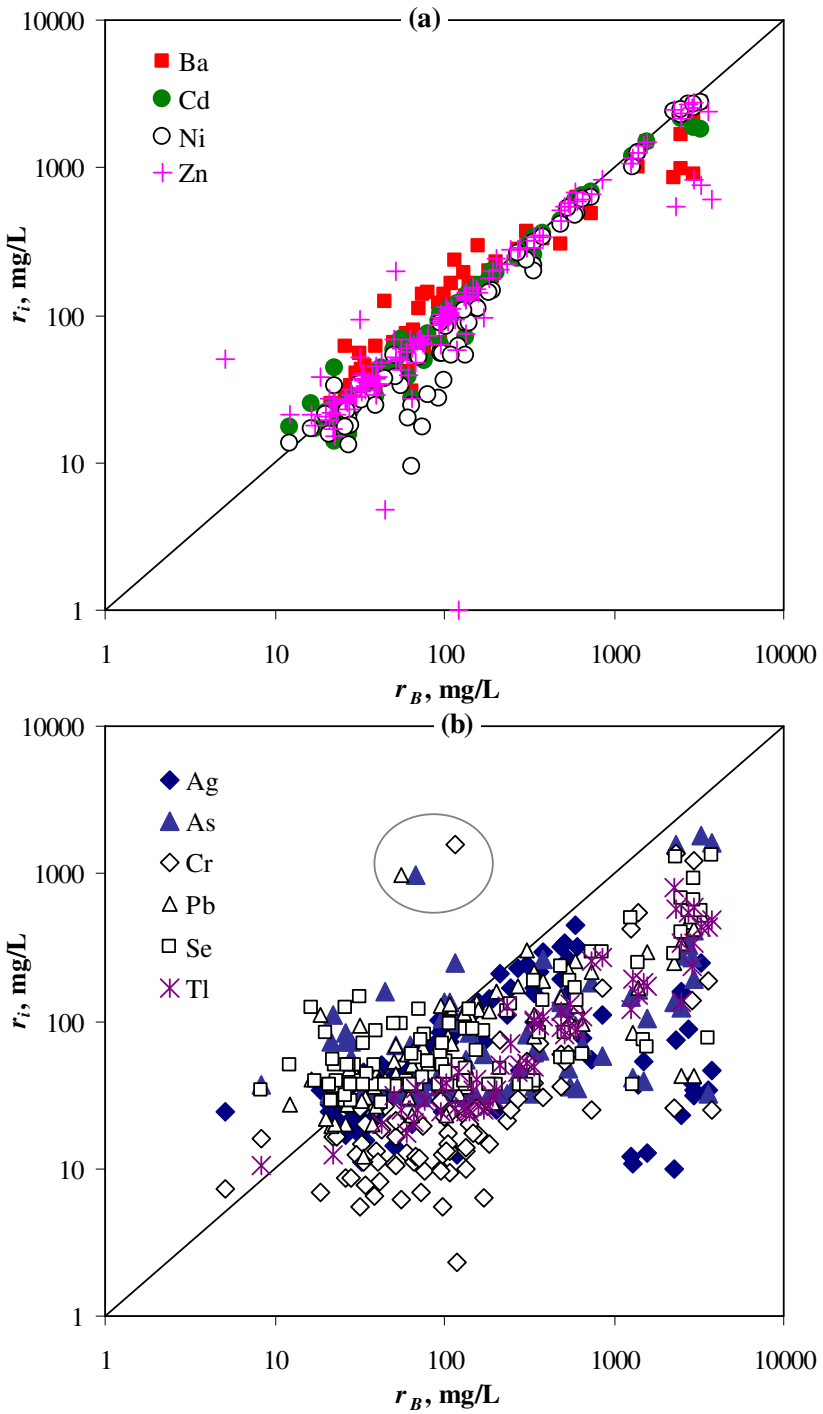


Figure 3.14. ln(r_i) Versus ln(r_B) for (a) Ba, Cd, Ni, and Zn and (b) Ag, As, Cr, Pb, Se, and Tl in the Glasses Studied by Kot and Pegg (2001) from Kim and Vienna (2004)

The TCLP response values (c_r) can be compared to regulatory limits as shown in Table 3.61. Also listed in the table are the limits established for delisting Hanford HLW glasses per Blumenkranz (2006).

Table 3.61. RCRA Toxicity Limits and WTP Delisting Petition Limits by TCLP (mg/L)

Limit	Ag	As	Ba	Be	Cd	Cr	Cu	Hg	Ni	Pb	Sb	Se	Tl	Zn
RCRA Toxicity	5	5	100	-	1	5	-	0.2	-	5	-	1	-	-
RCRA UTS	0.14	5	21	-	0.11	0.6	-	0.025	11	0.75	-	5.7	-	-
WTP Delisting	3.07	0.616	100	1.33	0.48	4.95	200	0.2	22.6	5	0.659	1.0	0.282	225

3.5 Liquidus Temperature and Crystal Fraction

3.5.1 $T_{1\%}$ - Spinel

Data Screening and Evaluation

Of the initial 3406 glasses in the database (Appendix A), only 371 contained $T_{1\%}$ values with spinel as a dominant phase. These data were all used in $T_{1\%}$ model development.

Model Development

Initial $T_{1\%}$ (°C) models were fit with the 371 data using stepwise regression methods allowing only first-order terms. Those components with sufficient data to allow for coefficient estimates were included in the stepwise process:

Al_2O_3, B_2O_3, Cr_2O_3, Bi_2O_3, CaO, CdO, F, Fe_2O_3, K_2O, Li_2O, MgO, MnO, Na_2O, NiO, P_2O_5, SiO_2, SrO, ThO_2, TiO_2, UO_3, ZnO, and ZrO_2

Stepwise regression comparing the coefficient to the value of zero while maintaining the intercept near the average response of 951°C was used to reduce the influential components to:

Al_2O_3, B_2O_3, Cr_2O_3, Fe_2O_3, K_2O, Li_2O, MgO, MnO, Na_2O, NiO, SiO_2, SrO, ThO_2, ZnO, and ZrO_2

In addition, a combined noble-metals component (NM = PdO + Rh_2O_3 + RuO_2) was found to significantly improve the fit. This is most likely due to the participation of Rh_2O_3 in the spinel structure (Annamalia et al. 2004). During this process, 21 glasses were found to be outliers (studentized residuals above 3):

SPA-27, HLW02-10, HLW-ALG-20(c), HLW07-07, HLW03-12, WTP-TL-19, HLW03-05, HLW03-43, HLW-ALG-05, HLW03-06, HLW07-32, HLW03-17, HLW07-16, HLW07-11, HLW07-24, HLW06-25, HLW-ALG-36, HLW-ALG-32, HLW07-05, EM07-Cr-02, SPA-02

Many of these glasses were found to be outliers in previous studies (Vienna et al. 2002, Vienna 2002, Piepel et al. 2008a). A scatterplot matrix of these data is given in Appendix B.

Attempts were made to improve the fit of the model data by adding a limited number (up to 5) second- and third-order terms. No higher order terms were found to significantly improve

the fit, and the two most dominant terms decreased the model validation statistics. As a result, only first-order terms are used in the final model.

The final model was then fit to the remaining 350 datapoints with coefficients $b_{T1\%,i}$, listed in Table 3.62. The statistics for the model fit are summarized in Table 3.63. The R^2 coefficient of 0.772 suggests that the data are well represented by the model, but not as well as those models for previous properties. The R^2_A value (0.761) suggests that there are not too many coefficients, or the data are not over-fit. The R^2_P being so close to the R^2 value (0.744) suggests that there are not any very influential data points, and the model is likely to predict similarly for new data as it does for the model development data.

Table 3.62. $T_{1\%}$, °C Model Coefficients

Term	Coefficient	Std Error
Al_2O_3	2835.11	115.3
B_2O_3	-201.41	101.8
Cr_2O_3	12468.2	1509
Fe_2O_3	3328.76	116.9
K_2O	-409.94	333.6
Li_2O	-735.44	256.8
MgO	3927.07	803.2
MnO	2618.91	207.1
Na_2O	-717.5	94.61
NiO	11916.1	748.9
SiO_2	424.651	48.04
SrO	421.296	147.1
ThO_2	897.152	284.5
ZnO	3103.31	425.4
ZrO_2	1933.8	165
NM	14871.5	3248
Others	735.728	145

Table 3.63. Summary of $T_{1\%}$ Model Statistics

Statistic	Value
R^2	0.772
R^2_A	0.761
R^2_P	0.744
RMSE	60.69
Min	635.7
Mean	950.3
Max	1279
n	350
N	17

Figure 3.15 compares the predicted and measured $T_{1\%,sp}$ values. The data appear to be well represented by the model with no trends to over or under prediction. No single group of data (e.g., study) was found to be misrepresented by the model.

This model is based on data spanning a specific glass composition region and therefore should only be relied upon within that region. The validity region is defined as the composition region of data used to develop the model.

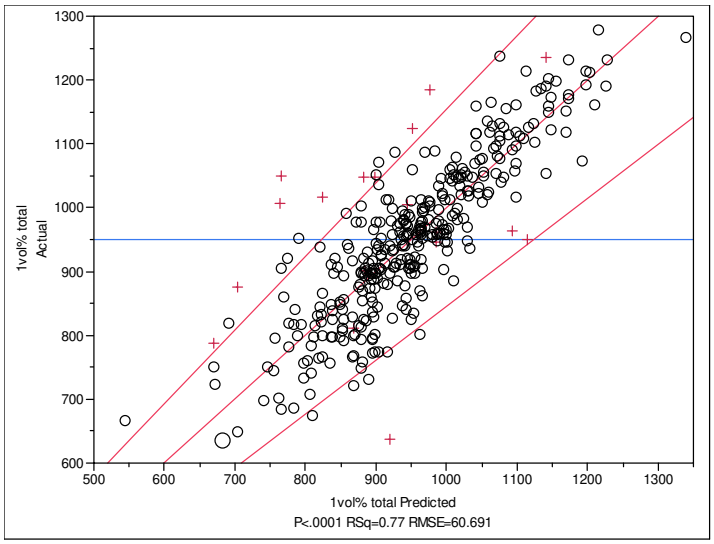


Figure 3.15. Measured vs. Predicted $T_{1\%,sp}$

Table 3.64 lists the model validity region while Table 3.66 lists the correlation coefficients calculated for the model data. Only the Al_2O_3-Na_2O pair has a correlation coefficient of 0.5 or above.

Table 3.64. $T_{1\%}$ Model Validity Region (wt%)

Comp	Min	Max
Al_2O_3	1.9	20.0
B_2O_3	3.0	20.0
Bi_2O_3	0.0	7.0
CaO	0.0	7.0
CdO	0.0	2.0
Cr_2O_3	0.0	1.2
F	0.0	2.0
Fe_2O_3	4.0	20.0
K_2O	0.0	6.0
Li_2O	0.0	6.0
MgO	0.0	6.0
MnO	0.0	8.0
Na_2O	3.7	25.0
NiO	0.0	3.0
NM	0.0	0.5
P_2O_5	0.0	2.5
SiO_2	28.0	53.0
SrO	0.0	10.3
ThO_2	0.0	6.0
TiO_2	0.0	3.1
UO_3	0.0	6.5
ZnO	0.0	4.0
ZrO_2	0.0	9.6
Remaining	0.0	4.5

A variance-covariance matrix is required to calculate the measurement plus prediction uncertainties of this model. This matrix is defined as:

$$\mathbf{V}_\alpha = RMSE^2 \left[\mathbf{X}_\alpha^{\mathrm{T}} \mathbf{X}_\alpha \right]^{-1} \tag{3.18}$$

The use of $\mathbf{V}_\alpha$ is explained in detail elsewhere (e.g., Cornell 2002, Hrma et al. 1994, Piepel et al. 2008a, Vienna and Kim 2008). The $\mathbf{V}_{T1\%}$ is given in Appendix C with the other variance-covariance matrices.

Model Validation

To validate the model, data not used in model fitting must be obtained. Because all appropriate data within the desired composition region were used in model fitting, subsets of the model data were used to validate the model. The data were sorted by $T_{1\%}$ value. The data were then numbered 1, 2, 3, 4, 5, 1, 2, … to split them into five roughly representative groups. The model was then refit to subsets 2 to 5 and used to predict data in subset 1. Then the model was fit to each group of four subsets and used to predict the remaining subset in sequence. Table 3.65 summarizes the results of the model validation. The coefficients are reasonably close with an RSD of less than 25% with the exceptions of B_2O_3 and ThO_2, which have extreme values for set 3.

The model fit R^2 values are all close to each other at 0.775. The R_V^2 are also close to each other, and their average (0.739) is close to the R_P^2 value of 0.74. This model is well validated and should give predictions of unknown data within the model validity region nearly as well as model fit data in the 0.74 R^2 range with RMSEs near 61°C.

Table 3.65. Summary of $T_{1\%}$ Model Validation

Term	Full	Set 1	Set 2	Set 3	Set 4	Set 5	%RSD
Al_2O_3	2,835	2,816	2,776	2,994	2,805	2,775	3
B_2O_3	-201	-200	-125	-336	-172	-177	-40
Cr_2O_3	12,468	12,633	13,024	12,853	11,884	11,844	4
Fe_2O_3	3,329	3,400	3,427	3,288	3,205	3,320	3
K_2O	-410	-459	-412	-334	-373	-481	-15
Li_2O	-735	-743	-816	-905	-459	-828	-24
MgO	3,927	3,815	3,818	3,592	3,873	5,507	20
MnO	2,619	2,618	2,545	2,762	2,611	2,616	3
Na_2O	-717	-782	-739	-767	-612	-677	-10
NiO	11,916	11,897	11,672	12,579	11,896	11,479	3
SiO_2	425	427	409	453	416	422	4
SrO	421	507	342	310	451	454	20
ThO_2	897	1,066	789	1,320	674	610	33
ZnO	3,103	2,995	3,148	3,842	2,598	3,005	15
ZrO_2	1,934	1,998	2,027	1,760	1,901	1,977	6
NM	14,871	14,559	14,391	14,353	15,884	14,738	4
Others	736	723	747	609	739	828	11
R^2	0.772	0.789	0.77	0.777	0.777	0.765	
R^2_A	0.761	0.776	0.756	0.763	0.763	0.751	
R^2_P	0.744	0.754	0.732	0.746	0.741	0.727	
RMSE	60.69	58.77	61.41	60.53	60.39	61.97	
R^2_V	0.739	0.696	0.77	0.716	0.735	0.777	

Table 3.66. Correlation Matrix for the $T_{1\%}$ Model Dataset

Corr	Al_2O_3	B_2O_3	Cr_2O_3	Fe_2O_3	K_2O	Li_2O	MgO	MnO	Na_2O	NiO	SiO_2	SrO	ThO_2	ZnO	ZrO_2	NM	Others
Al_2O_3	**1.000**																
B_2O_3	-0.352	**1.000**															
Cr_2O_3	0.105	-0.057	**1.000**														
Fe_2O_3	0.129	0.046	-0.034	**1.000**													
K_2O	-0.150	0.029	-0.149	-0.026	**1.000**												
Li_2O	-0.270	0.086	-0.088	-0.142	0.022	**1.000**											
MgO	-0.120	0.108	-0.022	0.013	-0.022	0.069	**1.000**										
MnO	-0.065	-0.071	-0.066	0.051	-0.066	0.014	0.101	**1.000**									
Na_2O	**-0.503**	0.208	-0.111	-0.455	0.047	0.428	0.058	-0.038	**1.000**								
NiO	0.115	0.039	-0.093	0.062	-0.031	-0.081	-0.027	0.022	-0.291	**1.000**							
SiO_2	-0.096	-0.449	-0.062	-0.403	0.066	-0.413	-0.170	-0.060	-0.233	-0.117	**1.000**						
SrO	-0.245	0.182	-0.040	-0.205	-0.039	0.248	0.085	-0.316	0.224	0.055	-0.048	**1.000**					
ThO_2	0.043	0.108	-0.009	0.172	0.092	-0.092	0.094	0.124	0.005	0.136	-0.138	-0.096	**1.000**				
ZnO	0.199	-0.188	0.073	0.099	-0.066	-0.107	0.070	0.046	-0.015	0.045	-0.122	-0.020	0.009	**1.000**			
ZrO_2	0.344	-0.119	0.044	0.218	0.089	-0.289	-0.061	-0.013	-0.291	-0.083	-0.124	-0.210	-0.207	0.080	**1.000**		
NM	0.126	0.052	0.216	-0.113	0.083	0.009	-0.155	-0.230	-0.014	0.100	-0.092	-0.172	-0.146	-0.459	0.006	**1.000**	
Others	-0.025	-0.041	-0.232	0.034	-0.321	0.006	0.050	-0.058	-0.069	-0.107	-0.002	-0.029	-0.252	-0.120	-0.032	-0.220	**1.000**

3.5.2 T_L – Zircon

Besides spinel, zircon ($ZrSiO_4$) is the only primary phase for which there is sufficient data to fit models for T_L. Several attempts were made to fit models to combined zirconia containing phases as was done by Crum et al. 1997. However, the validation of these models showed unsatisfactory results. Furthermore, while there is sufficient data to fit a T_L model to glasses precipitating zircon, there are not enough data to fit a $T_{1\%}$ model.

Initial Data Screening and Evaluation

There are 77 zircon precipitating glasses with T_L in the database. Four of these glasses have compositions that depart from the bulk of the data by a significant amount as summarized in Table 3.67. The remaining 73 glasses were used in model fitting.

Table 3.67. Glasses Screened from T_L Modeling Set

Glass ID	Composition Extreme
CVS1-8	Fe>10.5, Mg>4
CVS2-3	Zr<4
CVS2-39	Mg>4
WTP-TL-22	Fe>10.5

Model Development

Initial T_L (°C) models were fit with the 73 data using stepwise regression methods allowing only first-order terms. Those components with sufficient data to allow for coefficient estimates were included in the stepwise process:

Al_2O_3, B_2O_3, Bi_2O_3, CaO, Fe_2O_3, Li_2O, LN_2O_3, MgO, MnO, Na_2O, Nd_2O_3, P_2O_5, SiO_2, SrO, ThO_2, UO_3, ZnO, and ZrO_2

where Ln_2O_3 is a combined lanthanide oxide (= Y_2O_3 + La_2O_3 + Ce_2O_3 + Pr_2O_3 + Nd_2O_3 + Sm_2O_3 + Gd_2O_3 on a mass fraction basis). Stepwise regression comparing the coefficient to the value of zero while maintaining the intercept near the average response of 1091°C was used to reduce the influential components to:

Al_2O_3, B_2O_3, Li_2O, Ln_2O_3, Na_2O, SrO, and ZrO_2

During this process, two glasses were found to be outliers (studentized residuals above 3)—TRU-Na-1 and Zr-27; and two glasses were found to highly influential on model fit (Cook's D Influence > 0.3)—CVS3-21 and HLW07-23. A scatterplot matrix of these data is given in Appendix B.

Attempts were made to improve the fit of the model data by adding a limited number (up to 5) second- and third-order terms. No higher order terms were found to significantly improve the fit, and the two most dominant terms decreased the model validation statistics. As a result, only first-order terms are used in the final model.

The final model was then fit to the remaining 69 datapoints with coefficients $b_{TL,i}$, listed in Table 3.68. The statistics for the model fit are summarized in Table 3.69. The R^2 coefficient of 0.91 suggests that the data are well represented by the model. The R^2_A value (0.896) suggests

that there are not too many coefficients, or the data are not over-fit. The R^2_P of 0.869 being somewhat below the R^2 value (0.907) suggests that there may be influential data, and the model may not adequately validate.

Table 3.68. T_L, °C Model Coefficients

Term	Coefficient	Std Error
Al_2O_3	3193.3628	192.0059
B_2O_3	651.39721	96.32151
Ln_2O_3	2156.4074	473.657
Li_2O	-1904.417	240.8539
Na_2O	-1947.711	163.0475
SrO	13011.909	1447.658
ZrO_2	3747.4241	182.0445
Others	1259.2233	32.29355

Table 3.69. Summary of T_L Model Statistics

Statistic	Value
R^2	0.9069
R^2_A	0.8962
R^2_P	0.8693
RMSE	26.2
Min	897
Mean	1079
Max	1298
n	69
N	8

Figure 3.16 compares the predicted and measured $T_{1\%,sp}$ values. The data appear to be well represented by the model with no trends to over or under prediction. No single group of data (e.g., study) was found to be misrepresented by the model.

This model is based on data spanning a specific glass composition region and therefore should only be relied upon within that region. The validity region is defined as the composition region of data used to develop the model.

Table 3.70 lists the model validity region while Table 3.71 lists the correlation coefficients calculated for the model data. Only the ZrO_2-Li_2O pair has a correlation coefficient of 0.5 or above.

The $\mathbf{V}_{TL}$ is given in Appendix C with the other variance-covariance matrices.

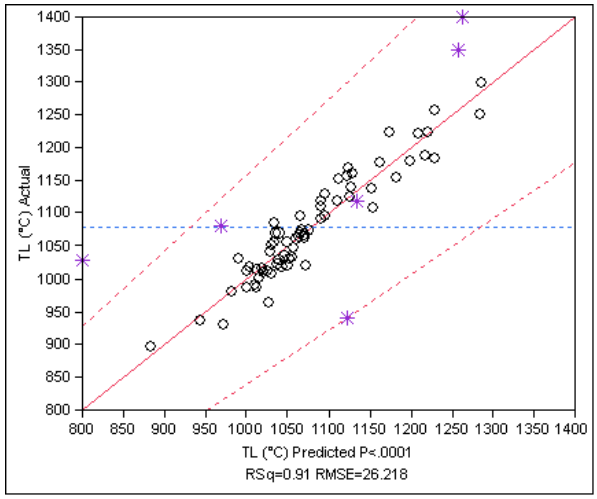


Figure 3.16. Measured vs. Predicted $T_{L,zs}$

Table 3.70. T_L Model Validity Region (wt%)

Comp	Min	Max
Al_2O_3	0.0	17.2
B_2O_3	2.0	20.0
Bi_2O_3	0.0	10.0
CaO	0.0	10.0
Fe_2O_3	0.0	10.5
Li_2O	0.0	9.0
Ln_2O_3	0.0	3.9
MgO	0.0	4.0
MnO	0.0	1.9
Na_2O	4.0	15.0
Nd_2O_3	0.0	2.2
P_2O_5	0.0	5.0
SiO_2	39.7	59.6
SrO	0.0	1.2
ThO_2	0.0	6.0
UO_3	0.0	1.0
ZnO	0.0	1.2
ZrO_2	4.0	16.5
Remaining	0.3	3.3

Table 3.71. Correlation Matrix for the T_L Model Dataset

Corr	Al_2O_3	B_2O_3	Ln_2O_3	Li_2O	Na_2O	SrO	ZrO_2	Others
Al_2O_3	**1.000**							
B_2O_3	-0.314	**1.000**						
Ln_2O_3	0.490	-0.428	**1.000**					
Li_2O	-0.580	0.106	-0.258	**1.000**				
Na_2O	-0.433	0.501	-0.348	0.430	**1.000**			
SrO	-0.131	-0.166	0.089	0.295	0.028	**1.000**		
ZrO_2	0.512	-0.372	0.497	**-0.747**	-0.564	-0.036	**1.000**	
Others	-0.059	-0.377	-0.254	-0.048	-0.550	-0.156	-0.196	**1.000**

Model Validation

Table 3.72 summarizes the results of the model validation. The coefficients are reasonably close with an RSD of less than 25%.

The model fit R^2 values are all close to each other ranging from 0.90 to 0.92. The R_V^2 are also close to each other, and their average (0.87) is close to the R_P^2 value of 0.87. This model is well validated and should give predictions of unknown data within the model validity region nearly as well as model fit data in the 0.87 R^2 range with RMSEs near 29°C.

Table 3.72. Summary of $T_{L,zs}$ Model Validation

Term	Full	Set 1	Set 2	Set 3	Set 4	Set 5	%RSD
Al_2O_3	3193	3234	3288	3232	3110	3145	2
B_2O_3	651	699	669	621	638	624	5
Ln_2O_3	2156	1857	2798	2134	1886	2136	18
Li_2O	-1904	-2005	-2108	-1981	-1799	-1800	-7
Na_2O	-1948	-1962	-1943	-2116	-1837	-1939	-5
SrO	13012	12468	14976	11561	12321	13423	10
ZrO_2	3747	3745	3984	3774	3663	3686	3
Others	1259	1266	1216	1293	1260	1264	2
R^2	0.9069	0.8964	0.9240	0.9163	0.9050	0.9089	
R^2_A	0.8962	0.8810	0.9127	0.9039	0.8909	0.8956	
R^2_P	0.8693	0.8376	0.8970	0.8508	0.8438	0.8614	
RMSE	26.218	28.036	24.077	25.200	26.174	27.173	
Mean	1079	1081	1079	1078	1076	1079	
n	69	55	55	55	55	56	
R^2_V	0.8718	0.9381	0.7820	0.8519	0.9011	0.8860	

3.5.3 Impact of Other Phases

Applying the $T_{1\%,sp}$ and $T_{L,zs}$ constraints helps to avoid crystal precipitation during melting. Many other phases were found to form at and near T_L in Hanford HLW glasses. However, simultaneous application of the two models with uncertainties (90% confidence intervals) predicts higher $T_{1\%,sp}$ or $T_{L,zs}$ than 99.2% of the measured data for glasses within the composition region of validity, independent of phase. Further constraints to avoid other phases do not appear to be necessary at this time, unlike the "non-spinel phase rule" applied by Vienna and Kim (2008).

As no measured data with spinel as a primary (or secondary) phase had ZrO_2 concentrations higher than 9.6 wt%, it is appropriate to include the $T_{L,zs}$ upper limit for ZrO_2 and the $T_{1\%,sp}$ lower limit for ZrO_2.

3.6 Glass Density (Specific Volume)

The prediction of glass density proceeds by a distinctly different process that the other properties described above. Specifically, specific or molar volumes of the constituent oxides are additive for ideal mixtures. Ionic radii from constituent cations and anions are then used to estimate the partial-specific volumes of glass oxides and halogens. Two constants used to

account for non-ideality are fitted to experimental data on waste glasses in the same manner as described in Vienna et al. (2002). The experimental data are first screened in Section 3.6.1, and the model fitting is described in Section 3.6.2.

3.6.1 Data Screening and Evaluation

Of the initial 3406 glasses in the database (Appendix A), 459 contained density data. Multi-valent oxides were converted to consistent sets of oxides, including Fe_2O_3, As_2O_5, Ce_2O_3, CoO, MnO, MoO_3, Pr_2O_3, Re_2O_7, Rh_2O_3, Sb_2O_3, SnO_2, Tl_2O, and UO_3. Target and analyzed compositions were then compared. Those glasses with more than one major component (e.g., > 2 wt% of the glass) or more than 20 minor components with a more than 20 relative percent difference between target and analyzed compositions were removed from the model-fitting dataset. Thirty glasses (IG2-10, IG3-01, IG3-04, IG3-05, IG3-06, IG3-07, IG3-08b, IG3-09, IG3-11, IG3-13, IG3-14, IG3-16, IG3-17, IG3-18, IG3-19, IG3-20, IG3-21, IG3-22, IG3-23, IG3-24, IG3-25, IG3-26, IG3-27, IG3-28, IG3-29, IG3-30, CVS2-14, CVS2-51, HLW98-61, and HLP-56) were removed from the dataset because of differences between target and measured compositions. As crystalline phases may impact glass density, the 14 multiphase glasses were removed from the model fitting dataset (IG2-01, IG2-03, IG2-05, IG2-06, IG2-09, IG2-17, IG2-18, IG2-22, IG2-27, IG2-34, IG3-03, HLW99-11, HLW99-12, and SBW1-33A). This left 415 glasses for model fitting. A scatterplot matrix of these data is given in Appendix B.

3.6.2 Model Fitting

The modeling approach taken is to estimate the partial-specific volume of oxides using published ionic radii from Shannon (1976). From ionic radii, the partial-specific volume can be estimated by:

$$v_i = a\frac{4}{3}\pi r_O^3 \frac{N_i^{OperOx}}{MW_i} + b\frac{4}{3}\pi r_i^3 \frac{N_i^{MperOx}}{MW_i} \qquad (3.19)$$

where
- v_i = partial-specific volume of the i^{th} glass component
- a = a fit parameter to account for non-ideality in oxygen volume
- r_O = ionic radius of oxygen (1.28 pm) from Shannon (1976)
- N_i^{OperOx} = number of oxygen atoms in the i^{th} oxide
- MW_i = molecular weight of the i^{th} oxide
- r_i = ionic radius of the metal in the i^{th} oxide from Shannon (1976)
- N_i^{MperOx} = number of metal atoms in the i^{th} oxide.

Table 3.73 lists the parameters of Equation (3.19) for the components in the 415 model glasses. These values were then used to estimate the fit coefficients *a* and *b*. The density data from the 415 glasses were converted to specific volumes (*v*) according to:

$$v\left(\frac{cm^3}{g}\right) = \frac{1}{\rho\left(\frac{g}{cm^3}\right)} \qquad (3.20)$$

where ρ is the glass density reported in Appendix A. The fit coefficients *a* and *b* were fitted to minimize the RMSE between measured and estimated *v* according to:

$$v = \sum_{i=1}^{N} \nu_i \, x_i \qquad (3.21)$$

where x_i is the mass fraction of the i^{th} component in glass and N is the total number of glass components. While fitting the model parameters, four glasses were found to be outliers (IG2-14, CVS2-86, HLWMS-11, and SBW1-36). The fit statistics are listed in Table 3.74, and the resulting densities are plotted against measured values in Figure 3.17.

Table 3.73. Partial-Specific Volume-Related Values

ele	r, pm	Oxide	N_i^{MperOx}	N_i^{OperOx}	r^3	v_i
Ac	1.26	Ac_2O_3	2	3	2.000376	0.097617
Ag	1.29	Ag_2O	2	1	2.146689	0.114219
Al	0.53	Al_2O_3	2	3	0.148877	0.356339
Am	1.115	Am_2O_3	2	3	1.3861959	0.084523
As	0.475	As_2O_5	2	5	0.1071719	0.259265
B	0.25	B_2O_3	2	3	0.015625	0.508767
Ba	1.56	BaO	1	1	3.796416	0.161534
Be	0.41	BeO	1	1	0.068921	0.480061
Bi	1.17	Bi_2O_3	2	3	1.601613	0.09932
Br	1.82	Br	1	0	6.028568	0.258279
Ca	1.26	CaO	1	1	2.000376	0.332023
Cd	1.24	CdO	1	1	1.906624	0.142497
Ce	1.15	Ce_2O_3	2	3	1.520875	0.139312
Cl	1.67	Cl	1	0	4.657463	0.449721
Cm	1.11	Cm_2O_3	2	3	1.367631	0.083489
Co	0.885	CoO	1	1	0.6931541	0.188757
Cr	0.755	Cr_2O_3	2	3	0.4303689	0.251727
Cs	1.88	Cs_2O	2	1	6.644672	0.203202
Cu	0.87	CuO	1	1	0.658503	0.176319
Dy	1.052	Dy_2O_3	2	3	1.1642526	0.116045
Eu	1.206	Eu_2O_3	2	3	1.7540498	0.134467
F	1.19	F	1	0	1.685159	0.303646
Fe	0.63	Fe_2O_3	2	3	0.250047	0.231855
Ga	0.61	Ga_2O_3	2	3	0.226981	0.196685
Gd	1.193	Gd_2O_3	2	3	1.6979361	0.129486
Hf	0.85	HfO_2	1	2	0.614125	0.121834
Hg	1.33	Hg_2O	2	1	2.352637	0.066827
I	2.06	I	1	0	8.741816	0.235813
K	1.65	K_2O	2	1	4.492125	0.451472
La	1.3	La_2O_3	2	3	2.197	0.154555
Li	0.73	Li_2O	2	1	0.389017	0.483063
Mg	0.86	MgO	1	1	0.636056	0.34608
Mn	0.97	MnO	1	1	0.912673	0.209981
Mo	0.73	MoO_3	1	3	0.389017	0.25459
Na	1.16	Na_2O	2	1	1.560896	0.362348
Nb	0.78	Nb_2O_5	2	5	0.474552	0.233644
Nd	1.249	Nd_2O_3	2	3	1.9484412	0.144597
Ni	0.83	NiO	1	1	0.571787	0.1838
Np	1.01	NpO_2	1	2	1.030301	0.100612
P	0.31	P_2O_5	2	5	0.029791	0.416076
Pb	1.43	PbO	1	1	2.924207	0.097588

Table 3.73 (contd)

ele	r, pm	Oxide	N_i^{MperOx}	N_i^{OperOx}	r^3	v_i
Pd	1	PdO	1	1	1	0.124118
Pr	1.266	Pr_2O_3	2	3	2.0290891	0.149193
Pu	1	PuO_2	1	2	1	0.099468
Rb	1.75	Rb_2O	2	1	5.359375	0.259259
Re	0.67	Re_2O_7	2	7	0.300763	0.174351
Rh	0.805	Rh_2O_3	2	3	0.5216601	0.153206
Ru	0.76	RuO_2	1	2	0.438976	0.188211
Sb	0.74	Sb_2O_3	2	3	0.405224	0.130656
Se	0.42	SeO_2	1	2	0.074088	0.214457
Si	0.4	SiO_2	1	2	0.064	0.395468
Sm	1.219	Sm_2O_3	2	3	1.8113865	0.13683
Sn	0.83	SnO_2	1	2	0.571787	0.169198
S	0.26	SO_3	1	3	0.017576	0.441816
Sr	1.4	SrO	1	1	2.744	0.204254
Ta	0.88	Ta_2O_5	2	5	0.681472	0.143749
Tc	0.7	Tc_2O_7	2	7	0.343	0.276953
Te	0.8	TeO_2	1	2	0.512	0.158491
Th	1.08	ThO_2	1	2	1.259712	0.105495
Ti	0.56	TiO_2	1	2	0.175616	0.302252
Tl	1.73	Tl_2O	2	1	5.177717	0.111169
U	0.87	UO_3	1	3	0.658503	0.131343
V	0.68	V_2O_5	2	5	0.314432	0.335433
W	0.74	WO_3	1	3	0.405224	0.158296
Y	1.159	Y_2O_3	2	3	1.5568627	0.20359
Zn	0.88	ZnO	1	1	0.681472	0.173291
Zr	0.86	ZrO_2	1	2	0.636056	0.208725

Table 3.74. ρ and v Model Fit Summary

	ρ	v
Minimum	2.410	0.3175
Mean	2.656	0.3770
Maximum	3.150	0.4149
R^2	0.8231	0.8121
R^2_A	0.8227	0.8116
RMSE	0.0431	0.00616
Count	411	411
	a	***b***
Coefficients	1.339987	0.817249

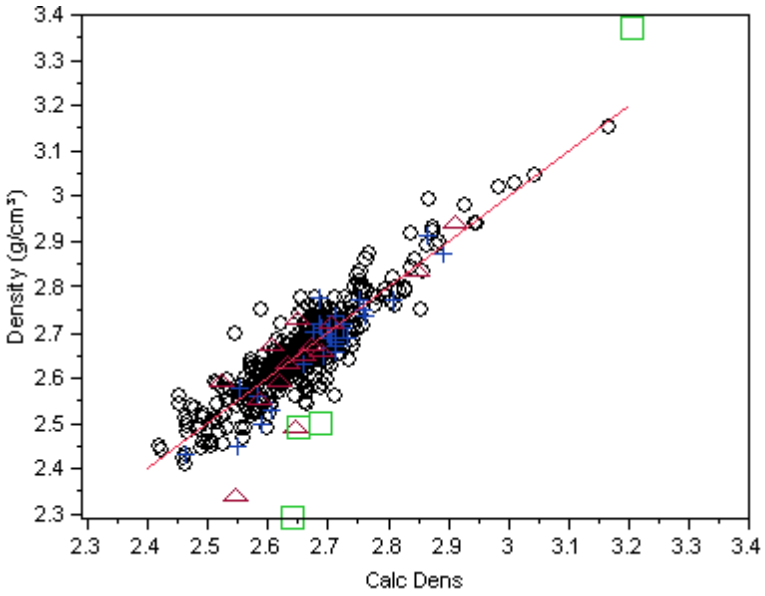


Figure 3.17. Predicted vs Measured Glass Density (black circles are model fit data, green squares are outliers, red triangles are multiphase glasses, blue crosses are data with differences between target and analyzed compositions)

4.0 Glass Composition Constraints

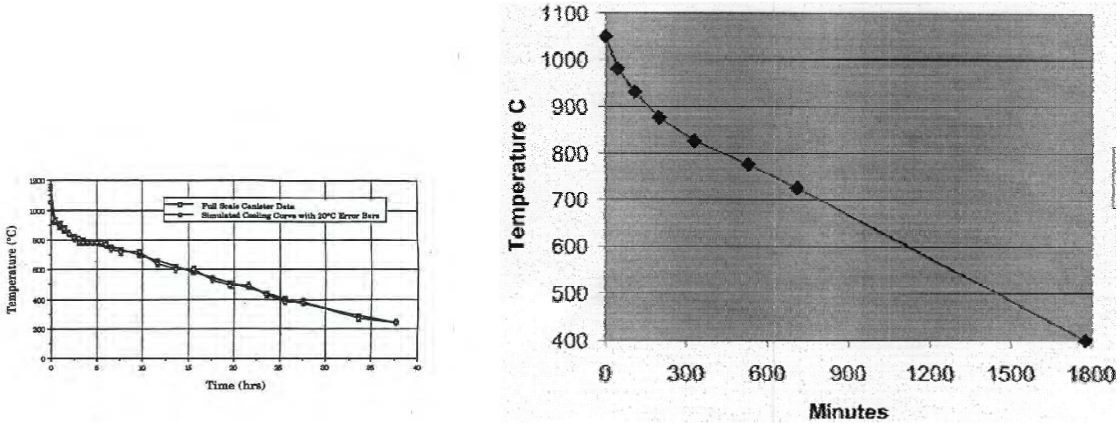
In addition to the property constraints discussed in Section 1.2 and the model validity constraints reported in Section 3.0, there are several constraints placed on glass to facilitate successful glass processing and adequate quality. These constraints are typically set as single and multiple component constraints that limit composition space to reduce the risk of an adverse effect for which adequate data and models are unavailable.

This section describes these constraints in the context of the event that they aim to avoid and the data available to support them. As more data become available, these constraints may change and thereby change the predictions of glass volume to be produced at Hanford.

4.1 Nepheline Discriminator

Models that relate TCLP and PCT to composition are largely based on glasses that have been fast cooled from the melting temperature. This cooling schedule represents a fraction of the canistered glass that contacts the canister wall and cools to below the glass transition temperature (T_g) relatively quickly. However, a portion of the glass in the center of the canister cools significantly slower and may be reheated by hot glass being poured on top. The time-temperature profile of the extreme ends of the cooling-rate spectra were measured for DWPF canisters (Marra and Jantzen 1993) and WTP canisters.[(a)] As seen in Figure 4.1, it requires between 25 and 30 h for glass in the center of the canister to cool to below 400°C (a conservative estimate of T_g). Several glasses have been tested for the impact of different heat-treatment schedules on product quality (Marra and Jantzen 1993, Kim et al. 1995, Li et al. 1997b, Vienna et al. 2001b, Riley et al. 2001, Peeler et al. 2006, Fox et al. 2007, Kim et al. 2008, etc.). The overwhelming conclusion of these studies is that the cooling has an insignificant impact on durability so long as gross crystallization does not occur. Once crystallization occurs, then the impact on glass durability is given by the impact of the crystals on residual glass composition. Some crystalline phases, such as transition metal spinels, $[Ni,Fe,Mn,Zn][Fe,Cr]_2O_4$, have almost no impact on PCT response. Nepheline, $NaAlSiO_4$, however, significantly degrades PCT response.

(a) L Petkus. 2003. "Canister Centerline Cooling Data, Revision 1, CCN 074851." Memo to CA Musick, River Protection Project, Waste Treatment and Immobilization Plant, Richland, Washington.



(a) DWPF (b) WTP

Figure 4.1. CCC Curves for (a) DWPF HLW Glass (Marra and Jantzen 1993) and (b) WTP HLW Glass[(a)]

To avoid the impact of nepheline on slow-cooled HLW glasses, a nepheline discriminator is employed. The original discriminator developed by Li et al. (1997b) is given as:

$$N_{Si} = \frac{x_{SiO_2}}{x_{Al_2O_3} + x_{Na_2O} + x_{SiO_2}} \geq 0.62 \qquad (4.1)$$

where N_{Si} is the normalized silica concentration, and x_i is the i-th component mass fraction in glass. This rule is based on avoiding the low-silica end of the Na_2O-Al_2O_3-SiO_2 phase diagram where $NaAlSiO_4$ is prevalent. A number of recent studies have found this constraint to be conservative in that glasses meeting the $N_{Si} \geq 0.62$ do not contain nepheline on slow cooling while many glasses with $N_{Si} < 0.62$ also do not contain nepheline (see Figure 4.2). The presence of boron has been clearly shown to reduce the tendency toward nepheline formation (Li et al. 2003), and CaO may also reduce the tendency. However, there is no clear explanation for the CaO effect nor is there a quantitative model for the effect of B_2O_3. It is very likely that other components have a strong impact on nepheline precipitation; however, until sufficient data and predictive models are available, it is recommended that the discriminator given in Equation (4.1) be used.

(a) L Petkus. 2003. "Canister Centerline Cooling Data, Revision 1, CCN 074851." Memo to CA Musick, River Protection Project, Waste Treatment and Immobilization Plant, Richland, Washington.

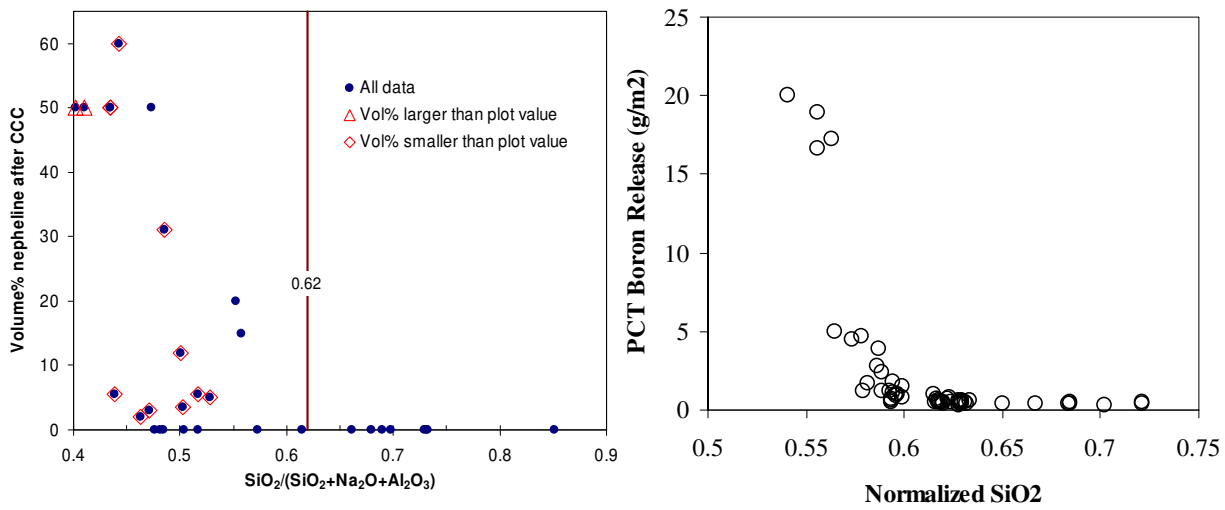


Figure 4.2. CCC Glass Nepheline Content and PCT-B Response vs. Normalized Silica Discriminator (after Kim et al. 2008)

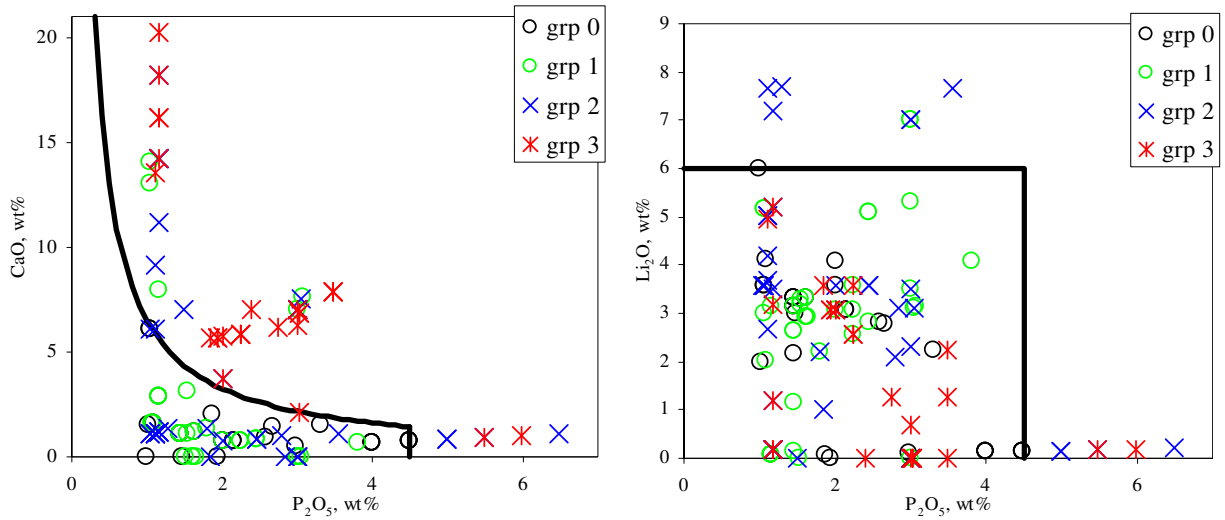
4.2 Phosphate Limit

An excessive quantity of P_2O_5 in an alkali-silicate glass will promote immiscible liquid separation in the melt (for examples, see Bunnell 1988, Jantzen et al. 2000, Kot et al. 2007, Li et al. 1995a, 1995b, 1995c, 1995d, 1997a, 1997b, 1997d, and Li 1998; Langowski 1996 and Langowski et al. 1997). If this liquid contains high-alkaline earth oxides (CaO, MgO, etc.), then a refractory scum may form at the melt surface impeding the melting process. If this liquid contains high-alkali oxide concentrations (Na_2O, Li_2O, etc.), then a water-soluble phase will result and will likely contain significant radionuclide (^{137}Cs, ^{99}Tc, etc.) and hazardous (Cr, Pb, etc.) components.

To avoid the deleterious effects of phosphate-based phase separation, controls are put in place on the phosphate concentration in the target glass. Vienna and Kim (2008) found that limiting the concentrations of P_2O_5, CaO, and Li_2O according to the following rules would greatly reduce the chance of phosphate-based phase separation in Hanford HLW glasses:

$$x_{P2O5} \le 0.045$$
$$x_{CaO} \cdot x_{P2O5} < 6.5 \times 10^{-4}$$
$$x_{Li2O} \le 0.060$$

where x_i is the i-th oxide mass fraction in glass. These rules are shown graphically in Figure 4.3.



Grp	Description	#	P_2O_5 Range, wt%
0	pass all constraints and show no adverse effect of P_2O_5	33	1.00 – 4.49
1	fail at least one constraint that is clearly unrelated to P_2O_5	36	1.05 – 3.81
2	fail at least one constraint, the role of P_2O_5 is uncertain	40	1.05 – 6.48
3	fail a constraint that is clearly due to P_2O_5	26	1.11 – 5.98

Figure 4.3. Summary of WTP Phosphate Phase Separation Data (from Vienna and Kim 2008)

These rules were applied to a broader region of glasses from Appendix A and found to equally well screen those glasses prone to phosphate phase separation. Therefore, it is recommended that they be applied when estimating glass volumes.

4.3 Chromium Oxide and Alumina Limits

The amounts of Cr_2O_3 and Al_2O_3 have a significant influence on the HLW glass volume to be produced at Hanford. These components are limited primarily because of their influence on crystal formation in the melter. In addition, Cr_2O_3 can be oxidized to chromate (CrO_4^{2-}) and promote/participate in salt segregation in the melter. However, Al_2O_3 will promote crystallization of the melt during canister cooling as described in Section 4.1. The primary function of caustic and oxidative leaching to be performed at the WTP is to remove Al_2O_3 and Cr_2O_3, respectively, to minimize HLW glass volume.

The single-component limits have traditionally been used to limit the concentrations of these two components and thereby reduce the risk of their deleterious effects on glass melting and properties. This report documents models to avoid crystallization within the melter (Section 3.5), nepheline formation during slow cooling (Section 4.1), and salt separation within the melter (Section 4.4). Therefore, no additional limits should be placed on x_{Cr2O3} and x_{Al2O3} in target glass compositions. It should be noted, though, that the model-validity constraints for both x_{Cr2O3} and x_{Al2O3} and the nepheline constraint are quite restrictive and will likely still impact HLW glass volumes (see Table 4.1). As TCLP and electrical conductivity are initially to be calculated as characteristics of glasses formulated with other limits, the range of glass compositions will extend to 20 wt% for x_{Al2O3} and 1.2 wt% for x_{Cr2O3}.

Table 4.1. Summary of Cr_2O_3 and Al_2O_3 Model Validity Constraints (mass fraction)

Modeled Property	x_{Cr2O3}	x_{Al2O3}
$\ln[\eta_{950}]$	-	0.204
$\ln[\eta_{1150}]$	-	0.266
$\ln[\eta_{1250}]$	-	0.259
$\ln[\varepsilon_{1000,}\ \varepsilon_{1100,}\ \varepsilon_{1200}]$	-	0.259
$\ln[\varepsilon_{1150}]$	-	0.266
ln[PCT-B, -Na, -Li]	-	0.200
$\ln[N_{TCLP}]$	-	0.163
$T_{1\%}$, spinel	0.012	0.200
T_L, zircon	-	0.172

4.4 Sulfate and Salt Separation Limits

Glass melts with relatively high concentrations of certain salt components (e.g., SO_4^{2-}, F^-, Cl^-, CrO_4^{2-}, etc.) are prone to the accumulation of a separated molten salt on the melt surface. If the salt layer persists on the surface of the melt, it will significantly accelerate the corrosion of bubblers, thermowells, level probes, and potentially melt-line refractories. These components are likely to drop to the melter bottom and reduce melter life by the accumulation of conductive metals on the melter floor. If persistent for long times, melt-line refractory corrosion may cause premature and potentially catastrophic melter failure.

Since there is currently no method of detection for accumulated salt layers on the melt surface, feed composition control must be used to avoid the deleterious effects of salt on HLW melter operation. This section describes the collection and evaluation of available data on the effect of SO_3 concentration on HLW glass processing and the establishment of preliminary SO_3 constraints to prevent potential processing problems associated with salt accumulation.

The allowable sulfur in the feed is determined by a combination of thermodynamic and kinetic aspects of sulfate incorporation into the silicate-based melts (Pegg et al. 2000, Hrma et al. 2003, Hrma et al. 2004). Therefore, scaled melter testing is the most certain way of determining the allowable sulfur level for a given feed. Since the melter operating parameters (e.g., melting rate, raw material source, bubbling rate) impact the sulfur tolerance, scaled Hanford HLW testing should be used in setting the constraint on sulfur loading.

The amount of sulfur that the typical HLW melter feeds can sustain has not been systematically tested, and therefore information required to determine if salt accumulation in HLW is a problem and in what compositions (e.g., concentrations of SO_3, Na_2O, Li_2O, K_2O, CaO, MgO, Cr_2O_3, P_2O_5, Cl, and F) is very limited. The concentrations of SO_3 in various melter feeds reported in the melter test reports are listed in Table 4.2. These results suggest that the tolerable SO_3 could be as low as 0.19 wt% (HLW04-09) or as high as 0.7 wt% (HLW02-46). This result plus that of Darab et al. (2001) suggest that with increased scale, the tolerance to sulfur increases. Therefore, the 0.19 wt% salt accumulation in the DM100 can be ignored in favor of the DM1200 test with the same feed. This leaves two data points of value in setting a limit: HLW98-86 (0.44 wt% SO_3) and HLW02-46 (0.7 wt% SO_3). Based on such limited data, it

is difficult to justify any limit different from that traditionally applied (DOE 2000) of 0.5 wt% as SO_3 in the melter feed.

Table 4.2. Summary of SO_3 Concentrations in Melter Testing

Glass ID	Target SO_3, wt%	Scale	Salt Accumulation	Reference
HLW98-31	0.25	DM100, DM1200	No, No	Matlack et al. 2001 and 2002
HLW98-77	0.08	DM1200	No	Matlack et al. 2003a
HLW98-80	0.04	DM1200	No	Matlack et al. 2003b
HLW04-09	0.19	DM100, DM1200	Yes, No	Matlack et al. 2005a and 2005b
HLW98-86	0.44, 0.5	DM10	No, Yes	Matlack and Pegg 2008
HLW02-46	0.7, 0.9	DM10	No, Yes	Matlack and Pegg 2008

4.5 Other Composition Limits

Other components that are not typically large fractions of Hanford tank waste may limit loading in glass. These components and estimates of their limits are described below.

- MoO_3 forms immiscible liquid or solid phases when present at too high a concentration in alkali alkaline-earth silicate glasses. It is estimated that a limit between 1 and 3.5 wt% MoO_3 will result from thorough studies of Mo solubility in Hanford waste glasses. For the purpose of completeness, a limit of 1.5 wt% should be adopted until sufficient data are available.
- Fluorine may promote salt accumulation in the melter (in concert with sulfate, chromate, phosphate, molybdate, etc.) or crystallize as alkali or alkaline-earth fluorides. With model validity regions spanning maximum F contents of 1.5 to 4.7 wt%, the 2 wt% limit associated with the spinel $T_{1\%}$ model should be taken as the maximum F concentration to make certain that phase separation problems do not occur.
- Noble metals (RuO_2, Rh_2O_3, PdO, and Ag_2O) are sparingly soluble in silicate melts. For the most part, they will form an insoluble phase in the melter that will act as a nucleating agent to help crystallization approach its equilibrium state within the melter and reduce crystal sizes. If they exceed some critical concentration, they will agglomerate and accumulate at the melter bottom. Experience at the West Valley Nuclear Services (WVNS) suggests that less than 0.15 wt% of RuO_2, Rh_2O_3, and PdO can be effectively removed from that melter. The WTP melter is designed to tolerate higher concentrations, but prolonged operation at concentrations well above this limit are still expected to shorten melter life. For the time being, the WTP contract limit of 0.25 wt% should be used as a limit until more operating experience with noble metals in a WTP-like melter is available.
- Elements that are traditionally found in Hanford tank waste in only small concentrations could also have an impact if their concentrations exceed traditional data concentrations. Although no limit will be placed on those components at this time, those that should cause concern, including the levels at which they would cause a concern, are listed in Table 4.3.

Table 4.3. Trace Elements of Concern (levels in wt% of glass)

Element	Concentration of concern, wt%
Be	1
Cl	0.5
Sc	1
Ti	5
V	5
Co	1
Cu	0.1 (lower with Ag)
Ga	5
Ge	5
As	1
Se	0.5
Br	0.5
Rb	1
Nb	1
Tc	0.1
In	1
Sn	1
Sb	1
Te	0.1
I	1 (will be lost to off-gas)
Cs	1
Ba	5
La-Lu	5 (total lanthanides)
Hf	1
Ta	1
W	0.5
Re	0.1
Os	0.1
Ir	0.1
Pt	0.1
Au	0.1
Hg	0.5 (will be lost to off-gas)
Tl	0.1 (RCRA)
Pb	5
Po	0.5
At	1
Fr	1
Ra	1
Ac-Lr	0.1

5.0 Elemental Losses During Melting

During the melting process, components are lost to the off-gas treatment system. In the current WTP baseline process, those components that are captured within the submerged bed scrubber (SBS) or the wet electrostatic precipitator (WESP) will be recycled back to the head end of the pretreatment process while those that escape the SBS/WESP will be purged from the process as secondary wastes or through the stack.

Two primary mechanisms are typically credited for the loss of components to the off-gas treatment system—entrainment and volatility. For the purpose of this report, these mechanisms will not be distinguished. However, it should be noted that melter processing parameters such as operating temperature, redox state, bubbling rate, feed composition, etc. will impact loss to the off-gas. The extent to which these parameters will impact loss will be different for the different mechanisms and are currently not well understood.

An estimate of melter decontamination factors (DFs) was recently generated by Jain (2008). These DFs were converted to fractions of the elements retained in glass (v) in Table 5.1 according to:

$$\upsilon = 1 - \frac{1}{DF} \qquad (5.1)$$

As a large fraction of the losses will be recycled back to the WTP, the use of these loss factors must be considered carefully. If the flowsheet model accounts for the return of mass to the WTP, then these should be removed from the glass, and a fraction of the loss will then be returned. If no recycle loop is made, then those elements that are not purged should be left in the glass.

Table 5.1. Estimated Melter DF and *v* (from Jain 2008)

Element	Est DF	Est *v*
Ag	160	0.99375
Al	152	0.993434012
Am	59	0.983050847
As	28	0.964285714
B	92	0.989130435
Ba	137	0.992673993
Be	88	0.988636364
Bi	170	0.994117647
C	1	0
Ca	87	0.988545246
Cd	21	0.951923077
Ce	88	0.988636364
Cl	2.3	0.565217391
Co	88	0.988636364
Cr	84	0.988066826
Cr	84	0.988066826
Cs	33	0.96978852

Table 5.1 (contd)

Element	Est DF	Est *v*
Cu	161	0.993804213
Eu	88	0.988636364
F	1.6	0.375
Fe	121	0.991708126
H	1	0
Hg	1	0
I	1.2	0.166666667
K	40	0.975062344
La	88	0.988636364
Li	221	0.995473065
Mg	61	0.983471074
Mn	282	0.996458924
Mo	84	0.988095238
N	1	0
Na	110	0.990900819
Nd	88	0.988636364
Ni	140	0.992836676
P	68	0.985294118
Pb	84	0.988123515
Pd	79	0.987341772
Pr	88	0.988636364
Pu	88	0.988636364
Ra	4	0.736842105
Rb	33	0.96969697
Rh	53	0.981132075
Ru	4	0.756097561
S	3	0.666666667
Sb	168	0.994044074
Se	2	0.5
Si	251	0.996012759
Sr	138	0.99275887
Ta	88	0.988636364
Tc	2	0.375
Te	13	0.921259843
Th	88	0.988636364
Ti	50	0.980119284
Tl	4	0.736842105
U	88	0.988636364
V	59	0.983050847
W	88	0.988636364
Y	88	0.988636364
Zn	123	0.991856678
Zr	202	0.995047053

6.0 Glass Formulation Options and Examples

The models discussed in Section 3.0 and the additional constraints described in Section 4.0 are used to formulate glasses from waste compositions. The precise methods for estimating glass composition and waste loading are described in detail by Vienna and Kim (2008). This process can be summarized as:

1. For a given waste, the glass composition is moved into a composition region where all the glass property models are valid (that is to say, the region where we have experimental experience). This is done by adding various amounts of wastes and additives.
2. The additives are altered until all the properties are within acceptable regions, including prediction and composition uncertainties. This forces the composition toward the region of more experimental data, because the uncertainties increase rapidly as the composition approaches the boundaries of data.
3. If there are degrees of freedom left after meeting all the property constraints, then the composition is further moved within the "acceptable glass processing window" toward points that are more favorable (i.e., away from boundaries). This optimization includes five key factors:
   a. viscosity toward 50 P at 1150°C
   b. PCT below 4 g/L
   c. $T_{1\%}$ below 850°C
   d. waste loading away from the boundaries (min acceptable to max possible)
   e. composition closer to those processed successfully in the DM1200 pilot melter.

This process is aimed at formulating glass composition during operations and is relatively high in computational effort. For the purpose of estimating HLW glass volume to be produced, a less precise and less computationally heavy method would be appropriate.

6.1 Additives

Glass-forming additives will be added to a waste to form a waste glass composition. The typical list of HLW glass-forming additives includes B_2O_3, Li_2O, Na_2O, SiO_2, and ZnO. The WTP currently has the capability to also add Al_2O_3, CaO, Fe_2O_3, MgO, TiO_2, and ZrO_2. These additives are currently in the form of: borax, lithium carbonate, sodium carbonate, fume silica, zincite, kyanite, wollastonite, hematite, olivine, rutile, and zircon, respectively. However, the impacts of impurities in these chemical sources are relatively inconsequential. So, for the purposes of evaluating glass volumes, the mineral sources are not necessary. As many of the property model validity regions list minimum values for Al_2O_3 and Fe_2O_3, it is recommended that they be used in glass formulations for the purpose of minimizing glass volume. Two sets of additives should be considered the base set and the expanded set (first six plus additional five) as listed in Table 6.1.

Table 6.1. Additive List for Glass Formulation

Base Set	Additional Components
Al_2O_3	CaO
B_2O_3	MgO
Li_2O	TiO_2
Fe_2O_3	ZnO
Na_2O	ZrO_2
SiO_2	-

The additives (either the set of 6 or set of 11) will be mathematically mixed with the waste in various rations to meet all the property and composition constraints. It may also be of interest to add other components (e.g., K_2O) to determine the impacts of which additives are considered.

6.2 Property and Composition Constraints

The properties of glass must be within the acceptable region for successful processing and acceptance for storage, transport, and disposal. Table 6.2 summarizes the property limits along with constraints to be applied to glass-volume estimation.

Table 6.2. Property Constraint Summary

Property	Limit Value	Recommended Constraint
PCT-B, g/m^2	<8.35	≤4
PCT-Na, g/m^2	<6.67	≤4
PCT-Li, g/m^2	<4.78	≤4
$T_{1\%}$-sp, °C	≤950	≤950
T_L-zs, °C	≤1050	≤1050[(a)]
η_{1150}, Pa-s	≥2, ≤8	≥4, ≤6
N_{SiO2}	≥0.62	≥0.62
N_{TCLP}, mg/L	<36.6[(b)]	not constrained
ε_{1150}, S/m	≥10, ≤70	not constrained

(a) T_L-zs is limited only in the composition region over which it is valid and not constraining outside its validity region.
(b) N_{TCLP} limit varies from 36.6 mg/L at 1.5 wt% CdO to over 300 mg/L for lower CdO.

Composition constraints are primarily based on model-validity constraints for the composition-limiting properties. Table 6.3 summarizes the model-validity constraints. The single component concentration limits are obtained from PCT-B, PCT-Li, PCT-Na, $T_{1\%}$-sp, and η_{1150}. The maximum of the minimum concentration limits for these properties and the minimum of the maximum concentration limits are used (highlighted by bold font and underline in the table). The one exception is the upper bound for ZrO_2, which is 9.6 wt% in the $T_{1\%}$-sp model. However, at this concentration of ZrO_2, zircon is expected to be the primary phase, so a ZrO_2 limit of 13.5 wt% is used.

Table 6.3. Property Model Validity Limits (wt%)

	PCT-B		PCT-Li		PCT-Na		$T_{1\%}$-sp		T_L-zs		η_{1150}		N_{TCLP}		ε_{1150}	
	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max
Al_2O_3	**1.6**	**20.0**	**1.6**	**20.0**	**1.6**	**20.0**	1.9	**20.0**		17.2		26.6		16.3		26.6
B_2O_3	**4.0**	**20.0**	**4.0**	**20.0**	**4.0**	**20.0**	3.0	**20.0**	2.0	**20.0**		20.2	2.0	21.0		20.2
BaO		**4.7**		**4.7**								**4.7**		4.5		
Bi_2O_3				**3.2**				7.0		10.0		7.4		2.4		16.4
CaO		10.4		10.0		10.4		**7.0**		10.0		18.2		13.9		18.2
CdO		1.5						**2.0**						4.0		
Cr_2O_3								**1.2**								
F		2.5		2.5		2.5		**2.0**				2.4		1.5		
Fe_2O_3		**17.4**		**17.4**		**17.4**	**4.0**	20.0		10.5		20.0	1.9	18.7		15.0
K_2O		6.9		6.9		6.9		**6.0**				10.0		8.7		6.1
La_2O_3				**3.5**								5.0				
Li_2O		9.0		9.0		9.0		**6.0**		9.0		8.9		7.4		7.9
MgO		8.0		8.0		8.0		**6.0**		4.0		8.2		5.0		9.6
MnO		**7.0**		**7.0**		**7.0**		8.0		1.9		8.0		7.6		8.0
Na_2O	**4.1**	23.0	**4.1**	**21.4**	**4.1**	23.0	3.7	25.0	4.0	15.0	3.4	25.5	2.9	20.0	2.5	23.0
Nd_2O_3		**5.9**		**5.9**		**5.9**				2.2		8.6				8.6
NiO								**3.0**						3.0		2.1
P_2O_5		5.0		4.3		5.0		**2.5**		5.0		5.0		3.9		9.0
PbO														8.6		8.6
SiO_2	**30.3**	62.8	**30.3**	60.4	**30.3**	62.8	28.0	**53.0**	39.7	59.6	25.0	62.8	29.4	55.0	19.4	60.0
SO_3		2.5		**1.0**		2.5								2.1		
SrO		**10.1**		**10.1**		**10.1**		10.3		1.2		10.3		14.2		10.3
ThO_2		**6.0**		**6.0**		**6.0**		**6.0**		**6.0**		6.8		**6.0**		**6.0**
TiO_2		4.0		3.3		4.0		**3.1**				10.0		2.0		
UO_3		6.5		**6.3**		6.5		6.5		1.0		7.0		8.4		6.5
ZnO		5.8		5.7		5.8		**4.0**		1.2		5.8		4.9		5.8
ZrO_2		**13.5**		**13.5**		**13.5**		9.6	4.0	16.5		15.5		10.4		15.5
Ln_2O_3										3.9						
NMO								**0.5**								
Remaining		**9.4**		**6.3**		**9.4**		**4.5**		3.3		7.1		5.0		6.4

Additional composition constraints are added for noble metals (=$PdO+Rh_2O_3+RuO_2$) at 0.25% as described in Section 4.5 and SO_3 at 0.5 wt% as described in Section 4.4. Other single-component constraints are less restrictive than those of model-validity.

In addition to these constraints, it is appropriate to limit the concentration of waste and each additive to between 0 and 100 wt% to avoid non-physical solutions to the optimization calculations.

6.3 Optimization

The most common optimization criterion is to maximize waste loading, which will yield the minimum glass mass for a given waste. By adjusting the ratios of waste oxides and each of the additives, the waste loading can be maximized until all property and composition constraints are attained.

Other potential optimal criteria can be considered, such as:

- maximum robustness (furthest distance from all constraints)
- highest chemical durability (lowest PCT and TCLP responses)
- lowest waste loading (for highest glass production rate)
- similarity to glasses demonstrated in pilot scale melter testing (for highest confidence)

These optimization criteria can be applied as needed.

6.4 Example Calculations

To demonstrate the use of these glass property models and optimize maximum waste loading, examples are given in this subsection. The calculations use measured compositions of recent tank waste samples shown in AZ-101 Optimization in Table 6.4. An Excel® spreadsheet was developed to optimize for maximum waste loading within the constraints listed above.

6.4.1 AZ-101 Optimization

Glasses were formulated using the composition of AZ-101 listed in Table 6.4. The first calculation was performed with the base set of additives (Al_2O_3, B_2O_3, Fe_2O_3, Li_2O, Na_2O, and SiO_2). The resulting glass is summarized in Table 6.5. In this calculation, the maximum waste loading was 37.66 wt%. The additives were 0.00 wt% Al_2O_3, 31.82 B_2O_3, 0.00 Fe_2O_3, 1.63 Li_2O, 13.45 Na_2O, and 53.09 SiO_2. If the loading is not limited by a single-component constraint for a waste component, then there must be as many constraints as there are additive components. Otherwise, loading could be increased by changing the concentrations of the additives and loading. For this first example, the limiting constraints include η_{1150} = 4 Pa-s, N_{SiO2} = 62 wt%, B_2O_3 = 20 wt%, and $T_{1\%}$-sp = 950°C. The calculated glass properties are summarized in Table 6.6.

The next calculation used the same (AZ-101) waste and the expanded set of additives. The resulting glass is summarized in Table 6.7. In this calculation, the maximum waste loading was 38.16 wt%. The additives were 0.00 wt% Al_2O_3, 0.00 CaO, 31.82 B_2O_3, 0.00 Fe_2O_3, 1.63 Li_2O, 0.00 MgO, 13.45 Na_2O, 53.09 SiO_2, 0.00 TiO_2, 0.00 ZnO, and 0.00 ZrO_2. For this first example, the limiting constraints include η_{1150} = 4 Pa-s, N_{SiO2} = 62 wt%, $T_{1\%}$-sp = 950°C, and T_L-zs = 1050°C. The calculated glass properties are summarized in Table 6.8.

6.4.2 AZ-102 Calculations

The third example uses the AZ-102 waste composition with the standard set of additives. The resulting glass is summarized in Table 6.9. In this calculation, the maximum waste loading was 35.99 wt%. In this case, the loading is limited by a single-component concentration constraint—CdO = 1.5 wt%. Therefore, the additives and thus glass properties are not unique for this waste. An infinite number of glass compositions can achieve the same loading. The calculated glass properties for this particular set of additives are summarized in Table 6.10.

Table 6.4. Chemical Composition of Pretreated HLW Samples (wt%)

Oxide	AZ-101	AZ-102	AY-102
Ag_2O	0.118	0.055	0.200
Al_2O_3	23.103	22.949	13.575
B_2O_3	0.431	0.060	0.000
BaO	0.208	0.112	0.140
Bi_2O_3	0.020	0.000	0.000
CaO	1.342	1.426	1.030
CdO	2.028	4.168	0.030
Ce_2O_3	0.750	0.167	0.360
Cl	0.176	0.148	0.000
CoO	0.000	0.018	0.020
Cr_2O_3	0.450	0.276	0.600
Cs_2O	0.000	0.030	0.000
CuO	0.093	0.086	0.090
F	0.050	0.037	0.000
Fe_2O_3	35.385	36.265	37.164
K_2O	0.429	0.079	0.000
La_2O_3	0.833	0.896	0.180
Li_2O	0.030	0.000	0.160
MgO	0.312	0.357	0.320
MnO	1.038	2.754	5.832
MoO_3	0.011	0.000	0.130
Na_2O	10.826	8.891	15.596
Nd_2O_3	0.612	0.625	0.000
NiO	1.558	2.289	1.090
P_2O_5	1.262	1.387	1.190
PbO	0.233	0.281	1.320
PdO	0.323	0.000	0.000
Rh_2O_3	0.077	0.000	0.000
RuO_2	0.242	0.000	0.000
SiO_2	3.808	1.900	17.056
SO_3	0.000	0.064	0.000
SnO_2	0.000	0.494	1.891
SrO	0.493	4.454	0.570
TiO_2	0.036	0.028	0.080
UO_3	2.928	5.139	1.244
V_2O_5	0.000	0.000	0.050
Y_2O_3	0.000	0.046	0.000
ZnO	0.042	0.124	0.080
ZrO_2	10.742	4.388	0.000

Table 6.5. Initial AZ-101 Glass Calculation (wt%)

Oxide	AZ-101	Additive	Glass
Ag_2O	0.12%		0.04%
Al_2O_3	23.10%	0.00%	8.70%
B_2O_3	0.43%	31.82%	20.00%
BaO	0.21%		0.08%
Bi_2O_3	0.02%		0.01%
CaO	1.34%		0.51%
CdO	2.03%		0.76%
Ce_2O_3	0.75%		0.28%
Cl	0.18%		0.07%
Cr_2O_3	0.45%		0.17%
Cs_2O	0.00%		0.00%
CuO	0.09%		0.04%
F	0.05%		0.02%
Fe_2O_3	35.38%	0.00%	13.33%
K_2O	0.43%		0.16%
La_2O_3	0.83%		0.31%
Li_2O	0.03%	1.63%	1.03%
MgO	0.31%		0.12%
MnO	1.04%		0.39%
MoO_3	0.01%		0.00%
Na_2O	10.83%	13.45%	12.46%
Nd_2O_3	0.61%		0.23%
NiO	1.56%		0.59%
P_2O_5	1.26%		0.48%
PbO	0.23%		0.09%
PdO	0.32%		0.12%
Rh_2O_3	0.08%		0.03%
RuO_2	0.24%		0.09%
SiO_2	3.81%	53.09%	34.53%
SO_3	0.00%		0.00%
SrO	0.49%		0.19%
TiO_2	0.04%		0.01%
UO_3	2.93%		1.10%
Y_2O_3	0.00%		0.00%
ZnO	0.04%		0.02%
ZrO_2	10.74%		4.05%
Total	99.99%	100.00%	100.00%
Loading	37.66%	62.34%	

Table 6.6. Calculated Glass Properties for Initial Calculation

Property	Value	Limit
PCT-B, g/m^2	0.66	≤4
PCT-Li, g/m^2	0.98	≤4
PCT-Na, g/m^2	0.68	≤4
$T_{1\%}$-Sp, °C	950	≤950
T_L-Zs, °C	1004	≤1050
η_{1150}, Pa.s	4.00	≥4, ≤6
Si/(Si+Al+Na)	62.0%	≥0.62
ε_{1150}, S/m	23.52	not constrained
density, g/cm^3	2.69	not constrained
TCLP, mg/L	63.19	not constrained

Table 6.7. Second AZ-101 Glass Calculation (wt%)

Oxide	AZ-101	Additive	Glass
Ag_2O	0.12%		0.04%
Al_2O_3	23.10%	0.00%	8.70%
B_2O_3	0.43%	31.82%	20.00%
BaO	0.21%		0.08%
Bi_2O_3	0.02%		0.01%
CaO	1.34%	0.00%	0.51%
CdO	2.03%		0.76%
Ce_2O_3	0.75%		0.28%
Cl	0.18%		0.07%
Cr_2O_3	0.45%		0.17%
CuO	0.09%		0.04%
F	0.05%		0.02%
Fe_2O_3	35.38%	0.00%	13.33%
K_2O	0.43%		0.16%
La_2O_3	0.83%		0.31%
Li_2O	0.03%	1.63%	1.03%
MgO	0.31%	0.00%	0.12%
MnO	1.04%		0.39%
MoO_3	0.01%		0.00%
Na_2O	10.83%	13.45%	12.46%
Nd_2O_3	0.61%		0.23%
NiO	1.56%		0.59%
P_2O_5	1.26%		0.48%
PbO	0.23%		0.09%
PdO	0.32%		0.12%
Rh_2O_3	0.08%		0.03%
RuO_2	0.24%		0.09%
SiO_2	3.81%	53.09%	34.53%
SO_3	0.00%		0.00%
SrO	0.49%		0.19%
TiO_2	0.04%	0.00%	0.01%
UO_3	2.93%		1.10%
V_2O_5	0.00%		0.00%
Y_2O_3	0.00%		0.00%
ZnO	0.04%	0.00%	0.02%
ZrO_2	10.74%	0.00%	4.05%
Total	99.99%	100.00%	100.00%
Loading	37.66%	62.34%	

Table 6.8. Calculated Glass Properties for Second Calculation

Property	Value	Limit
PCT-B, g/m^2	0.58	≤4
PCT-Li, g/m^2	0.45	≤4
PCT-Na, g/m^2	0.43	≤4
$T_{1\%}$-Sp, °C	950	≤950
T_L-Zs, °C	1050	≤1050
η_{1150}, Pa.s	4.00	≥4, ≤6
Si/(Si+Al+Na)	62.0%	≥0.62
ε_{1150}, S/m	23.70	not constrained
density, g/cm^3	2.72	not constrained
TCLP, mg/L	54.31	not constrained

Table 6.9. AZ-102 Glass Calculation (wt%)

Oxide	AZ-102	Additive	Glass
Ag_2O	0.05%		0.02%
Al_2O_3	22.95%	0.00%	8.26%
B_2O_3	0.06%	17.93%	11.50%
BaO	0.11%		0.04%
Bi_2O_3	0.00%		0.00%
CaO	1.43%		0.51%
CdO	4.17%		1.50%
Ce_2O_3	0.17%		0.06%
Cl	0.15%		0.05%
CoO	0.02%		0.01%
Cr_2O_3	0.28%		0.10%
Cs_2O	0.03%		0.01%
CuO	0.09%		0.03%
F	0.04%		0.01%
Fe_2O_3	36.27%	0.00%	13.05%
K_2O	0.08%		0.03%
La_2O_3	0.90%		0.32%
Li_2O	0.00%	0.72%	0.46%
MgO	0.36%		0.13%
MnO	2.75%		0.99%
Na_2O	8.89%	20.22%	16.14%
Nd_2O_3	0.63%		0.23%
NiO	2.29%		0.82%
P_2O_5	1.39%		0.50%
PbO	0.28%		0.10%
Rh_2O_3	0.00%		0.00%
RuO_2	0.00%		0.00%
SiO_2	1.90%	61.13%	39.82%
SO_3	0.06%		0.02%
SnO_2	0.49%		0.18%
SrO	4.45%		1.60%
TiO_2	0.03%		0.01%
UO_3	5.14%		1.85%
Y_2O_3	0.05%		0.02%
ZnO	0.12%		0.04%
ZrO_2	4.39%		1.58%
Total	99.99%	100.00%	100.00%
Loading	35.99%	64.01%	

Table 6.10. Calculated Glass Properties for AZ-102 Calculation

Property	Value	Limit
PCT-B, g/m^2	0.36	≤4
PCT-Li, g/m^2	0.28	≤4
PCT-Na, g/m^2	0.30	≤4
$T_{1\%}$-Sp, °C	916	≤950
T_L-Zs, °C	1050	≤1050
η_{1150}, Pa.s	6.00	≥4, ≤6
Si/(Si+Al+Na)	62.0%	≥0.62
ε_{1150}, S/m	31.00	not constrained
density, g/cm^3	2.80	not constrained
TCLP, mg/L	44.23	not constrained

6.4.3 AY-102 Calculations

The final example uses the AY-102 waste composition and the standard group of additives. The resulting glass is summarized in Table 6.11. In this calculation, the maximum waste loading was 45.41 wt%. The additives were 0.00 wt% Al_2O_3, 7.33 B_2O_3, 0.00 Fe_2O_3, 3.09 Li_2O, 24.39 Na_2O, and 65.19 SiO_2. For this first example, the limiting constraints include η_{1150} = 4 Pa-s, N_{SiO2} = 62 wt%, $T_{1\%}$-sp = 950°C, and B_2O_3 = 4.0 wt%. The calculated glass properties are summarized in Table 6.12.

Table 6.11. AY-102 Glass Calculation (wt%)

Oxide	AY-102	Additive	Glass
Ag_2O	0.20%		0.09%
Al_2O_3	13.57%	0.00%	6.16%
B_2O_3	0.00%	7.33%	4.00%
BaO	0.14%		0.06%
Bi_2O_3	0.00%		0.00%
CaO	1.03%		0.47%
CdO	0.03%		0.01%
Ce_2O_3	0.36%		0.16%
Cl	0.00%		0.00%
CoO	0.02%		0.01%
Cr_2O_3	0.60%		0.27%
Cs_2O	0.00%		0.00%
CuO	0.09%		0.04%
F	0.00%		0.00%
Fe_2O_3	37.16%	0.00%	16.87%
K_2O	0.00%		0.00%
La_2O_3	0.18%		0.08%
Li_2O	0.16%	3.09%	1.76%
MgO	0.32%		0.15%
MnO	5.83%		2.65%
MoO_3	0.13%		0.06%
Na_2O	15.60%	24.39%	20.40%
Nd_2O_3	0.00%		0.00%
NiO	1.09%		0.50%
P_2O_5	1.19%		0.54%
PbO	1.32%		0.60%
PdO	0.00%		0.00%
Rh_2O_3	0.00%		0.00%
RuO_2	0.00%		0.00%
SiO_2	17.06%	65.19%	43.34%
SO_3	0.00%		0.00%
SnO_2	1.89%		0.86%
SrO	0.57%		0.26%
TiO_2	0.08%		0.04%
UO_3	1.24%		0.56%
V_2O_5	0.05%		0.02%
Y_2O_3	0.00%		0.00%
ZnO	0.08%	0.00%	0.04%
ZrO_2	0.00%	0.00%	0.00%
Total	100.00%	100.00%	100.00%
Loading	45.41%	54.59%	

Table 6.12. Calculated Glass Properties for AY-102 Calculation

Property	Value	Limit
PCT-B, g/m^2	0.39	≤4
PCT-Li, g/m^2	0.34	≤4
PCT-Na, g/m^2	0.88	≤4
$T_{1\%}$-Sp, °C	950	≤950
T_L-Zs, °C	677	≤1050
η_{1150}, Pa.s	4.00	≥4, ≤6
Si/(Si+Al+Na)	62.0%	≥0.62
ε_{1150}, S/m	62.07	not constrained
density, g/cm^3	2.85	not constrained
TCLP, mg/L	34.92	not constrained

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Appendix A

Database

#	Glass ID	Study	Reference	Al2O3-t	B2O3-t	CaO-t	Fe2O3-t	FeO-t	K2O-t	Li2O-t	MgO-t	Na2O-t	NiO-t	P2O5-t	SiO2-t	ZrO2-t	Ag2O-t	As2O3-t	As2O5-t	BaO-t	BeO-t	Bi2O3-t	Br-t	CdO-t	Ce2O3-t	CeO2-t	Cl-t
1	IG1-01	INEEL CVS Phase 1	Staples et al. 1999	0.0552	0.0947	0.0007	0.0005		0.0425	0.0546	0.0000	0.1432		0.0703	0.4706	0.0649				0.0001				0.0000		0.0006	0.0000
2	IG1-02	INEEL CVS Phase 1	Staples et al. 1999	0.0656	0.1312	0.0007	0.0005		0.0874	0.0714	0.0000	0.0819		0.1312	0.4273	0.0000				0.0001				0.0000		0.0006	0.0000
3	IG1-03	INEEL CVS Phase 1	Staples et al. 1999	0.0000	0.0438	0.0007	0.0005		0.0875	0.0010	0.0000	0.2131		0.1312	0.3971	0.1224				0.0001				0.0000		0.0006	0.0000
4	IG1-04	INEEL CVS Phase 1	Staples et al. 1999	0.0000	0.0437	0.0007	0.0005		0.0000	0.0787	0.0000	0.0953		0.1310	0.5248	0.1225				0.0001				0.0000		0.0006	0.0000
5	IG1-05	INEEL CVS Phase 1	Staples et al. 1999	0.0657	0.1313	0.0007	0.0005		0.0000	0.0014	0.0000	0.2131		0.1310	0.4537	0.0000				0.0001				0.0000		0.0006	0.0000
6	IG1-06	INEEL CVS Phase 1	Staples et al. 1999	0.0000	0.1501	0.0008	0.0005		0.1000	0.0482	0.0000	0.0500		0.0000	0.5722	0.0751				0.0001				0.0000		0.0007	0.0000
7	IG1-07	INEEL CVS Phase 1	Staples et al. 1999	0.1501	0.1501	0.0008	0.0005		0.0000	0.0845	0.0000	0.0500		0.0000	0.5308	0.0301				0.0001				0.0000		0.0007	0.0000
8	IG1-08	INEEL CVS Phase 1	Staples et al. 1999	0.1312	0.0437	0.0007	0.0005		0.0875	0.0722	0.0000	0.0819		0.1312	0.4221	0.0262				0.0001				0.0000		0.0006	0.0000
9	IG1-09	INEEL CVS Phase 1	Staples et al. 1999	0.0360	0.1312	0.0007	0.0005		0.0000	0.0333	0.0000	0.2019		0.1312	0.3411	0.1215				0.0001				0.0000		0.0006	0.0000
10	IG1-10	INEEL CVS Phase 1	Staples et al. 1999	0.0000	0.0654	0.0008	0.0005		0.0000	0.0900	0.0000	0.1560		0.0000	0.5441	0.1401				0.0001				0.0000		0.0007	0.0000
11	IG1-11	INEEL CVS Phase 1	Staples et al. 1999	0.1464	0.0500	0.0008	0.0006		0.0000	0.0511	0.0000	0.2000		0.0000	0.5479	0.0000				0.0001				0.0000		0.0007	0.0000
12	IG1-12	INEEL CVS Phase 1	Staples et al. 1999	0.0317	0.1501	0.0008	0.0005		0.1001	0.0000	0.0000	0.1530		0.0000	0.4206	0.1401				0.0001				0.0000		0.0007	0.0000
13	IG1-13	INEEL CVS Phase 1	Staples et al. 1999	0.0759	0.0501	0.0008	0.0006		0.1001	0.0709	0.0000	0.1720		0.0000	0.5266	0.0000				0.0001				0.0000		0.0007	0.0000
14	IG1-14	INEEL CVS Phase 1	Staples et al. 1999	0.1087	0.0724	0.0007	0.0006		0.0242	0.0507	0.0000	0.1674		0.0362	0.5023	0.0338				0.0001				0.0000		0.0006	0.0000
15	IG1-15	INEEL CVS Phase 1	Staples et al. 1999	0.0644	0.0677	0.0007	0.0005		0.0677	0.0600	0.0000	0.1086		0.1016	0.4943	0.0316				0.0001				0.0000		0.0006	0.0000
16	IG1-16	INEEL CVS Phase 1	Staples et al. 1999	0.0725	0.0725	0.0007	0.0006		0.0242	0.0464	0.0000	0.1674		0.0362	0.4752	0.1014				0.0001				0.0000		0.0007	0.0000
17	IG1-17	INEEL CVS Phase 1	Staples et al. 1999	0.0677	0.0678	0.0007	0.0005		0.0226	0.0386	0.0000	0.1763		0.1016	0.4266	0.0948				0.0001				0.0000		0.0006	0.0000
18	IG1-18	INEEL CVS Phase 1	Staples et al. 1999	0.0684	0.1129	0.0007	0.0005		0.0226	0.0563	0.0000	0.1086		0.1016	0.4941	0.0316				0.0001				0.0000		0.0006	0.0000
19	IG1-19	INEEL CVS Phase 1	Staples et al. 1999	0.0683	0.1126	0.0007	0.0005		0.0226	0.0564	0.0000	0.1086		0.1016	0.4944	0.0316				0.0001				0.0000		0.0006	0.0000
20	IG1-20	INEEL CVS Phase 1	Staples et al. 1999	0.0449	0.1129	0.0007	0.0005		0.0226	0.0528	0.0000	0.1086		0.1016	0.4578	0.0948				0.0001				0.0000		0.0006	0.0000
21	IG1-21	INEEL CVS Phase 1	Staples et al. 1999	0.0890	0.1207	0.0007	0.0005		0.0724	0.0652	0.0000	0.0950		0.0362	0.4323	0.0848				0.0001				0.0000		0.0006	0.0000
22	IG1-22	INEEL CVS Phase 1	Staples et al. 1999	0.1013	0.1118	0.0007	0.0005		0.0226	0.0610	0.0000	0.1316		0.1017	0.4045	0.0615				0.0001				0.0000		0.0006	0.0000
23	IG1-23	INEEL CVS Phase 1	Staples et al. 1999	0.0979	0.0677	0.0007	0.0005		0.0663	0.0610	0.0000	0.1086		0.1016	0.4282	0.0647				0.0001				0.0000		0.0006	0.0000
24	IG1-24	INEEL CVS Phase 1	Staples et al. 1999	0.0863	0.1207	0.0007	0.0006		0.0724	0.0652	0.0000	0.0971		0.0362	0.4302	0.0876				0.0001				0.0000		0.0006	0.0000
25	IG1-25	INEEL CVS Phase 1	Staples et al. 1999	0.0724	0.0724	0.0007	0.0006		0.0724	0.0492	0.0000	0.1334		0.0362	0.4580	0.1014				0.0001				0.0000		0.0006	0.0000
26	IG1-26	INEEL CVS Phase 1	Staples et al. 1999	0.0552	0.0947	0.0007	0.0005		0.0425	0.0546	0.0000	0.1432		0.0703	0.4706	0.0649				0.0001				0.0000		0.0006	0.0000
27	IG1-27	INEEL CVS Phase 1	Staples et al. 1999	0.1312	0.0437	0.0007	0.0005		0.0875	0.0721	0.0000	0.0819		0.1312	0.4221	0.0263				0.0001				0.0000		0.0006	0.0000
28	IG1-28	INEEL CVS Phase 1	Staples et al. 1999	0.1312	0.0437	0.0007	0.0005		0.0875	0.0722	0.0000	0.0819		0.1312	0.4221	0.0263				0.0001				0.0000		0.0006	0.0000
29	IG1-29	INEEL CVS Phase 1	Staples et al. 1999	0.1400	0.0839	0.0000	0.0200		0.0000	0.0700	0.0000	0.1063	0.0011	0.0006	0.5700	0.0000				0.0013				0.0000		0.0003	0.0000
30	IG1-30	INEEL CVS Phase 1	Staples et al. 1999	0.0203	0.0607	0.0042	0.0051		0.0000	0.0707	0.0012	0.1833	0.0094	0.0049	0.4598	0.1112				0.0115				0.0000		0.0025	0.0000
31	IG1-31	INEEL CVS Phase 1	Staples et al. 1999	0.1500	0.1500	0.0009	0.0005		0.0000	0.0900	0.0000	0.1187	0.0000	0.0000	0.4565	0.0300				0.0000				0.0000		0.0007	0.0000
32	IG1-32	INEEL CVS Phase 1	Staples et al. 1999	0.1500	0.0500	0.0009	0.0005		0.1000	0.0836	0.0000	0.0500	0.0000	0.0500	0.5116	0.0000				0.0000				0.0000		0.0007	0.0000
33	IG1-33	INEEL CVS Phase 1	Staples et al. 1999	0.0000	0.0500	0.0009	0.0005		0.1000	0.0116	0.0000	0.2000	0.0000	0.0000	0.4936	0.1400				0.0000				0.0000		0.0007	0.0000
34	IG1-34	INEEL CVS Phase 1	Staples et al. 1999	0.0000	0.0701	0.0009	0.0005		0.0000	0.0900	0.0000	0.0500	0.0000	0.0500	0.5951	0.1400				0.0000				0.0000		0.0007	0.0000
35	IG1-35	INEEL CVS Phase 1	Staples et al. 1999	0.0750	0.1500	0.0009	0.0005		0.0000	0.0016	0.0000	0.2000	0.0000	0.0500	0.5186	0.0000				0.0000				0.0000		0.0007	0.0000
36	IG1-36	INEEL CVS Phase 1	Staples et al. 1999	0.0750	0.0500	0.0009	0.0005		0.1000	0.0900	0.0000	0.1174	0.0000	0.0000	0.5628	0.0000				0.0000				0.0000		0.0007	0.0000
37	IG1-37	INEEL CVS Phase 1	Staples et al. 1999	0.0762	0.1013	0.0009	0.0005		0.0497	0.0568	0.0000	0.1191	0.0000	0.0260	0.4902	0.0759				0.0000				0.0000		0.0007	0.0000
38	IG1-38	INEEL CVS Phase 1	Staples et al. 1999	0.0375	0.1250	0.0009	0.0005		0.0250	0.0631	0.0000	0.0875	0.0000	0.0125	0.5396	0.1050				0.0000				0.0000		0.0007	0.0000
39	IG1-39	INEEL CVS Phase 1	Staples et al. 1999	0.0751	0.1250	0.0009	0.0005		0.0750	0.0675	0.0000	0.0883	0.0000	0.0125	0.4469	0.1049				0.0000				0.0000		0.0007	0.0000
40	IG1-40	INEEL CVS Phase 1	Staples et al. 1999	0.0546	0.1022	0.0009	0.0005		0.0750	0.0559	0.0000	0.0875	0.0000	0.0375	0.5475	0.0350				0.0000				0.0000		0.0007	0.0000
41	IG1-41	INEEL CVS Phase 1	Staples et al. 1999	0.0513	0.0750	0.0009	0.0005		0.0750	0.0471	0.0000	0.1268	0.0000	0.0375	0.5475	0.0350				0.0000				0.0000		0.0007	0.0000
42	IG1-42	INEEL CVS Phase 1	Staples et al. 1999	0.1084	0.0750	0.0009	0.0005		0.0734	0.0675	0.0000	0.0875	0.0000	0.0375	0.4743	0.0716				0.0000				0.0000		0.0007	0.0000
43	IG1-43	INEEL CVS Phase 1	Staples et al. 1999	0.0704	0.1250	0.0009	0.0005		0.0250	0.0249	0.0000	0.1625	0.0000	0.0375	0.4449	0.1050				0.0000				0.0000		0.0007	0.0000
44	IG1-44	INEEL CVS Phase 1	Staples et al. 1999	0.0000	0.0701	0.0009	0.0005		0.0000	0.0900	0.0000	0.0500	0.0000	0.0500	0.5951	0.1400				0.0000				0.0000		0.0007	0.0000
45	IG2-01	INEEL CVS Phase 2	Staples et al. 2000	0.1986	0.0496	0.0000	0.0000		0.0000	0.0000	0.0021	0.1986	0.0149	0.0000	0.4715	0.0000				0.0000				0.0000		0.0000	0.0003
46	IG2-02	INEEL CVS Phase 2	Staples et al. 2000	0.1986	0.1787	0.1191	0.0000		0.0000	0.0000	0.0021	0.0496	0.0000	0.0298	0.4170	0.0000				0.0000				0.0000		0.0000	0.0003
47	IG2-03	INEEL CVS Phase 2	Staples et al. 2000	0.0348	0.1790	0.0000	0.0796		0.0000	0.0000	0.0021	0.0497	0.0149	0.0000	0.5969	0.0000				0.0000				0.0000		0.0001	0.0003
48	IG2-04	INEEL CVS Phase 2	Staples et al. 2000	0.1986	0.1787	0.0000	0.0000		0.0993	0.0894	0.0021	0.0496	0.0149	0.0000	0.3474	0.0149				0.0000				0.0000		0.0000	0.0003
49	IG2-05	INEEL CVS Phase 2	Staples et al. 2000	0.0347	0.0496	0.1191	0.0794		0.0099	0.0000	0.0021	0.1986	0.0149	0.0000	0.3476	0.1390				0.0000				0.0000		0.0000	0.0003
50	IG2-06	INEEL CVS Phase 2	Staples et al. 2000	0.0645	0.1787	0.0000	0.0794		0.0000	0.0894	0.0021	0.0496	0.0149	0.0298	0.3475	0.1390				0.0000				0.0000		0.0000	0.0003
51	IG2-07	INEEL CVS Phase 2	Staples et al. 2000	0.0794	0.0496	0.1191	0.0000		0.0993	0.0000	0.0021	0.0496	0.0149	0.0298	0.3525	0.1390				0.0000				0.0000		0.0000	0.0003
52	IG2-08	INEEL CVS Phase 2	Staples et al. 2000	0.0347	0.1787	0.1191	0.0000		0.0993	0.0000	0.0021	0.1268	0.0000	0.0000	0.4342	0.0000				0.0000				0.0000		0.0000	0.0003
53	IG2-09	INEEL CVS Phase 2	Staples et al. 2000	0.1986	0.0496	0.1191	0.0794		0.0000	0.0736	0.0021	0.0496	0.0000	0.0000	0.3633	0.0000				0.0000				0.0000		0.0000	0.0003
54	IG2-10	INEEL CVS Phase 2	Staples et al. 2000	0.0347	0.0496	0.0000	0.0794		0.0993	0.0834	0.0021	0.0496	0.0000	0.0298	0.5074	0.0000				0.0000				0.0000		0.0000	0.0003
55	IG2-11	INEEL CVS Phase 2	Staples et al. 2000	0.0347	0.0496	0.0746	0.0000		0.0000	0.0894	0.0021	0.1588	0.0149	0.0298	0.5410	0.0000				0.0000				0.0000		0.0000	0.0003
56	IG2-12	INEEL CVS Phase 2	Staples et al. 2000	0.0347	0.1787	0.0000	0.0000		0.0000	0.0052	0.0021	0.1986	0.0000	0.0000	0.4044	0.1116				0.0000				0.0000		0.0000	0.0003
57	IG2-13	INEEL CVS Phase 2	Staples et al. 2000	0.0485	0.0706	0.0000	0.0000		0.0000	0.0894	0.0021	0.0496	0.0000	0.0000	0.5957	0.1390				0.0000				0.0000		0.0000	0.0003
58	IG2-14	INEEL CVS Phase 2	Staples et al. 2000	0.1986	0.0613	0.0000	0.0794		0.0993	0.0000	0.0021	0.1489	0.0000	0.0298	0.3556	0.0199				0.0000				0.0000		0.0000	0.0003
59	IG2-15	INEEL CVS Phase 2	Staples et al. 2000	0.0794	0.0596	0.0397	0.0050		0.0298	0.0596	0.0021	0.1489	0.0050	0.0199	0.4963	0.0397				0.0000				0.0000		0.0000	0.0003
60	IG2-16	INEEL CVS Phase 2	Staples et al. 2000	0.1092	0.1191	0.0397	0.0050		0.0298	0.0298	0.0021	0.1489	0.0050	0.0199	0.3971	0.0794				0.0000				0.0000		0.0000	0.0003
61	IG2-17	INEEL CVS Phase 2	Staples et al. 2000	0.0794	0.0596	0.0794	0.0050		0.0298	0.0298	0.0021	0.0993	0.0050	0.0199	0.4814	0.0794				0.0000				0.0000		0.0000	0.0003
62	IG2-18	INEEL CVS Phase 2	Staples et al. 2000	0.1191	0.0596	0.0397	0.0298		0.0596	0.0298	0.0021	0.1489	0.0050	0.0099	0.4021	0.0794				0.0000				0.0000		0.0000	0.0003
63	IG2-19	INEEL CVS Phase 2	Staples et al. 2000	0.0794	0.0596	0.0397	0.0050		0.0298	0.0596	0.0021	0.1489	0.0099	0.0199	0.4914	0.0397				0.0000				0.0000		0.0000	0.0003
64	IG2-20	INEEL CVS Phase 2	Staples et al. 2000	0.0794	0.0596	0.0397	0.0050		0.0596	0.0298	0.0021	0.1489	0.0099	0.0199	0.4914	0.0397				0.0000				0.0000		0.0000	0.0003
65	IG2-21	INEEL CVS Phase 2	Staples et al. 2000	0.0794	0.0596	0.0794	0.0199		0.0596	0.0298	0.0021	0.0993	0.0099	0.0099	0.4964	0.0397				0.0000				0.0000		0.0000	0.0003
66	IG2-22	INEEL CVS Phase 2	Staples et al. 2000	0.1134	0.0651	0.0375	0.0048		0.2098	0.0611	0.0021	0.0140	0.0043	0.0168	0.3825	0.0747				0.0000				0.0000		0.0000	0.0003
67	IG2-23	INEEL CVS Phase 2	Staples et al. 2000	0.1050	0.1191	0.0397	0.0050		0.0298	0.0298	0.0021	0.1489	0.0050	0.0199	0.3971	0.0794				0.0000				0.0000		0.0000	0.0003
68	IG2-24	INEEL CVS Phase 2	Staples et al. 2000	0.1191	0.0596	0.0794	0.0050		0.0596	0.0564	0.0021	0.0993	0.0099	0.0099	0.4053	0.0794				0.0000				0.0000		0.0000	0.0003
69	IG2-25	INEEL CVS Phase 2	Staples et al. 2000	0.1191	0.0596	0.0794	0.0050		0.0596	0.0576	0.0021	0.0993	0.0050	0.0099	0.4090	0.0794				0.0000				0.0000		0.0000	0.0003
70	IG2-26	INEEL CVS Phase 2	Staples et al. 2000	0.0817	0.0611	0.0257	0.0051		0.0611	0.0505	0.0022	0.1018	0.0051	0.0102	0.5088	0.0814				0.0000				0.0000		0.0001	0.0003
71	IG2-27	INEEL CVS Phase 2	Staples et al. 2000	0.0981	0.0596	0.0794	0.0050		0.0298	0.0310	0.0021	0.0993	0.0099	0.0199	0.4963	0.0397				0.0000				0.0000		0.0000	0.0003
72	IG2-28	INEEL CVS Phase 2	Staples et al. 2000	0.0794	0.0596	0.0735	0.0298		0.0596	0.0298	0.0021	0.0993	0.0099	0.0099	0.4924	0.0397				0.0000				0.0000		0.0000	0.0003
73	IG2-29	INEEL CVS Phase 2	Staples et al. 2000	0.0987	0.0915	0.0489	0.0256		0.0440	0.0392	0.0000	0.1154	0.0074	0.0144	0.4361	0.0579				0.0000				0.0000		0.0000	0.0000
74	IG2-30	INEEL CVS Phase 2	Staples et al. 2000	0.1503	0.1503	0.0008	0.0005		0.0000	0.0846	0.0000	0.0501	0.0000	0.0000	0.5314	0.0301				0.0000				0.0000		0.0006	0.0000
75	IG2-31	INEEL CVS Phase 2	Staples et al. 2000	0.0376	0.1252	0.0009	0.0005		0.0250	0.0632	0.0000	0.0876	0.0000	0.0125	0.5403	0.1051				0.0000				0.0000		0.0007	0.0000
76	IG2-32	INEEL CVS Phase 2	Staples et al. 2000	0.0980	0.0908	0.0485	0.0254		0.0437	0.0389	0.0021	0.1146	0.0073	0.0143	0.4331	0.0575				0.0000				0.0000		0.0000	0.0003
77	IG2-33	INEEL CVS Phase 2	Staples et al. 2000	0.0980	0.0908	0.0485	0.0254		0.0437	0.0389	0.0021	0.1146	0.0073	0.0143	0.4331	0.0575				0.0000				0.0000		0.0000	0.0003
78	IG2-34	INEEL CVS Phase 2	Staples et al. 2000	0.0960	0.0890	0.0476	0.0249		0.0428	0.0381	0.0021	0.1123	0.0072	0.0140	0.4243	0.0563				0.0000				0.0000		0.0000	0.0003
79	IG2-35	INEEL CVS Phase 2	Staples et al. 2000	0.0975	0.0904	0.0483	0.0252		0.0435	0.0387	0.0022	0.1139	0.0073	0.0142	0.4304	0.0572				0.0000				0.0000		0.0001	0.0003
80	IG2-36	INEEL CVS Phase 2	Staples et al. 2000	0.0960	0.0890	0.0476	0.0249		0.0428	0.0381	0.0021	0.1123	0.0072	0.0140	0.4243	0.0563				0.0000				0.0000		0.0000	0.0003
81	IG2-37	INEEL CVS Phase 2	Staples et al. 2000	0.0940	0.0872	0.0466	0.0244		0.0419	0.0373	0.0021	0.1100	0.0071	0.0137	0.4155	0.0552				0.0000				0.0000		0.0000	0.0003
82	IG3-01	INEEL CVS Phase 3	Scholes et al. 2000	0.0850	0.0925	0.0487	0.0228		0.0088	0.0396	0.0024	0.1246	0.0073	0.0107	0.4207	0.0622				0.0000					0.0001		0.0003

#	Glass ID	CoO-t	Co2O3-t	Cr2O3-t	Cs2O-t	CuO-t	Dy2O3-t	Eu2O3-t	F-t	Ga2O3-t	Gd2O3-t	HfO2-t	HgO-t	I-t	La2O3-t	MnO2-t	MnO-t	MoO-t	MoO2-t	MoO3-t	Nb2O5-t	Nd2O3-t	NpO2-t	PbO-t	PdO2-t	PdO-t	Pr2O3-t	Pr6O11-t	Rb2O-t	ReO-t
1	IG1-01			0.0000	0.0006	0.0007					0.0007			0.0000	0.0000	0.0000	0.0000			0.0001	0.0000	0.0000		0.0000		0.0000	0.0000	0.0000	0.0000	
2	IG1-02			0.0000	0.0006	0.0006					0.0007			0.0000	0.0000	0.0000	0.0000			0.0001	0.0000	0.0000		0.0000		0.0000	0.0000	0.0000	0.0000	
3	IG1-03			0.0000	0.0005	0.0006					0.0007			0.0000	0.0000	0.0000	0.0000			0.0001	0.0000	0.0000		0.0000		0.0000	0.0000	0.0000	0.0000	
4	IG1-04			0.0000	0.0005	0.0007					0.0007			0.0000	0.0000	0.0000	0.0000			0.0001	0.0000	0.0000		0.0000		0.0000	0.0000	0.0000	0.0000	
5	IG1-05			0.0000	0.0005	0.0007					0.0006			0.0000	0.0000	0.0000	0.0000			0.0001	0.0000	0.0000		0.0000		0.0000	0.0000	0.0000	0.0000	
6	IG1-06			0.0000	0.0006	0.0007					0.0008			0.0000	0.0000	0.0000	0.0000			0.0001	0.0000	0.0000		0.0000		0.0000	0.0000	0.0000	0.0000	
7	IG1-07			0.0000	0.0006	0.0007					0.0008			0.0000	0.0000	0.0000	0.0000			0.0001	0.0000	0.0000		0.0000		0.0000	0.0000	0.0000	0.0000	
8	IG1-08			0.0000	0.0006	0.0006					0.0007			0.0000	0.0000	0.0000	0.0000			0.0001	0.0000	0.0000		0.0000		0.0000	0.0000	0.0000	0.0000	
9	IG1-09			0.0000	0.0005	0.0006					0.0007			0.0000	0.0000	0.0000	0.0000			0.0001	0.0000	0.0000		0.0000		0.0000	0.0000	0.0000	0.0000	
10	IG1-10			0.0000	0.0006	0.0007					0.0007			0.0000	0.0000	0.0000	0.0000			0.0001	0.0000	0.0000		0.0000		0.0000	0.0000	0.0000	0.0000	
11	IG1-11			0.0000	0.0006	0.0008					0.0008			0.0000	0.0000	0.0000	0.0000			0.0001	0.0000	0.0000		0.0000		0.0000	0.0000	0.0000	0.0000	
12	IG1-12			0.0000	0.0006	0.0007					0.0008			0.0000	0.0000	0.0000	0.0000			0.0001	0.0000	0.0000		0.0000		0.0000	0.0000	0.0000	0.0000	
13	IG1-13			0.0000	0.0006	0.0007					0.0008			0.0000	0.0000	0.0000	0.0000			0.0001	0.0000	0.0000		0.0000		0.0000	0.0000	0.0000	0.0000	
14	IG1-14			0.0000	0.0006	0.0007					0.0007			0.0000	0.0000	0.0000	0.0000			0.0001	0.0000	0.0000		0.0000		0.0000	0.0000	0.0000	0.0000	
15	IG1-15			0.0000	0.0005	0.0007					0.0007			0.0000	0.0000	0.0000	0.0000			0.0001	0.0000	0.0000		0.0000		0.0000	0.0000	0.0000	0.0000	
16	IG1-16			0.0000	0.0006	0.0007					0.0007			0.0000	0.0000	0.0000	0.0000			0.0001	0.0000	0.0000		0.0000		0.0000	0.0000	0.0000	0.0000	
17	IG1-17			0.0000	0.0005	0.0007					0.0007			0.0000	0.0000	0.0000	0.0000			0.0001	0.0000	0.0000		0.0000		0.0000	0.0000	0.0000	0.0000	
18	IG1-18			0.0000	0.0005	0.0007					0.0007			0.0000	0.0000	0.0000	0.0000			0.0001	0.0000	0.0000		0.0000		0.0000	0.0000	0.0000	0.0000	
19	IG1-19			0.0000	0.0005	0.0007					0.0007			0.0000	0.0000	0.0000	0.0000			0.0001	0.0000	0.0000		0.0000		0.0000	0.0000	0.0000	0.0000	
20	IG1-20			0.0000	0.0005	0.0007					0.0007			0.0000	0.0000	0.0000	0.0000			0.0001	0.0000	0.0000		0.0000		0.0000	0.0000	0.0000	0.0000	
21	IG1-21			0.0000	0.0006	0.0007					0.0007			0.0000	0.0000	0.0000	0.0000			0.0001	0.0000	0.0000		0.0000		0.0000	0.0000	0.0000	0.0000	
22	IG1-22			0.0000	0.0006	0.0007					0.0007			0.0000	0.0000	0.0000	0.0000			0.0001	0.0000	0.0000		0.0000		0.0000	0.0000	0.0000	0.0000	
23	IG1-23			0.0000	0.0006	0.0007					0.0007			0.0000	0.0000	0.0000	0.0000			0.0001	0.0000	0.0000		0.0000		0.0000	0.0000	0.0000	0.0000	
24	IG1-24			0.0000	0.0006	0.0007					0.0007			0.0000	0.0000	0.0000	0.0000			0.0001	0.0000	0.0000		0.0000		0.0000	0.0000	0.0000	0.0000	
25	IG1-25			0.0000	0.0006	0.0007					0.0007			0.0000	0.0000	0.0000	0.0000			0.0001	0.0000	0.0000		0.0000		0.0000	0.0000	0.0000	0.0000	
26	IG1-26			0.0000	0.0006	0.0007					0.0007			0.0000	0.0000	0.0000	0.0000			0.0001	0.0000	0.0000		0.0000		0.0000	0.0000	0.0000	0.0000	
27	IG1-27			0.0000	0.0006	0.0006					0.0007			0.0000	0.0000	0.0000	0.0000			0.0001	0.0000	0.0000		0.0000		0.0000	0.0000	0.0000	0.0000	
28	IG1-28			0.0000	0.0006	0.0006					0.0007			0.0000	0.0000	0.0000	0.0000			0.0001	0.0000	0.0000		0.0000		0.0000	0.0000	0.0000	0.0000	
29	IG1-29			0.0003	0.0002	0.0003					0.0000			0.0000	0.0011	0.0000	0.0003			0.0005	0.0000	0.0022		0.0000		0.0001	0.0000	0.0002	0.0000	
30	IG1-30			0.0021	0.0015	0.0025					0.0000			0.0000	0.0102	0.0000	0.0020			0.0049	0.0000	0.0190		0.0000		0.0008	0.0000	0.0017	0.0000	
31	IG1-31			0.0000	0.0010	0.0007					0.0007			0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000		0.0000		0.0000	0.0000	0.0000	0.0000	
32	IG1-32			0.0000	0.0010	0.0007					0.0007			0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000		0.0000		0.0000	0.0000	0.0000	0.0000	
33	IG1-33			0.0000	0.0010	0.0007					0.0007			0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000		0.0000		0.0000	0.0000	0.0000	0.0000	
34	IG1-34			0.0000	0.0010	0.0007					0.0007			0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000		0.0000		0.0000	0.0000	0.0000	0.0000	
35	IG1-35			0.0000	0.0010	0.0007					0.0007			0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000		0.0000		0.0000	0.0000	0.0000	0.0000	
36	IG1-36			0.0000	0.0010	0.0007					0.0007			0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000		0.0000		0.0000	0.0000	0.0000	0.0000	
37	IG1-37			0.0000	0.0010	0.0007					0.0007			0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000		0.0000		0.0000	0.0000	0.0000	0.0000	
38	IG1-38			0.0000	0.0010	0.0007					0.0007			0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000		0.0000		0.0000	0.0000	0.0000	0.0000	
39	IG1-39			0.0000	0.0010	0.0007					0.0007			0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000		0.0000		0.0000	0.0000	0.0000	0.0000	
40	IG1-40			0.0000	0.0010	0.0007					0.0007			0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000		0.0000		0.0000	0.0000	0.0000	0.0000	
41	IG1-41			0.0000	0.0010	0.0007					0.0007			0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000		0.0000		0.0000	0.0000	0.0000	0.0000	
42	IG1-42			0.0000	0.0010	0.0007					0.0007			0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000		0.0000		0.0000	0.0000	0.0000	0.0000	
43	IG1-43			0.0000	0.0010	0.0007					0.0007			0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000		0.0000		0.0000	0.0000	0.0000	0.0000	
44	IG1-44			0.0000	0.0010	0.0007					0.0007			0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000		0.0000		0.0000	0.0000	0.0000	0.0000	
45	IG2-01			0.0006	0.0000	0.0000			0.0596		0.0000			0.0000	0.0000	0.0000	0.0001			0.0001	0.0002	0.0001		0.0000		0.0000	0.0000	0.0000	0.0000	
46	IG2-02			0.0006	0.0000	0.0000			0.0000		0.0000			0.0000	0.0000	0.0000	0.0001			0.0001	0.0002	0.0001		0.0000		0.0000	0.0000	0.0000	0.0000	
47	IG2-03			0.0007	0.0000	0.0000			0.0378		0.0000			0.0000	0.0000	0.0000	0.0001			0.0001	0.0002	0.0001		0.0000		0.0000	0.0000	0.0000	0.0000	
48	IG2-04			0.0006	0.0000	0.0000			0.0000		0.0000			0.0000	0.0000	0.0000	0.0001			0.0001	0.0002	0.0001		0.0000		0.0000	0.0000	0.0000	0.0000	
49	IG2-05			0.0006	0.0000	0.0000			0.0000		0.0000			0.0000	0.0000	0.0000	0.0001			0.0001	0.0002	0.0001		0.0000		0.0000	0.0000	0.0000	0.0000	
50	IG2-06			0.0006	0.0000	0.0000			0.0000		0.0000			0.0000	0.0000	0.0000	0.0001			0.0001	0.0002	0.0001		0.0000		0.0000	0.0000	0.0000	0.0000	
51	IG2-07			0.0006	0.0000	0.0000			0.0596		0.0000			0.0000	0.0000	0.0000	0.0001			0.0001	0.0002	0.0001		0.0000		0.0000	0.0000	0.0000	0.0000	
52	IG2-08			0.0006	0.0000	0.0000			0.0000		0.0000			0.0000	0.0000	0.0000	0.0001			0.0001	0.0002	0.0001		0.0000		0.0000	0.0000	0.0000	0.0000	
53	IG2-09			0.0006	0.0000	0.0000			0.0596		0.0000			0.0000	0.0000	0.0000	0.0001			0.0001	0.0002	0.0001		0.0000		0.0000	0.0000	0.0000	0.0000	
54	IG2-10			0.0006	0.0000	0.0000			0.0596		0.0000			0.0000	0.0000	0.0000	0.0001			0.0001	0.0002	0.0001		0.0000		0.0000	0.0000	0.0000	0.0000	
55	IG2-11			0.0006	0.0000	0.0000			0.0000		0.0000			0.0000	0.0000	0.0000	0.0001			0.0001	0.0002	0.0001		0.0000		0.0000	0.0000	0.0000	0.0000	
56	IG2-12			0.0006	0.0000	0.0000			0.0596		0.0000			0.0000	0.0000	0.0000	0.0001			0.0001	0.0002	0.0001		0.0000		0.0000	0.0000	0.0000	0.0000	
57	IG2-13			0.0006	0.0000	0.0000			0.0000		0.0000			0.0000	0.0000	0.0000	0.0001			0.0001	0.0002	0.0001		0.0000		0.0000	0.0000	0.0000	0.0000	
58	IG2-14			0.0006	0.0000	0.0000			0.0000		0.0000			0.0000	0.0000	0.0000	0.0001			0.0001	0.0002	0.0001		0.0000		0.0000	0.0000	0.0000	0.0000	
59	IG2-15			0.0006	0.0000	0.0000			0.0099		0.0000			0.0000	0.0000	0.0000	0.0001			0.0001	0.0002	0.0001		0.0000		0.0000	0.0000	0.0000	0.0000	
60	IG2-16			0.0006	0.0000	0.0000			0.0099		0.0000			0.0000	0.0000	0.0000	0.0001			0.0001	0.0002	0.0001		0.0000		0.0000	0.0000	0.0000	0.0000	
61	IG2-17			0.0006	0.0000	0.0000			0.0248		0.0000			0.0000	0.0000	0.0000	0.0001			0.0001	0.0002	0.0001		0.0000		0.0000	0.0000	0.0000	0.0000	
62	IG2-18			0.0006	0.0000	0.0000			0.0099		0.0000			0.0000	0.0000	0.0000	0.0001			0.0001	0.0002	0.0001		0.0000		0.0000	0.0000	0.0000	0.0000	
63	IG2-19			0.0006	0.0000	0.0000			0.0099		0.0000			0.0000	0.0000	0.0000	0.0001			0.0001	0.0002	0.0001		0.0000		0.0000	0.0000	0.0000	0.0000	
64	IG2-20			0.0006	0.0000	0.0000			0.0099		0.0000			0.0000	0.0000	0.0000	0.0001			0.0001	0.0002	0.0001		0.0000		0.0000	0.0000	0.0000	0.0000	
65	IG2-21			0.0006	0.0000	0.0000			0.0099		0.0000			0.0000	0.0000	0.0000	0.0001			0.0001	0.0002	0.0001		0.0000		0.0000	0.0000	0.0000	0.0000	
66	IG2-22			0.0006	0.0000	0.0000			0.0091		0.0000			0.0000	0.0000	0.0000	0.0001			0.0000	0.0002	0.0001		0.0000		0.0000	0.0000	0.0000	0.0000	
67	IG2-23			0.0006	0.0000	0.0000			0.0141		0.0000			0.0000	0.0000	0.0000	0.0001			0.0001	0.0002	0.0001		0.0000		0.0000	0.0000	0.0000	0.0000	
68	IG2-24			0.0006	0.0000	0.0000			0.0099		0.0000			0.0000	0.0000	0.0000	0.0001			0.0001	0.0002	0.0001		0.0000		0.0000	0.0000	0.0000	0.0000	
69	IG2-25			0.0006	0.0000	0.0000			0.0099		0.0000			0.0000	0.0000	0.0000	0.0001			0.0001	0.0002	0.0001		0.0000		0.0000	0.0000	0.0000	0.0000	
70	IG2-26			0.0007	0.0000	0.0000			0.0000		0.0000			0.0000	0.0000	0.0000	0.0001			0.0001	0.0002	0.0001		0.0000		0.0000	0.0000	0.0000	0.0000	
71	IG2-27			0.0006	0.0000	0.0000			0.0248		0.0000			0.0000	0.0000	0.0000	0.0001			0.0001	0.0002	0.0001		0.0000		0.0000	0.0000	0.0000	0.0000	
72	IG2-28			0.0006	0.0000	0.0000			0.0099		0.0000			0.0000	0.0000	0.0000	0.0001			0.0001	0.0002	0.0001		0.0000		0.0000	0.0000	0.0000	0.0000	
73	IG2-29			0.0000	0.0000	0.0000			0.0209		0.0000			0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000		0.0000		0.0000	0.0000	0.0000	0.0000	
74	IG2-30			0.0000	0.0009	0.0000			0.0000		0.0000			0.0000	0.0000	0.0000	0.0000			0.0001	0.0000	0.0000		0.0000		0.0000	0.0000	0.0000	0.0000	
75	IG2-31			0.0000	0.0010	0.0000			0.0000		0.0000			0.0000	0.0000	0.0000	0.0000			0.0001	0.0000	0.0000		0.0000		0.0000	0.0000	0.0000	0.0000	
76	IG2-32			0.0006	0.0000	0.0000			0.0207		0.0000			0.0000	0.0000	0.0000	0.0001			0.0001	0.0002	0.0001		0.0000		0.0000	0.0000	0.0000	0.0000	
77	IG2-33			0.0006	0.0000	0.0000			0.0207		0.0000			0.0000	0.0000	0.0000	0.0001			0.0001	0.0002	0.0001		0.0000		0.0000	0.0000	0.0000	0.0000	
78	IG2-34			0.0006	0.0000	0.0000			0.0203		0.0000			0.0000	0.0000	0.0000	0.0001			0.0201	0.0002	0.0001		0.0000		0.0000	0.0000	0.0000	0.0000	
79	IG2-35			0.0007	0.0000	0.0000			0.0206		0.0000			0.0000	0.0000	0.0000	0.0001			0.0053	0.0002	0.0001		0.0000		0.0000	0.0000	0.0000	0.0000	
80	IG2-36			0.0006	0.0000	0.0000			0.0203		0.0000			0.0000	0.0000	0.0000	0.0001			0.0001	0.0002	0.0001		0.0000		0.0000	0.0000	0.0000	0.0000	
81	IG2-37			0.0006	0.0000	0.0000			0.0199		0.0000			0.0000	0.0000	0.0000	0.0001			0.0001	0.0002	0.0001		0.0000		0.0000	0.0000	0.0000	0.0000	
82	IG3-01			0.0007	0.0000				0.0217					0.0000	0.0226		0.0001			0.0073	0.0002	0.0001		0.0000			0.0000		0.0000	

#	Glass ID	ReO2-t	Re2O7-t	Rh2O3-t	RhO2-t	RuO2-t	Ru2O3-t	Sb2O3-t	Sb2O5-t	SeO2-t	Sm2O3-t	SnO-t	SnO2-t	SO3-t	SrO-t	Tc2O7-t	TeO2-t	ThO2-t	TiO2-t	Tl2O-t	Tl2O3-t	U3O8-t	UO2-t	UO3-t	V2O5-t	WO3-t	Y2O3-t	ZnO-t	Sum-t	Al2O3-a
1	IG1-01	0.0000		0.0000		0.0000					0.0000		0.0000	0.0000	0.0001		0.0000										0.0000		1.0000	0.0548
2	IG1-02	0.0000		0.0000		0.0000					0.0000		0.0000	0.0000	0.0001		0.0000										0.0000		1.0000	
3	IG1-03	0.0000		0.0000		0.0000					0.0000		0.0000	0.0000	0.0001		0.0000										0.0000		1.0000	
4	IG1-04	0.0000		0.0000		0.0000					0.0000		0.0000	0.0000	0.0001		0.0000										0.0000		1.0000	0.0013
5	IG1-05	0.0000		0.0000		0.0000					0.0000		0.0000	0.0000	0.0001		0.0000										0.0000		1.0000	0.0629
6	IG1-06	0.0000		0.0000		0.0000					0.0000		0.0000	0.0000	0.0001		0.0000										0.0000		1.0000	0.0008
7	IG1-07	0.0000		0.0000		0.0000					0.0000		0.0000	0.0000	0.0001		0.0000										0.0000		1.0000	0.1397
8	IG1-08	0.0000		0.0000		0.0000					0.0000		0.0000	0.0000	0.0001		0.0000										0.0000		1.0000	0.1269
9	IG1-09	0.0000		0.0000		0.0000					0.0000		0.0000	0.0000	0.0001		0.0000										0.0000		1.0000	0.0343
10	IG1-10	0.0000		0.0000		0.0000					0.0000		0.0000	0.0000	0.0001		0.0000										0.0000		1.0000	0.0011
11	IG1-11	0.0000		0.0000		0.0000					0.0000		0.0000	0.0000	0.0001		0.0000										0.0000		1.0000	0.1361
12	IG1-12	0.0000		0.0000		0.0000					0.0000		0.0000	0.0000	0.0001		0.0000										0.0000		1.0000	0.0307
13	IG1-13	0.0000		0.0000		0.0000					0.0000		0.0000	0.0000	0.0001		0.0000										0.0000		1.0000	0.0709
14	IG1-14	0.0000		0.0000		0.0000					0.0000		0.0000	0.0000	0.0001		0.0000										0.0000		1.0000	0.0989
15	IG1-15	0.0000		0.0000		0.0000					0.0000		0.0000	0.0000	0.0001		0.0000										0.0000		1.0000	
16	IG1-16	0.0000		0.0000		0.0000					0.0000		0.0000	0.0000	0.0001		0.0000										0.0000		1.0000	0.0686
17	IG1-17	0.0000		0.0000		0.0000					0.0000		0.0000	0.0000	0.0001		0.0000										0.0000		1.0000	
18	IG1-18	0.0000		0.0000		0.0000					0.0000		0.0000	0.0000	0.0001		0.0000										0.0000		1.0000	0.0644
19	IG1-19	0.0000		0.0000		0.0000					0.0000		0.0000	0.0000	0.0001		0.0000										0.0000		1.0000	
20	IG1-20	0.0000		0.0000		0.0000					0.0000		0.0000	0.0000	0.0001		0.0000										0.0000		1.0000	0.0435
21	IG1-21	0.0000		0.0000		0.0000					0.0000		0.0000	0.0000	0.0001		0.0000										0.0000		1.0000	0.0855
22	IG1-22	0.0000		0.0000		0.0000					0.0000		0.0000	0.0000	0.0001		0.0000										0.0000		1.0000	
23	IG1-23	0.0000		0.0000		0.0000					0.0000		0.0000	0.0000	0.0001		0.0000										0.0000		1.0000	
24	IG1-24	0.0000		0.0000		0.0000					0.0000		0.0000	0.0000	0.0001		0.0000										0.0000		1.0000	0.0798
25	IG1-25	0.0000		0.0000		0.0000					0.0000		0.0000	0.0000	0.0001		0.0000										0.0000		1.0000	0.0693
26	IG1-26	0.0000		0.0000		0.0000					0.0000		0.0000	0.0000	0.0001		0.0000										0.0000		1.0000	0.0538
27	IG1-27	0.0000		0.0000		0.0000					0.0000		0.0000	0.0000	0.0001		0.0000										0.0000		1.0000	
28	IG1-28	0.0000		0.0000		0.0000					0.0000		0.0000	0.0000	0.0001		0.0000										0.0000		1.0000	
29	IG1-29	0.0001		0.0000		0.0003					0.0001		0.0000	0.0000	0.0007		0.0000										0.0001		1.0000	0.1313
30	IG1-30	0.0008		0.0000		0.0025					0.0008		0.0000	0.0000	0.0059		0.0000										0.0008		1.0000	0.0208
31	IG1-31	0.0000		0.0000		0.0000					0.0000		0.0000	0.0000	0.0002		0.0000										0.0000		1.0000	0.1412
32	IG1-32	0.0000		0.0000		0.0000					0.0000		0.0000	0.0000	0.0002		0.0000										0.0000		1.0000	0.1413
33	IG1-33	0.0000		0.0000		0.0000					0.0000		0.0000	0.0000	0.0002		0.0000										0.0000		1.0000	0.0018
34	IG1-34	0.0000		0.0000		0.0000					0.0000		0.0000	0.0000	0.0002		0.0000										0.0000		1.0000	0.0026
35	IG1-35	0.0000		0.0000		0.0000					0.0000		0.0000	0.0000	0.0002		0.0000										0.0000		1.0000	0.0720
36	IG1-36	0.0000		0.0000		0.0000					0.0000		0.0000	0.0000	0.0002		0.0000										0.0000		1.0000	0.0727
37	IG1-37	0.0000		0.0000		0.0000					0.0000		0.0000	0.0000	0.0002		0.0000										0.0000		1.0000	0.0739
38	IG1-38	0.0000		0.0000		0.0000					0.0000		0.0000	0.0000	0.0002		0.0000										0.0000		1.0000	0.0371
39	IG1-39	0.0000		0.0000		0.0000					0.0000		0.0000	0.0000	0.0002		0.0000										0.0000		1.0000	0.0719
40	IG1-40	0.0000		0.0000		0.0000					0.0000		0.0000	0.0000	0.0002		0.0000										0.0000		1.0000	0.0532
41	IG1-41	0.0000		0.0000		0.0000					0.0000		0.0000	0.0000	0.0002		0.0000										0.0000		1.0000	0.0501
42	IG1-42	0.0000		0.0000		0.0000					0.0000		0.0000	0.0000	0.0002		0.0000										0.0000		1.0000	0.1038
43	IG1-43	0.0000		0.0000		0.0000					0.0000		0.0000	0.0000	0.0002		0.0000										0.0000		1.0000	0.0672
44	IG1-44	0.0000		0.0000		0.0000					0.0000		0.0000	0.0000	0.0002		0.0000										0.0000		1.0000	0.0025
45	IG2-01	0.0000		0.0000		0.0000					0.0000		0.0005	0.0022	0.0005		0.0000		0.0000								0.0000		1.0000	0.2070
46	IG2-02	0.0000		0.0000		0.0000					0.0000		0.0005	0.0022	0.0005		0.0000		0.0000								0.0000		1.0000	0.1990
47	IG2-03	0.0000		0.0000		0.0000					0.0000		0.0005	0.0022	0.0006		0.0000		0.0000								0.0000		1.0000	0.0364
48	IG2-04	0.0000		0.0000		0.0000					0.0000		0.0005	0.0022	0.0005		0.0000		0.0000								0.0000		1.0000	0.1990
49	IG2-05	0.0000		0.0000		0.0000					0.0000		0.0005	0.0022	0.0005		0.0000		0.0000								0.0000		1.0000	0.0368
50	IG2-06	0.0000		0.0000		0.0000					0.0000		0.0005	0.0022	0.0005		0.0000		0.0000								0.0000		1.0000	0.0649
51	IG2-07	0.0000		0.0000		0.0000					0.0000		0.0005	0.0022	0.0005		0.0000		0.0000								0.0000		1.0000	0.0848
52	IG2-08	0.0000		0.0000		0.0000					0.0000		0.0005	0.0022	0.0005		0.0000		0.0000								0.0000		1.0000	0.0356
53	IG2-09	0.0000		0.0000		0.0000					0.0000		0.0005	0.0022	0.0005		0.0000		0.0000								0.0000		1.0000	0.2000
54	IG2-10	0.0000		0.0000		0.0000					0.0000		0.0005	0.0022	0.0005		0.0000		0.0000								0.0000		1.0000	0.0379
55	IG2-11	0.0000		0.0000		0.0000					0.0000		0.0005	0.0022	0.0005		0.0000		0.0000								0.0000		1.0000	0.0379
56	IG2-12	0.0000		0.0000		0.0000					0.0000		0.0005	0.0022	0.0005		0.0000		0.0000								0.0000		1.0000	0.0385
57	IG2-13	0.0000		0.0000		0.0000					0.0000		0.0005	0.0022	0.0005		0.0000		0.0000								0.0000		1.0000	0.0494
58	IG2-14	0.0000		0.0000		0.0000					0.0000		0.0005	0.0022	0.0005		0.0000		0.0000								0.0000		1.0000	0.1940
59	IG2-15	0.0000		0.0000		0.0000					0.0000		0.0005	0.0022	0.0005		0.0000		0.0000								0.0000		1.0000	0.0802
60	IG2-16	0.0000		0.0000		0.0000					0.0000		0.0005	0.0022	0.0005		0.0000		0.0000								0.0000		1.0000	0.1070
61	IG2-17	0.0000		0.0000		0.0000					0.0000		0.0005	0.0022	0.0005		0.0000		0.0000								0.0000		1.0000	0.0721
62	IG2-18	0.0000		0.0000		0.0000					0.0000		0.0005	0.0022	0.0005		0.0000		0.0000								0.0000		1.0000	0.1150
63	IG2-19	0.0000		0.0000		0.0000					0.0000		0.0005	0.0022	0.0005		0.0000		0.0000								0.0000		1.0000	0.0768
64	IG2-20	0.0000		0.0000		0.0000					0.0000		0.0005	0.0022	0.0005		0.0000		0.0000								0.0000		1.0000	0.0793
65	IG2-21	0.0000		0.0000		0.0000					0.0000		0.0005	0.0022	0.0005		0.0000		0.0000								0.0000		1.0000	0.0791
66	IG2-22	0.0000		0.0000		0.0000					0.0000		0.0005	0.0022	0.0003		0.0000		0.0000								0.0000		1.0000	0.1130
67	IG2-23	0.0000		0.0000		0.0000					0.0000		0.0005	0.0022	0.0005		0.0000		0.0000								0.0000		1.0000	0.1010
68	IG2-24	0.0000		0.0000		0.0000					0.0000		0.0005	0.0022	0.0005		0.0000		0.0000								0.0000		1.0000	0.1050
69	IG2-25	0.0000		0.0000		0.0000					0.0000		0.0005	0.0022	0.0005		0.0000		0.0000								0.0000		1.0000	0.1060
70	IG2-26	0.0000		0.0000		0.0000					0.0000		0.0005	0.0022	0.0006		0.0000		0.0000								0.0000		1.0000	0.0772
71	IG2-27	0.0000		0.0000		0.0000					0.0000		0.0005	0.0022	0.0005		0.0000		0.0000								0.0000		1.0000	0.0992
72	IG2-28	0.0000		0.0000		0.0000					0.0000		0.0005	0.0022	0.0005		0.0000		0.0000								0.0000		1.0000	0.0761
73	IG2-29	0.0000		0.0000		0.0000					0.0000		0.0000	0.0000	0.0000		0.0000		0.0000								0.0000		1.0000	0.0962
74	IG2-30	0.0000		0.0000		0.0000					0.0000		0.0000	0.0000	0.0002		0.0000		0.0000								0.0000		1.0000	0.1480
75	IG2-31	0.0000		0.0000		0.0000					0.0000		0.0000	0.0000	0.0002		0.0000		0.0000								0.0000		1.0000	0.0415
76	IG2-32	0.0000		0.0000		0.0000					0.0000		0.0005	0.0022	0.0005		0.0000		0.0000								0.0000		1.0000	0.1000
77	IG2-33	0.0000		0.0000		0.0000					0.0000		0.0005	0.0022	0.0005		0.0000		0.0000								0.0000		1.0000	0.0968
78	IG2-34	0.0000		0.0000		0.0000					0.0000		0.0005	0.0022	0.0005		0.0000		0.0000								0.0000		1.0000	0.0992
79	IG2-35	0.0000		0.0000		0.0000					0.0000		0.0005	0.0023	0.0006		0.0000		0.0000								0.0000		1.0000	0.1000
80	IG2-36	0.0000		0.0000		0.0000					0.0000		0.0005	0.0022	0.0206		0.0000		0.0000								0.0000		1.0000	0.0980
81	IG2-37	0.0000		0.0000		0.0000					0.0000		0.0005	0.0022	0.0405		0.0000		0.0000								0.0000		1.0000	0.0970
82	IG3-01	0.0001		0.0000		0.0000					0.0000		0.0006	0.0021	0.0184		0.0000										0.0000		1.0000	0.0867

#	Glass ID	B2O3-a	CaO-a	Fe2O3-a	FeO-a	K2O-a	Li2O-a	MgO-a	Na2O-a	NiO-a	P2O5-a	SiO2-a	ZrO2-a	Ag2O-a	As2O3-a	As2O5-a	BaO-a	BeO-a	Bi2O3-a	Br-a	CdO-a	Ce2O3-a	CeO2-a	Cl-a	CoO-a	Co2O3-a	Cr2O3-a	Cs2O-a	CuO-a	F-a
1	IG1-01	0.0857	0.0009			0.0440	0.0507		0.1436		0.0663	0.4503	0.0667																	
2	IG1-02																													
3	IG1-03																													
4	IG1-04	0.0369	0.0009			0.0009	0.0693		0.0921		0.1170	0.4936	0.1116																	
5	IG1-05	0.1265	0.0009			0.0009	0.0015		0.2187		0.1255	0.4540	0.0001																	
6	IG1-06	0.1403	0.0009			0.0916	0.0458		0.0491		0.0007	0.5717	0.0724																	
7	IG1-07	0.1410	0.0010			0.0009	0.0792		0.0498		0.0007	0.5311	0.0290																	
8	IG1-08	0.0350	0.0009			0.0901	0.0669		0.0826		0.1237	0.3968	0.0271																	
9	IG1-09	0.1278	0.0010			0.0009	0.0332		0.2100		0.1285	0.3471	0.1133																	
10	IG1-10	0.0575	0.0009			0.0009	0.0805		0.1483		0.0007	0.5273	0.1405																	
11	IG1-11	0.0473	0.0011			0.0009	0.0475		0.1897		0.0007	0.5247	0.0004																	
12	IG1-12	0.1440	0.0009			0.1014	0.0001		0.1547		0.0007	0.3947	0.1348																	
13	IG1-13	0.0443	0.0011			0.1028	0.0701		0.1786		0.0081	0.5343	0.0074																	
14	IG1-14	0.0643	0.0010			0.0239	0.0454		0.1574		0.0320	0.4819	0.0305																	
15	IG1-15																													
16	IG1-16	0.0730	0.0009			0.0246	0.0438		0.1641		0.0357	0.4680	0.0981																	
17	IG1-17																													
18	IG1-18	0.1060	0.0010			0.0228	0.0536		0.1076		0.0981	0.4872	0.0297																	
19	IG1-19																													
20	IG1-20	0.1067	0.0009			0.0230	0.0497		0.1076		0.0979	0.4690	0.0952																	
21	IG1-21	0.1131	0.0009			0.0734	0.0603		0.0944		0.0340	0.4300	0.0847																	
22	IG1-22																													
23	IG1-23																													
24	IG1-24	0.1141	0.0009			0.0725	0.0594		0.0933		0.0324	0.4300	0.0855																	
25	IG1-25	0.0689	0.0010			0.0696	0.0470		0.1290		0.0348	0.4690	0.0967																	
26	IG1-26	0.0819	0.0009			0.0414	0.0521		0.1412		0.0687	0.4514	0.0633																	
27	IG1-27																													
28	IG1-28																													
29	IG1-29	0.0814	0.0003			0.0009	0.0659		0.1053		0.0007	0.5445	0.0002																	
30	IG1-30	0.0561	0.0040			0.0009	0.0664		0.1823		0.0050	0.4412	0.1046																	
31	IG1-31	0.1367	0.0011			0.0008	0.0833		0.1145		0.0013	0.4626	0.0293																	
32	IG1-32	0.0537	0.0011			0.0884	0.0789		0.0510		0.0476	0.5022	0.0002																	
33	IG1-33	0.0340	0.0012			0.0765	0.0117		0.2099		0.0015	0.5150	0.1393																	
34	IG1-34	0.0742	0.0011			0.0008	0.0848		0.0511		0.0476	0.5680	0.1353																	
35	IG1-35	0.1496	0.0010			0.0005	0.0017		0.2013		0.0500	0.4930	0.0003																	
36	IG1-36	0.0563	0.0011			0.0914	0.0867		0.1179		0.0014	0.5370	0.0002																	
37	IG1-37	0.0963	0.0011			0.0445	0.0545		0.1202		0.0255	0.4840	0.0747																	
38	IG1-38	0.1207	0.0011			0.0229	0.0601		0.0883		0.0129	0.5250	0.1022																	
39	IG1-39	0.1110	0.0009			0.0645	0.0629		0.0884		0.0123	0.4270	0.1024																	
40	IG1-40	0.1065	0.0010			0.0658	0.0544		0.0924		0.0390	0.5289	0.0367																	
41	IG1-41	0.0670	0.0011			0.0669	0.0463		0.1313		0.0388	0.5359	0.0345																	
42	IG1-42	0.0871	0.0011			0.0651	0.0658		0.0932		0.0388	0.4590	0.0723																	
43	IG1-43	0.1164	0.0010			0.0227	0.0242		0.1654		0.0395	0.4490	0.1079																	
44	IG1-44	0.0646	0.0010			0.0006	0.0868		0.0517		0.0501	0.5835	0.1384																	
45	IG2-01	0.0522	0.0004	0.0002		0.0000	0.0000		0.2000	0.0155	0.0000	0.4780	0.0000																	0.0607
46	IG2-02	0.1900	0.1130	0.0003		0.0000	0.0000		0.0541	0.0000	0.0286	0.4250	0.0000																	0.0000
47	IG2-03	0.1810	0.0004	0.0820		0.0000	0.0000		0.0508	0.0153	0.0005	0.5930	0.0000																	0.0138
48	IG2-04	0.2010	0.0002	0.0003		0.1300	0.0931		0.0563	0.0148	0.0000	0.3410	0.0147																	0.0000
49	IG2-05	0.0549	0.1170	0.0781		0.0118	0.0000		0.1990	0.0148	0.0000	0.3650	0.1410																	0.0000
50	IG2-06	0.2040	0.0003	0.0766		0.0000	0.1067		0.0512	0.0142	0.0288	0.3630	0.1340																	0.0000
51	IG2-07	0.0573	0.1040	0.0002		0.1190	0.0000		0.0523	0.0146	0.0280	0.3780	0.1280																	0.0548
52	IG2-08	0.1880	0.1150	0.0002		0.1110	0.0000		0.1470	0.0000	0.0000	0.4450	0.0000																	0.0000
53	IG2-09	0.0543	0.1140	0.0756		0.0000	0.0756		0.0581	0.0000	0.0000	0.3840	0.0000																	0.0591
54	IG2-10	0.0661	0.0006	0.0701		0.0868	0.0921		0.0669	0.0000	0.0306	0.4910	0.0000																	0.0565
55	IG2-11	0.0543	0.0729	0.0002		0.0000	0.0911		0.1790	0.0145	0.0281	0.5450	0.0000																	0.0000
56	IG2-12	0.2007	0.0002	0.0002		0.0000	0.0060		0.2240	0.0000	0.0000	0.3940	0.1160																	0.0581
57	IG2-13	0.0784	0.0007	0.0004		0.0000	0.0964		0.0554	0.0000	0.0000	0.5970	0.1360																	0.0000
58	IG2-14	0.0659	0.0003	0.0761		0.1090	0.0000		0.1570	0.0000	0.0275	0.3450	0.0195																	0.0000
59	IG2-15	0.0833	0.0400	0.0050		0.0325	0.0579		0.1590	0.0047	0.0181	0.5050	0.0385																	0.0095
60	IG2-16	0.1270	0.0389	0.0050		0.0313	0.0294		0.1420	0.0046	0.0192	0.3910	0.0799																	0.0095
61	IG2-17	0.0641	0.0675	0.0047		0.0320	0.0306		0.1040	0.0049	0.0176	0.4880	0.0768																	0.0209
62	IG2-18	0.0630	0.0397	0.0277		0.0607	0.0309		0.1660	0.0046	0.0093	0.4220	0.0791																	0.0083
63	IG2-19	0.0647	0.0383	0.0051		0.0311	0.0631		0.1660	0.0092	0.0172	0.5130	0.0399																	0.0089
64	IG2-20	0.0620	0.0396	0.0048		0.0612	0.0290		0.1700	0.0093	0.0181	0.4820	0.0382																	0.0084
65	IG2-21	0.0605	0.0759	0.0166		0.0697	0.0326		0.0980	0.0093	0.0087	0.4890	0.0380																	0.0091
66	IG2-22	0.0648	0.0374	0.0048		0.2090	0.0609		0.0139	0.0043	0.0167	0.3810	0.0744																	0.0091
67	IG2-23	0.1180	0.0382	0.0047		0.0359	0.0299		0.1600	0.0047	0.0187	0.3800	0.0777																	0.0132
68	IG2-24	0.0582	0.0662	0.0059		0.0662	0.0589		0.0975	0.0094	0.0090	0.4080	0.0779																	0.0091
69	IG2-25	0.0573	0.0640	0.0051		0.0616	0.0536		0.0951	0.0046	0.0086	0.3950	0.0740																	0.0092
70	IG2-26	0.0538	0.0251	0.0224		0.0609	0.0554		0.1050	0.0046	0.0089	0.4730	0.0778																	0.0000
71	IG2-27	0.0557	0.0765	0.0048		0.0327	0.0338		0.0969	0.0092	0.0173	0.4840	0.0391																	0.0231
72	IG2-28	0.0564	0.0700	0.0268		0.0696	0.0273		0.1060	0.0090	0.0089	0.4820	0.0382																	0.0097
73	IG2-29	0.1070	0.0466	0.0261		0.0480	0.0390		0.1280	0.0070	0.0132	0.4250	0.0556																	0.0203
74	IG2-30	0.1470	0.0012	0.0014		0.0000	0.0970		0.0513	0.0000	0.0000	0.4960	0.0294																	0.0000
75	IG2-31	0.1300	0.0022	0.0000		0.0262	0.0599		0.0877	0.0000	0.0123	0.5230	0.1060																	0.0000
76	IG2-32	0.0966	0.0476	0.0259		0.0466	0.0425		0.1120	0.0071	0.0143	0.4490	0.0573																	0.0195
77	IG2-33	0.0924	0.0489	0.0251		0.0439	0.0424		0.1150	0.0074	0.0139	0.4430	0.0557																	0.0193
78	IG2-34	0.0992	0.0481	0.0248		0.0431	0.0370		0.1080	0.0070	0.0137	0.4510	0.0543																	0.0177
79	IG2-35	0.0970	0.0485	0.0253		0.0489	0.0360		0.1220	0.0074	0.0142	0.4330	0.0546																	0.0199
80	IG2-36	0.0909	0.0486	0.0244		0.0447	0.0367		0.1100	0.0073	0.0140	0.3900	0.0554																	0.0195
81	IG2-37	0.0829	0.0478	0.0244		0.0461	0.0357		0.1020	0.0073	0.0130	0.3970	0.0526																	0.0195
82	IG3-01	0.0939	0.0538	0.0226		0.0096	0.0396	0.0019	0.1243	0.0068	0.0060	0.4252	0.0535				0.0000					0.0000		0.0003			0.0006	0.0000		0.0172

#	Glass ID	Ga2O3-a	Gd2O3-a	I-a	La2O3-a	MnO2-a	MnO-a	MoO-a	MoO3-a	Nb2O5-a	Nd2O3-a	NpO2-a	PbO-a	PdO2-a	PdO-a	Pr2O3-a	Pr6O11-a	PuO2-a	Rb2O-a	ReO-a	ReO2-a	Re2O7-a	Rh2O3-a	RhO2-a	RuO2-a	Sb2O3-a	Sb2O5-a	SeO2-a
1	IG1-01																											
2	IG1-02																											
3	IG1-03																											
4	IG1-04																											
5	IG1-05																											
6	IG1-06																											
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9	IG1-09																											
10	IG1-10																											
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36	IG1-36																											
37	IG1-37																											
38	IG1-38																											
39	IG1-39																											
40	IG1-40																											
41	IG1-41																											
42	IG1-42																											
43	IG1-43																											
44	IG1-44																											
45	IG2-01								0.0000																			
46	IG2-02								0.0000																			
47	IG2-03								0.0000																			
48	IG2-04								0.0000																			
49	IG2-05								0.0000																			
50	IG2-06								0.0000																			
51	IG2-07								0.0000																			
52	IG2-08								0.0000																			
53	IG2-09								0.0000																			
54	IG2-10								0.0000																			
55	IG2-11								0.0000																			
56	IG2-12								0.0000																			
57	IG2-13								0.0000																			
58	IG2-14								0.0000																			
59	IG2-15								0.0000																			
60	IG2-16								0.0000																			
61	IG2-17								0.0000																			
62	IG2-18								0.0000																			
63	IG2-19								0.0000																			
64	IG2-20								0.0000																			
65	IG2-21								0.0000																			
66	IG2-22								0.0000																			
67	IG2-23								0.0000																			
68	IG2-24								0.0000																			
69	IG2-25								0.0000																			
70	IG2-26								0.0000																			
71	IG2-27								0.0000																			
72	IG2-28								0.0000																			
73	IG2-29								0.0000																			
74	IG2-30								0.0000																			
75	IG2-31								0.0000																			
76	IG2-32								0.0000																			
77	IG2-33								0.0000																			
78	IG2-34								0.0191																			
79	IG2-35								0.0050																			
80	IG2-36								0.0000																			
81	IG2-37								0.0000																			
82	IG3-01			0.0000	0.0211		0.0001		0.0069	0.0002	0.0001		0.0000				0.0000			0.0000		0.0000		0.0000		0.0000		

#	Glass ID	Sm2O3-a	SnO-a	SnO2-a	SO3-a	SrO-a	Tc2O7-a	TeO2-a	ThO2-a	TiO2-a	Tl2O-a	Tl2O3-a	U3O8-a	UO2-a	UO3-a	V2O5-a	WO3-a	Y2O3-a	ZnO-a	Sum-a	T_M (°C)	$T_{L,G}$ (°C)	$T_{L,U}$ (°C)	$T_{1\%}$ (°C)	Primary Phase	$C_{650°C}$	$C_{700°C}$	$C_{750°C}$
1	IG1-01																			0.9630	1150	897	902		Li3PO4			
2	IG1-02																			0.0000	1150				Li3PO4			
3	IG1-03																			0.0000	1150				Na3PO4			
4	IG1-04																			0.9236	1150							
5	IG1-05																			0.9910	1150							
6	IG1-06																			0.9733	1150	883-855	887		SiO2, LiB2O4			
7	IG1-07																			0.9724	1150	915-897	885		LiAlSi3O8			
8	IG1-08																			0.9500	1150							
9	IG1-09																			0.9961	1150		861		Na2Si3O7, Li2NaPO4			
10	IG1-10																			0.9577	1150	985-965	981		Na2ZrSi2O7, Li2SiO3			
11	IG1-11																			0.9484	1150	848-743	827		NaAlSiO4, Li2SiO3			
12	IG1-12																			0.9620	1150		1075		K2ZrSi3O9			
13	IG1-13																			1.0176	1150	775-770	765		Li2SiO3			
14	IG1-14																			0.9353	1150	850-840	862		Li3PO4			
15	IG1-15																			0.0000	1150							
16	IG1-16																			0.9768	1150	908-882	917		Li3PO4, Zr2P2O7			
17	IG1-17																			0.0000	1150	930-925	928		(Li,Na)3PO4, Li2NaPO4			
18	IG1-18																			0.9704	1150							
19	IG1-19																			0.0000	1150							
20	IG1-20																			0.9935	1150							
21	IG1-21																			0.9763	1150	918-898	927		Li3PO4			
22	IG1-22																			0.0000	1150							
23	IG1-23																			0.0000	1150							
24	IG1-24																			0.9679	1150	918	905		Li3PO4			
25	IG1-25																			0.9853	1150	990-980	991		K2ZrSi3O9, Li3PO4			
26	IG1-26																			0.9547	1150	888	875		Li3PO4			
27	IG1-27																			0.0000	1150							
28	IG1-28																			0.0000	1150							
29	IG1-29																			0.9305	1150	1090-1080						
30	IG1-30																			0.8813	1150	1135-1125						
31	IG1-31																			0.9708	1150	785	791		Li2SiO3, ZrO2			
32	IG1-32																			0.9644	1150							
33	IG1-33																			0.9909	1450		1310		Na2ZrSi2O7			
34	IG1-34																			0.9655	1150		1142		LiNaZrSi6O15, Li3PO4			
35	IG1-35																			0.9694	1150	863	850		Na3PO4			
36	IG1-36																			0.9647	1150	865	855		Li2SiO3			
37	IG1-37																			0.9747	1150	871	887		Li3PO4, ZrO2			
38	IG1-38																			0.9703	1150	900-885	922		LiNaZrSi6O15			
39	IG1-39																			0.9413	1150	875-840	855		K2ZrSi3O9			
40	IG1-40																			0.9779	1150	927	927		Li3PO4			
41	IG1-41																			0.9719	1150	835-827	847		Li3PO4			
42	IG1-42																			0.9862	1150	960-953	954		Li3PO4			
43	IG1-43																			0.9933	1150	815	811		Li3PO4			
44	IG1-44																			0.9792	1150		1142		LiNaZrSi6O15, Li3PO4			
45	IG2-01					0.0003														1.0143	1250							
46	IG2-02					0.0003														1.0103	1250		1133		Ca5(PO4)3(OH)			
47	IG2-03					0.0004														0.9736	1550							
48	IG2-04					0.0003														1.0507	1150		913		NiO, Na2ZrO3			
49	IG2-05					0.0004														1.0188	1250							
50	IG2-06					0.0003														1.0440	1250							
51	IG2-07					0.0003														1.0213	1250							
52	IG2-08					0.0004														1.0422	1150		861		CaSiO3			
53	IG2-09					0.0002														1.0209	1150							
54	IG2-10					0.0003														0.9989	1150							
55	IG2-11					0.0004														1.0234	1150		773		Li2SiO3			
56	IG2-12					0.0003														1.0380	1150		823		unknown phase			
57	IG2-13					0.0003														1.0140	1250		1223		ZrSiO4			
58	IG2-14					0.0003														0.9946	1250		1133		NaAlSiO4			
59	IG2-15					0.0003														1.0340	1150		823		Ca5(PO4)3OH			
60	IG2-16					0.0004														0.9852	1150		948		Ca5(PO4)3F			
61	IG2-17					0.0003														0.9835	1250							
62	IG2-18					0.0003														1.0266	1250		1407		ZrO2			
63	IG2-19					0.0003														1.0336	1150		841		Li2SiO3, Ca5(PO4)3F			
64	IG2-20					0.0003														1.0022	1150		843		Ca5(PO4)3F			
65	IG2-21					0.0003														0.9868	1150		961		Ca5(PO4)3F			
66	IG2-22					0.0003														0.9896	1250							
67	IG2-23					0.0003														0.9823	1150		923		Ca5(PO4)3F			
68	IG2-24					0.0003														0.9716	1250		1382		ZrO2			
69	IG2-25					0.0003														0.9344	1250		1362		ZrO2			
70	IG2-26					0.0003														0.9644	1150		966		Li2SiO3			
71	IG2-27					0.0003														0.9726	1250							
72	IG2-28					0.0003														0.9803	1150		938		Ca5(PO4)3F			
73	IG2-29					0.0000														1.0120	1150		923		Ca5(PO4)3F			
74	IG2-30					0.0000														0.9713	1150		948		LiAlSi3O8			
75	IG2-31					0.0000														0.9888	1150		883		LiNaZrSi6O15, LiPO4			
76	IG2-32					0.0003														1.0187	1150		933		Ca5(PO4)3F			
77	IG2-33					0.0003														1.0041	1150		913		Ca5(PO4)3F			
78	IG2-34					0.0003														1.0225	1250							
79	IG2-35					0.0003														1.0121	1150		931		Ca5(PO4)3F			
80	IG2-36					0.0148														0.9543	1150		923		Ca5(PO4)3F			
81	IG2-37					0.0300														0.9553	1150		938		Ca5(PO4)3F			
82	IG3-01	0.0000		0.0005	0.0039	0.0183		0.0000										0.0000		0.9932	1150		873		Ca10(SiO4)3(SO4)3F2			

#	Glass ID	$C_{800°C}$	$C_{850°C}$	$C_{900°C}$	$C_{950°C}$	$C_{1000°C}$	$C_{1050°C}$	$C_{1100°C}$	$C_{1150°C}$	$C_{1200°C}$	Quenched Visual/OM	Quenched XRD	CCC XRD	ρ (g/cm³)	Fulc Visc A	Fulc Visc B	Fulc Visc To	Arrh Visc E	Arrh Visc F	T1 (°C)	V1 (Pa·s)
1	IG1-01										Homogeneous	Li3PO4			-5.879	6252.6	296.5	-11.624	18626.3	1160.0	3.800
2	IG1-02										Phase Separated	Li3PO4			-3.589	2400.8	584.2	-10.903	16498.7	1162.2	1.7
3	IG1-03										Phase Separated	Na3PO4									
4	IG1-04										Phase Separated										
5	IG1-05										Phase Separated										
6	IG1-06										Homogeneous	Amorphous			-5.934	6419.0	337.5	-12.931	21236.6	1156.1	6.660
7	IG1-07										Homogeneous	Amorphous			-5.061	6470.2	264.4	-10.218	17762.1	1159.5	8.760
8	IG1-08										Phase Separated				-1.154	1153.3	849.2	-13.273	22753.9	1159	13.18
9	IG1-09										Homogeneous	Li2NaPO4			-7.025	6030.0	353.7	-14.109	20894.0	1155.9	1.64
10	IG1-10										Homogeneous	Amorphous			-7.334	7607.1	242.9	-12.854	19823.4	1159.1	2.680
11	IG1-11										Homogeneous	Amorphous			-4.821	6807.0	216.5	-9.233	16682.8	1158.6	11.190
12	IG1-12										Homogeneous	Amorphous			-9.621	10796.0	209.5	-16.359	25957.7	1158.7	5.670
13	IG1-13										Homogeneous	Amorphous			-5.595	6261.9	183.9	-9.104	14234.8	1156.0	2.330
14	IG1-14										Homogeneous	Li3PO4	Li3PO4		-5.346	6601.5	255.8	-10.419	17754.0	1157.6	7.180
15	IG1-15										Phase Separated										
16	IG1-16										Homogeneous	Amorphous	Li3PO4		-5.972	6781.3	305.4	-12.405	20626.9	1162.1	7.050
17	IG1-17										Homogeneous	Li2NaPO4			-6.077	6626.8	338.1	-13.320	21964.5	1159.9	7.25
18	IG1-18										Phase separated										
19	IG1-19										Phase separated				-5.475	6233.2	325.6	-10.958	18584.3	1160.8	7.23
20	IG1-20										Phase separated										
21	IG1-21										Homogeneous	Li3PO4			-6.114	6360.0	285.1	-11.656	18383.0	1158.0	3.240
22	IG1-22										Phase separated										
23	IG1-23										Phase separated				-5.842	6380.9	337.0	-11.773	19632.8	1158	6.88
24	IG1-24										Homogeneous	Li3PO4, Na2ZrSiO5			-5.732	5834.4	311.3	-11.364	17948.6	1162.4	3.060
25	IG1-25										Homogeneous	Li3PO4			-6.133	6734.2	308.0	-12.618	20654.5	1159.6	5.920
26	IG1-26										Homogeneous	Li3PO4			-5.970	6285.1	297.7	-11.742	18738.4	1158.0	3.780
27	IG1-27										Phase separated				-1.237	1166.9	848.6	-13.892	23590.1	1159.9	12.38
28	IG1-28										Phase separated				-1.875	1522.3	811.1	-14.667	24669.0	1158.1	12.17
29	IG1-29										Homogeneous				-4.667	6594.3	238.9	-9.329	16959.1	1163.2	11.740
30	IG1-30										Homogeneous				-5.011	4049.1	425.7	-11.533	17273.8	1155.3	1.710
31	IG1-31										Homogeneous	Li2SiO3, ZrO2			-5.816	6034.3	220.1	-9.786	14901.3	1157.3	1.870
32	IG1-32										Phase Separated	Li3PO4			-4.920	6656.4	273.1	-10.040	18112.8	1157.1	13.75
33	IG1-33										Homogeneous	Amorphous									
34	IG1-34										Homogeneous	Li3PO4			-5.893	6799.9	373.1	-13.818	23769.5	1158	15.95
35	IG1-35										Homogeneous	Amorphous	Na3PO4		-5.140	5750.5	366.4	-12.244	20609.6	1158.5	8.250
36	IG1-36										Homogeneous	Li2SiO3			-5.522	6460.8	189.3	-9.230	14871.2	1155.9	3.250
37	IG1-37										Homogeneous	Amorphous	Li3PO4		-5.849	6571.6	286.7	-11.618	19076.5	1157.5	5.450
38	IG1-38										Homogeneous	Amorphous	none		-5.929	6569.3	319.6	-12.583	20764.4	1157.5	6.740
39	IG1-39										Homogeneous	Amorphous	none		-6.331	6346.2	288.7	-11.949	18514.0	1159.2	2.620
40	IG1-40										Homogeneous	Li3PO4			-5.220	6054.7	313.6	-11.169	18797.4	1157.9	6.920
41	IG1-41										Homogeneous	Li3PO4	Li3PO4		-5.376	6490.9	274.8	-10.784	18279.6	1158.0	7.160
42	IG1-42										Homogeneous	Li3PO4			-5.708	6720.2	289.8	-11.691	19668.3	1158.6	7.600
43	IG1-43										Homogeneous	Amorphous	Li3PO4		-6.053	6513.7	343.9	-13.339	21906.5	1159.7	6.820
44	IG1-44										Homogeneous	Li3PO4			-5.938	6830.5	371.4	-13.833	23754.6	1158.9	15.43
45	IG2-01										Inhomogeneous	Na3AlF6		2.490	-3.682	6380.2	259.2	-8.170	16656.0	1156.7	29.940
46	IG2-02										Homogeneous	Amorphous		2.450	-4.643	5769.9	516.4	-14.185	26612.9	1254.9	23.360
47	IG2-03										Inhomogeneous	Fe2O3, NaAlO2		2.340							
48	IG2-04										Homogeneous	Amorphous		2.450	-5.766	5989.6	201.7	-9.374	14141.8	1157.1	1.640
49	IG2-05										Inhomogeneous	ZrO2		2.940	-16.402	27111.0	-385.5	-15.192	23401.5	1256.3	1.170
50	IG2-06										Inhomogeneous	ZrSiO4, ZrO2		2.730	-10.533	13589.0	-144.1	-11.671	16572.6	1007.7	3.840
51	IG2-07										Inhomogeneous	ZrO2, CaF2		2.780	-33.640	63084.0	-501.3	(-28.623)	(47202.154)	1107.2	338.100
52	IG2-08										Homogeneous	Amorphous		2.560	-5.496	4279.5	422.6	-12.232	18004.0	1157.8	1.370
53	IG2-09										Inhomogeneous	Amorphous	LiAlSiO4 and NaAlSiO4	2.660	-5.259	3936.8	454.7	-12.400	18270.4	1159.4	1.340
54	IG2-10										Inhomogeneous	Unidentified Phase	Li3PO4 and LiF	2.450	-5.595	5698.8	301.9	-11.321	17729.3	1059.1	6.920
55	IG2-11										Homogeneous	Amorphous	Amorphous	2.550	-5.892	5992.5	206.4	-10.113	15046.1	1059.4	3.050
56	IG2-12										Homogeneous	Amorphous	NaF, LiAlOCl2, and NaAl2Si2O9	2.630	-6.440	5817.5	336.0	-13.871	20743.0	1061.8	4.340
57	IG2-13										Homogeneous	Amorphous		2.590	-5.850	7017.6	364.1	-12.412	22087.8	1254.8	7.540
58	IG2-14										Homogeneous	Amorphous		2.290	-27.698	96203.0	-1806.8	-12.483	24733.0	1255.5	44.310
59	IG2-15										Homogeneous	Amorphous	Amorphous	2.560	-5.576	6249.9	256.6	-10.366	16800.0	1157.1	3.860
60	IG2-16										Homogeneous	Amorphous		2.610	-5.994	6386.2	302.7	-11.982	19284.0	1156.1	4.370
61	IG2-17										Homogeneous	Ca5(PO4)3F		2.650	-5.748	6537.2	363.4	-12.163	20998.0	1254.3	4.740
62	IG2-18										Homogeneous	ZrO2		2.670	-7.102	8434.5	222.8	-12.183	20260.0	1254.9	2.860
63	IG2-19										Homogeneous	Amorphous	Amorphous	2.580	-5.700	6278.3	258.6	-10.540	16939.0	1156.1	3.570
64	IG2-20										Homogeneous	Amorphous	Amorphous	2.580	-5.689	6772.7	267.9	-11.146	18736.0	1158.7	6.650
65	IG2-21										Homogeneous	Amorphous		2.610	-5.595	6870.3	297.0	-11.831	20386.0	1158.7	10.790
66	IG2-22										Homogeneous	SiO2, SiP2O7, AlPO4		2.590	-7.282	8396.0	234.9	-13.137	21426.0	1158.1	6.000
67	IG2-23										Homogeneous	Amorphous	Ca5(PO4)3F	2.620	-6.206	6387.6	303.2	-12.176	19270.0	1158.4	3.510
68	IG2-24										Homogeneous	Amorphous		2.660	-7.544	8590.7	183.6	-12.327	19490.0	1159.2	3.560
69	IG2-25										Homogeneous	Amorphous		2.660	-7.446	8626.8	174.5	-12.059	19182.0	1158.9	3.730
70	IG2-26										Homogeneous	Amorphous	Amorphous	2.600	-5.527	6772.5	302.4	-11.848	20409.0	1156.7	11.000
71	IG2-27										Inhomogeneous	Ca5(PO4)3F		2.590	-5.489	6358.8	369.2	-12.222	21200.0	1157.2	12.940
72	IG2-28										Homogeneous	Amorphous	Amorphous	2.620	-5.785	6668.3	299.2	-11.922	19929.0	1158.5	7.380
73	IG2-29										Homogeneous	Amorphous	Ca5(PO4)3F	2.620	-5.842	6430.1	274.8	-11.180	18085.0	1158.5	4.110
74	IG2-30										Homogeneous	Amorphous		2.410	-5.002	6565.9	261.5	-10.119	17829.0	1157.7	10.220
75	IG2-31										Homogeneous	Amorphous		2.560	-5.759	6542.4	320.5	-12.345	20636.0	1158.3	7.750
76	IG2-32										Homogeneous	Amorphous		2.610	-5.846	6466.9	283.6	-11.396	18555.0	1160.2	4.540
77	IG2-33										Homogeneous	Amorphous	Ca5(PO4)3F	2.620	-6.010	6340.0	288.4	-11.584	18437.0	1157.6	3.530
78	IG2-34										Inhomogeneous	Ca5(PO4)3F, KAlSiO4		2.630	-5.843	6386.1	292.4	-11.549	18751.0	1157.3	4.580
79	IG2-35										Homogeneous	Amorphous	Ca5(PO4)3F	2.610	-5.882	6398.6	282.2	-11.353	18313.0	1156.7	4.160
80	IG2-36										Homogeneous	Amorphous	Ca5(PO4)3F	2.640	-5.754	6211.9	289.9	-11.228	18100.0	1158.4	3.940
81	IG2-37										Homogeneous	Amorphous		2.670	-5.851	6358.3	287.5	-11.400	18422.0	1157.1	4.250
82	IG3-01										single-phase	amorphous	amorphous	2.710				-11.688	18047.0	1156.2	2.470

#	Glass ID	T2 (°C)	V2 (Pa·s)	T3 (°C)	V3 (Pa·s)	T4 (°C)	V4 (Pa·s)	T5 (°C)	V5 (Pa·s)	T6 (°C)	V6 (Pa·s)	T7 (°C)	V7 (Pa·s)	T8 (°C)	V8 (Pa·s)	T9 (°C)	V9 (Pa·s)	T10 (°C)	V10 (Pa·s)	TCLP Ag	TCLP As	TCLP Ba	TCLP Cd	TCLP Cr	TCLP Ni	TCLP Pb
1	IG1-01	1105.8	6.220	1055.1	10.3	1108.0	6.4	1158.7	4.0	1206.5	2.7	1255.2	1.9	1153.4	4.2	1005.5	19.2	956.0	36.5							
2	IG1-02	1109.3	2.6	1058.4	4.23	1109.5	2.68	1158.7	1.85	1207.9	1.32	1255.9	0.96	1156.3	1.92	1008	8.1									
3	IG1-03																									
4	IG1-04																									
5	IG1-05																									
6	IG1-06	1105.9	11.210	1056	20.0	1107.9	10.9	1157.5	6.6	1206.1	4.3	1255.3	2.9	1155.2	7.0	1006.7	39.2	957.2	83.1							
7	IG1-07	1106.6	13.830	1055.6	22.6	1107.6	13.6	1158.0	8.9	1206.1	6.1	1254.9	4.3	1154.4	9.2	1005.9	39.3	955.9	73.0							
8	IG1-08	1107.9	27.35	1158.6	12.48	1207.2	8.14	1256	5.31	1156.2	13.76															
9	IG1-09	1105.5	2.7	1055.6	4.77	1105.9	2.71	1155.2	1.65	1204.1	1.06	1252.9	0.72	1154.6	1.69	1006	9.31	956.9	19.38							
10	IG1-10	1106.4	4.470	1055.8	7.7	1107.3	4.4	1157.0	2.7	1206.1	1.8	1256.0	1.2	1155.0	2.8	1006.1	14.1	956.8	27.4							
11	IG1-11	1105.4	17.350	1055.4	27.3	1107.2	17.0	1156.6	11.3	1205.8	7.8	1254.7	5.5	1154.0	11.8	1006.1	45.2	956.6	78.5							
12	IG1-12	1108	10.800	1057.9	21.3	1109.5	10.6	1158.8	5.8	1207.6	3.3	1255.8	2.0	1156.2	6.6	1007.9	50.7	958.6	120.8							
13	IG1-13	1105.1	3.350	1055	4.9	1105.3	3.4	1154.8	2.4	1204.0	1.7	1253.1	1.3	1154.1	2.4	1005.2	7.7	956.1	12.1							
14	IG1-14	1106.6	11.300	1056.3	18.3	1106.7	11.3	1156.2	7.3	1205.2	5.0	1254.2	3.5	1155.4	7.5	1006.4	32.0	957.0	57.8							
15	IG1-15																									
16	IG1-16	1109	12.030	1058.4	21.3	1109.5	12.0	1158.8	7.3	1207.7	4.7	1256.4	3.1	1156.6	7.5	1008.1	40.4	958.9	80.7							
17	IG1-17	1107.4	12.77	1056.5	23.31	1107.6	12.61	1157.1	7.63	1206.2	4.75	1255.2	3.1	1155.4	7.76	1006.5	47.37	957.2	100.39							
18	IG1-18																									
19	IG1-19	1108.5	11.95	1057.6	21.06	1108.9	11.94	1158.3	7.42	1207.1	4.93	1255.8	3.43	1156.1	7.74											
20	IG1-20																									
21	IG1-21	1105.8	5.200	1055.4	8.6	1107.9	5.1	1157.3	3.3	1206.1	2.2	1255.0	1.5	1154.8	3.4	1005.9	15.2	956.7	28.4							
22	IG1-22																									
23	IG1-23	1107	11.53	1056.8	20.36	1107.2	11.55	1156.5	7.01	1205.5	4.52	1254.4	3	1155.7	7.19											
24	IG1-24	1109.8	4.780	1059	7.8	1110.2	4.8	1159.5	3.1	1208.3	2.2	1256.9	1.6	1157.3	3.3	1008.7	14.2	959.6	26.4							
25	IG1-25	1107.2	10.090	1056.5	17.8	1107.9	10.0	1157.4	6.1	1206.3	3.9	1255.1	2.6	1155.3	6.3	1006.5	34.3	957.3	68.3							
26	IG1-26	1107	6.030	1057.1	10.0	1107.1	6.1	1156.9	3.9	1206.0	2.6	1255.0	1.8	1156.2	3.9	1007.0	18.3	957.6	34.7							
27	IG1-27	1109	25.34	1158.5	12.54	1107.6	27	1158.8	11.91	1207.5	7.6	1256.2	5.11	1156.3	13.36											
28	IG1-28	1107	26.29	1106.2	27.59	1156.4	12.02	1205.4	7.27	1254.3	4.92	1155.5	12.76													
29	IG1-29	1110.3	18.220	1059.5	29.0	1110.9	18.2	1160.0	12.1	1208.9	8.4	1258.0	6.0	1158.1	12.5	1009.4	49.4	960.2	86.9							
30	IG1-30	1104.1	2.550	1055.8	4.1	1107.4	2.5	1157.0	1.7	1206.1	1.2	1255.2	0.9	1155.6	1.7	1006.9	7.3	957.1	13.5							
31	IG1-31	1106.6	2.700	1056.2	4.1	1106.7	2.7	1156.1	1.9	1205.4	1.4	1254.2	1.0	1155.4	1.9	1006.2	6.4	956.9	10.7							
32	IG1-32	1106.1	21.69	1055.9	35.77	1106.4	21.65	1155.8	13.83	1204.8	9.23	1253.8	6.35	1155	14.05	1006.1	63.75									
33	IG1-33																									
34	IG1-34	1106.9	29.34	1056.5	57.34	1106.7	29.46	1156.1	16.34	1205.1	9.7	1254.1	6.06	1155.2	16.67	1006.1	124.1									
35	IG1-35	1107.4	13.590	1057.1	23.9	1107.4	13.7	1156.9	8.5	1205.8	5.7	1254.7	3.9	1155.8	8.9	1006.8	48.2	957.5	101.6							
36	IG1-36	1106	4.660	1056.1	7.0	1106.7	4.6	1156.1	3.2	1205.3	2.3	1254.2	1.7	1155.4	3.3	1006.4	11.0	957.1	17.7							
37	IG1-37	1106.8	8.810	1056.7	14.8	1107.0	8.8	1156.5	5.6	1205.5	3.7	1254.4	2.5	1155.6	5.7	1006.7	26.9	957.6	51.2							
38	IG1-38	1106.7	11.310	1056.4	20.0	1106.6	11.3	1156.1	6.9	1205.2	4.4	1254.2	3.0	1155.3	7.0	1006.3	38.4	956.9	78.9							
39	IG1-39	1107.7	4.170	1057.1	6.9	1107.4	4.2	1156.7	2.7	1205.6	1.8	1254.4	1.3	1155.5	2.7	1006.6	12.5	957.3	23.4							
40	IG1-40	1106.7	11.090	1056.5	18.5	1107.0	11.1	1156.5	7.2	1205.5	4.8	1254.4	3.4	1155.6	7.3	1006.8	34.3	957.4	65.2							
41	IG1-41	1106.9	11.320	1056.5	18.6	1106.9	11.4	1156.2	7.3	1205.3	5.0	1254.1	3.5	1155.2	7.6	1006.3	33.4	956.9	62.3							
42	IG1-42	1107.2	12.510	1056.7	21.5	1107.2	12.6	1156.6	7.8	1205.5	5.1	1254.5	3.5	1155.5	8.0	1006.7	39.8	957.5	76.9							
43	IG1-43	1107.2	11.980	1057.1	21.9	1107.8	11.9	1157.7	7.1	1206.2	4.5	1255.2	2.9	1155.5	7.4	1006.3	43.9	958.8	92.8							
44	IG1-44	1107.5	28.44	1057	55.43	1107.3	28.61	1156.6	15.92	1205.5	9.42	1254.4	5.88	1155.5	16.16	1006.5	119.96									
45	IG2-01	1105.7	46.490	1055.4	76.2	1006.5	130.9	956.6	237.9	1155.6	31.0	1204.6	21.8	1254.5	15.8	1303.8	11.3	1353.8	8.6							
46	IG2-02	1205	42.210	1155.5	81.0	1105.8	170.1	1056.1	415.4	1156.6	84.6	1205.9	42.0	1255.0	23.5	1304.5	13.9	1354.7	9.4							
47	IG2-03																									
48	IG2-04	1106.2	2.350	1056.1	3.5	1006.4	5.4	956.8	8.6	1156.5	1.7	1205.6	1.2	1255.7	0.9	1156.9	1.7									
49	IG2-05	1205.8	1.980	1156.1	3.2	1106.7	5.8	1254.7	1.0	1304.2	0.7	1254.6	1.2													
50	IG2-06	958	5.770	1157.4	0.9	1206.7	0.6	1256.1	0.5	1157.1	0.9															
51	IG2-07	1057.2	749.130	1157.4	99.8	1206.4	29.2	1255.2	7.2	1304.5	2.9	1354.0	1.9	1255.8	8.9											
52	IG2-08	1107.4	2.110	1057.3	3.5	1007.5	6.2	957.7	12.4	1058.7	3.4	1157.9	1.4	1206.7	1.0	1255.6	0.7	1156.8	1.4							
53	IG2-09	1108.1	2.100	1057.7	3.4	1007.9	6.0	958.3	13.3	1059.1	3.9	1158.2	1.4	1207.4	1.0	1256.6	0.7	1157.6	1.5							
54	IG2-10	1007.7	11.730	956.8	21.7	906.8	46.8	1057.3	7.3	1106.8	4.3	1156.2	2.9	1205.5	2.0	1254.8	1.5	1155.7	3.0							
55	IG2-11	1007.4	4.880	956.9	8.1	906.9	14.2	857.1	27.5	957.5	8.0	1057.1	3.2	1106.7	2.2	1156.3	1.5	1205.7	1.1							
56	IG2-12	957.6	18.060	907.3	42.0	857.3	112.6	958.1	18.8	1007.3	9.3	1057.4	4.8	1106.9	2.9	1156.3	1.8	1205.5	1.3							
57	IG2-13	1204.7	12.190	1155.2	20.7	1105.6	36.9	1055.7	71.2	1156.1	20.7	1205.5	12.4	1254.9	7.7	1304.4	5.0	1354.3	3.4							
58	IG2-14	1204.9	68.020	1155.4	120.9	1205.1	66.9	1254.3	39.1	1303.8	24.6	1403.0	9.2	1452.9	6.1	1353.7	15.5	1254.7	44.2							
59	IG2-15	1106.4	5.900	1056.1	9.5	956.4	28.4	1057.4	9.4	1156.6	3.9	1205.7	2.8	1254.9	2.0	1155.6	4.0									
60	IG2-16	1105.3	7.140	1054.8	12.3	1004.9	22.3	955.2	44.1	1055.7	12.2	1155.3	4.5	1204.7	3.0	1254.2	2.0	1155.4	4.6							
61	IG2-17	1204.1	7.510	1154.4	12.4	1104.7	21.6	1054.8	40.1	1155.2	12.6	1204.5	7.6	1253.9	4.9	1303.5	3.3	1253.9	5.1							
62	IG2-18	1205.1	4.420	1155.6	7.1	1106.1	11.9	1056.3	20.7	1006.6	39.0	956.9	79.5	1057.8	20.4	1157.0	6.9	1255.1	2.9							
63	IG2-19	1105.6	5.520	1055.5	8.8	1007.0	14.8	957.3	26.4	1058.2	8.7	1157.3	3.6	1206.5	2.5	1255.7	1.8	1156.6	3.7							
64	IG2-20	1107.3	10.930	1056.9	18.4	1006.9	32.6	957.2	62.0	1058.2	18.5	1157.6	7.0	1206.6	4.6	1255.8	3.1	1156.6	7.3							
65	IG2-21	1108	17.950	1057.7	31.6	1007.5	59.6	957.6	120.8	1058.8	31.5	1158.1	11.1	1207.1	7.2	1256.1	4.7									
66	IG2-22	1116.7	9.290	1058.4	18.5	1007.6	35.8	957.9	75.1	1059.3	19.2	1158.4	6.4	1207.2	3.8	1256.2	2.5	1157.0	6.3							
67	IG2-23	1107.5	5.680	1057.2	9.8	1007.4	17.7	957.7	34.5	1058.8	9.7	1157.9	3.6	1206.9	2.4	1256.0	1.6	1156.8	3.6							
68	IG2-24	1108.9	5.850	1058.7	10.0	1008.9	17.9	959.3	33.4	1060.1	9.7	1158.5	3.6	1207.1	2.3	1256.2	1.6	1157.0	3.7							
69	IG2-25	1108.3	6.150	1058.2	10.5	1008.3	18.7	958.6	34.1	1059.7	10.0	1158.8	3.8	1207.8	2.5	1256.6	1.7	1157.3	3.9							
70	IG2-26	1106.6	18.270	1056.6	32.3	1006.8	60.4	957.1	121.5	1057.9	31.7	1157.3	11.0	1206.5	7.2	1255.7	4.8	1156.3	11.2							
71	IG2-27	1106.8	22.340	1056.7	43.4	1157.2	13.5	1206.3	8.3	1255.4	5.4	1156.2	13.2													
72	IG2-28	1107.5	12.070	1056.7	20.9	1006.8	38.4	957.0	76.5	1057.7	20.6	1157.0	7.2	1206.2	4.7	1255.3	3.3	1156.2	7.4							
73	IG2-29	1107.2	6.560	1056.3	11.0	1006.4	19.2	956.5	35.9	1057.4	10.9	1156.6	4.3	1205.6	2.9	1254.8	2.0	1155.7	4.5							
74	IG2-30	1107.7	15.800	1057.6	25.8	1007.9	44.4	958.2	82.8	1059.3	25.5	1158.4	10.3	1207.0	7.0	1255.9	4.9	1156.8	10.5							
75	IG2-31	1107.1	12.900	1056.9	22.8	1008.2	43.1	958.5	88.5	1059.6	22.5	1156.9	7.9	1205.7	5.1	1254.5	3.5	1155.5	8.1							
76	IG2-32	1108.7	7.310	1058	12.3	1008.0	21.9	958.2	41.7	1059.3	12.4	1158.4	4.7	1207.2	3.2	1256.3	2.2	1157.1	4.9							
77	IG2-33	1106.4	5.690	1056.1	9.5	1006.3	16.9	956.6	32.0	1057.4	9.6	1156.9	3.6	1206.0	2.5	1255.2	1.7	1155.8	3.8							
78	IG2-34	1106.8	7.380	1056.6	12.5	1006.7	22.3	956.9	42.8	1057.8	12.3	1157.1	4.7	1206.1	3.1	1255.3	2.2	1156.0	4.9							
79	IG2-35	1106.7	6.560	1056.8	10.9	1006.9	19.2	957.2	36.2	1058.3	10.7	1157.5	4.2	1206.6	2.8	1255.7	2.0	1156.4	4.4							
80	IG2-36	1107.4	6.260	1057.1	10.4	1007.2	18.4	957.4	34.7	1058.3	10.4	1157.6	4.1	1206.7	2.8	1256.0	2.0	1156.8	4.3							
81	IG2-37	1107.3	6.690	1057.4	11.2	1007.6	19.8	957.8	37.6	1058.8	11.0	1158.0	4.3	1207.3	2.9	1256.5	2.0	1157.4	4.5							
82	IG3-01	1106	3.860	1056	6.4	1006.2	11.2	956.6	21.5	1057.3	6.3	1156.4	2.5	1205.5	1.7	1254.6	1.2	1155.7	2.6							

#	Glass ID	TCLP Se	TCLP Zn	TCLP Al	TCLP B	TCLP Sb	TCLP Tl	TCLP V	Q PCT B (g/m²)	Q PCT Li (g/m²)	Q PCT Na (g/m²)	Q PCT Si (g/m²)	Q PCT pH	CCC PCT B (g/m²)	CCC PCT Li (g/m²)	CCC PCT Na (g/m²)	CCC PCT Si (g/m²)	CCC PCT pH	T1 (°C)
1	IG1-01								2.790	1.636	2.279	0.670							
2	IG1-02								3.546	0.877	2.984	0.423							
3	IG1-03								21.404	6.168	16.491	2.569							
4	IG1-04								0.384	1.686	0.599	0.200							
5	IG1-05								4.061	0.129	2.330	0.401							
6	IG1-06								9.634	9.516	8.923	1.583							
7	IG1-07								0.282	0.362	0.063	0.258							
8	IG1-08								0.183	0.283	0.339	0.127							
9	IG1-09								2.865	1.115	2.292	0.250							
10	IG1-10								14.658	10.665	9.512	5.635							
11	IG1-11								0.291	0.380	0.938	0.283							
12	IG1-12								4.605		3.999	0.155							
13	IG1-13								30.051	23.368	29.596	20.071							
14	IG1-14								0.498	0.285	0.650	0.195							
15	IG1-15								0.493	0.395	0.584	0.203							
16	IG1-16								0.353	0.216	0.594	0.157							
17	IG1-17								0.202	0.066	0.335	0.119							
18	IG1-18								0.318	0.290	0.353	0.136							
19	IG1-19								0.279	0.251	0.323	0.125							
20	IG1-20								0.254	0.219	0.282	0.110							
21	IG1-21								0.905	0.736	0.738	0.130							
22	IG1-22								0.396	0.223	0.396	0.129							
23	IG1-23								0.176	0.207	0.328	0.112							
24	IG1-24								1.042	0.725	0.750	0.133							
25	IG1-25								0.450	0.401	0.632	0.145							
26	IG1-26								3.143	1.812	2.495	0.719							
27	IG1-27								0.151	0.293	0.336	0.118							
28	IG1-28								0.181	0.315	0.357	0.130							
29	IG1-29								0.227	0.357	0.175	0.205							
30	IG1-30								12.142	8.152	8.975	3.428							
31	IG1-31								1.512	1.270	0.783	0.265							
32	IG1-32								0.194	0.289	0.268	0.150							
33	IG1-33								5.822	9.658	10.615	4.285							
34	IG1-34								0.543	0.541	0.119	0.257							
35	IG1-35								0.440	18.427	0.358	0.152							
36	IG1-36								8.858	8.973	8.924	4.634							
37	IG1-37								7.792	0.057	6.358	0.484							
38	IG1-38								1.225	1.108	0.737	0.315							
39	IG1-39								1.694	1.396	1.080	0.170							
40	IG1-40								4.115	2.835	3.623	1.076							
41	IG1-41								20.179	8.174	16.802	6.336							
42	IG1-42								0.202	0.264	0.307	0.126							
43	IG1-43								0.725	0.355	0.552	0.120							
44	IG1-44								0.580	0.573	0.125	0.275							
45	IG2-01								0.226		0.213	0.131	8.500						
46	IG2-02								0.090		0.107	0.041	7.680						
47	IG2-03								12.404		5.449	0.214	6.790						
48	IG2-04								2.884	2.601	1.597	0.250	10.880						
49	IG2-05								0.490		1.429	0.163	11.270						
50	IG2-06								2.067	1.661	0.525	0.184	9.500						
51	IG2-07								0.307		0.351	0.072	9.340						
52	IG2-08								0.440		0.694	0.208	10.110						
53	IG2-09								0.100	0.223	0.087	0.059	9.670						
54	IG2-10								1.397	1.377	1.427	0.246	10.440						
55	IG2-11								1.981	2.506	2.606	1.376	11.720						
56	IG2-12								11.673	10.471	7.379	0.123	8.600						
57	IG2-13								0.289	0.533	0.023	0.210	10.190						
58	IG2-14								0.425		0.593	0.185	10.440						
59	IG2-15								0.739	1.016	1.139	0.269	11.120						
60	IG2-16								0.766	0.639	0.546	0.086	10.010						
61	IG2-17								0.213	0.378	0.335	0.086	9.900						
62	IG2-18								0.391	0.478	0.783	0.156	10.780						
63	IG2-19								0.729	0.959	1.102	0.261	11.230						
64	IG2-20								0.622	0.846	0.946	0.233	11.130						
65	IG2-21								0.253	0.526	0.428	0.103	10.260						
66	IG2-22								0.542	1.161	0.756	0.186	11.300						
67	IG2-23								0.911	0.735	0.786	0.115	10.230						
68	IG2-24								0.379	0.702	0.563	0.095	10.680						
69	IG2-25								0.431	0.816	0.619	0.050	10.830						
70	IG2-26								0.303	0.533	0.481	0.144	10.540						
71	IG2-27								0.287	0.500	0.371	0.106	10.050						
72	IG2-28								0.380	0.730	0.727	0.110	10.540						
73	IG2-29								0.481	0.503	0.549	0.121	10.270						
74	IG2-30								0.558	0.647	0.040	0.360	9.230						
75	IG2-31								1.617	1.506	0.942	0.320	9.990						
76	IG2-32								0.566	0.681	0.653	0.136	10.110						
77	IG2-33								0.501	0.547	0.581	0.131	10.260						
78	IG2-34								0.536	0.667	0.574	0.135	10.220						
79	IG2-35								0.408	0.470	0.493	0.122	10.130						
80	IG2-36								0.378	0.461	0.466	0.119	10.140						
81	IG2-37								0.449	0.590	0.473	0.125	10.180						
82	IG3-01								0.542	0.572	0.683	0.142	10.340						

#	Glass ID	EC1 (S/cm)	T2 (°C)	EC2 (S/cm)	T3 (°C)	EC3 (S/cm)	T4 (°C)	EC4 (S/cm)	T5 (°C)	EC5 (S/cm)	T6 (°C)	EC6 (S/cm)	A	B	To
1	IG1-01														
2	IG1-02														
3	IG1-03														
4	IG1-04														
5	IG1-05														
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39	IG1-39														
40	IG1-40														
41	IG1-41														
42	IG1-42														
43	IG1-43														
44	IG1-44														
45	IG2-01														
46	IG2-02														
47	IG2-03														
48	IG2-04														
49	IG2-05														
50	IG2-06														
51	IG2-07														
52	IG2-08														
53	IG2-09														
54	IG2-10														
55	IG2-11														
56	IG2-12														
57	IG2-13														
58	IG2-14														
59	IG2-15														
60	IG2-16														
61	IG2-17														
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64	IG2-20														
65	IG2-21														
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67	IG2-23														
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69	IG2-25														
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76	IG2-32														
77	IG2-33														
78	IG2-34														
79	IG2-35														
80	IG2-36														
81	IG2-37														
82	IG3-01														

#	Glass ID	Study	Reference	Al2O3-t	B2O3-t	CaO-t	Fe2O3-t	FeO-t	K2O-t	Li2O-t	MgO-t	Na2O-t	NiO-t	P2O5-t	SiO2-t	ZrO2-t	Ag2O-t	As2O3-t	As2O5-t	BaO-t	BeO-t	Bi2O3-t	Br-t	CdO-t	Ce2O3-t	CeO2-t	Cl-t
83	IG3-02b	INEEL CVS Phase 3	Scholes et al. 2000	0.0450	0.1625	0.1057	0.0046		0.0018	0.0079	0.0024	0.0652	0.0015	0.0021	0.5158	0.0124				0.0000					0.0001		0.0003
84	IG3-03	INEEL CVS Phase 3	Scholes et al. 2000	0.0400	0.0500	0.0000	0.0000		0.0200	0.0078	0.0024	0.2000	0.0150	0.0250	0.4272	0.1400				0.0000					0.0001		0.0003
85	IG3-04	INEEL CVS Phase 3	Scholes et al. 2000	0.0350	0.1800	0.0000	0.0300		0.0000	0.0268	0.0024	0.0500	0.0150	0.0250	0.5432	0.0000				0.0000					0.0001		0.0003
86	IG3-05	INEEL CVS Phase 3	Scholes et al. 2000	0.0350	0.0500	0.1200	0.0000		0.0200	0.0000	0.0024	0.1201	0.0150	0.0000	0.5332	0.0000				0.0000					0.0001		0.0003
87	IG3-06	INEEL CVS Phase 3	Scholes et al. 2000	0.0400	0.0500	0.1200	0.0000		0.0200	0.0302	0.0024	0.0500	0.0150	0.0250	0.4214	0.1400				0.0000					0.0001		0.0003
88	IG3-07	INEEL CVS Phase 3	Scholes et al. 2000	0.1690	0.1800	0.0000	0.0800		0.0000	0.0000	0.0024	0.1860	0.0150	0.0000	0.3500	0.0000				0.0000					0.0001		0.0003
89	IG3-08b	INEEL CVS Phase 3	Scholes et al. 2000	0.0535	0.1538	0.0146	0.0628		0.0026	0.0119	0.0024	0.1190	0.0127	0.0032	0.4086	0.1167				0.0000					0.0001		0.0003
90	IG3-09	INEEL CVS Phase 3	Scholes et al. 2000	0.0350	0.0500	0.0000	0.0800		0.0200	0.0900	0.0024	0.0568	0.0000	0.0250	0.5626	0.0000				0.0000					0.0001		0.0003
91	IG3-10b	INEEL CVS Phase 3	Scholes et al. 2000	0.0490	0.1625	0.0097	0.0457		0.0178	0.0390	0.0024	0.0649	0.0135	0.0021	0.3641	0.1244				0.0000					0.0001		0.0003
92	IG3-11	INEEL CVS Phase 3	Scholes et al. 2000	0.1205	0.0500	0.1200	0.0800		0.0000	0.0146	0.0024	0.2000	0.0000	0.0000	0.3649	0.0000				0.0000					0.0001		0.0003
93	IG3-12	INEEL CVS Phase 3	Scholes et al. 2000	0.0350	0.1800	0.0899	0.0300		0.0000	0.0000	0.0024	0.1151	0.0000	0.0000	0.3500	0.1000				0.0000					0.0001		0.0003
94	IG3-13	INEEL CVS Phase 3	Scholes et al. 2000	0.0400	0.0754	0.0000	0.0800		0.0000	0.0467	0.0024	0.1335	0.0150	0.0144	0.3500	0.1400				0.0000					0.0001		0.0003
95	IG3-14	INEEL CVS Phase 3	Scholes et al. 2000	0.0800	0.0600	0.0400	0.0300		0.0100	0.0600	0.0024	0.1000	0.0050	0.0150	0.4925	0.0400				0.0000					0.0001		0.0003
96	IG3-15	INEEL CVS Phase 3	Scholes et al. 2000	0.1000	0.0600	0.0800	0.0050		0.0100	0.0425	0.0024	0.1000	0.0100	0.0050	0.4000	0.0800				0.0000					0.0001		0.0003
97	IG3-16	INEEL CVS Phase 3	Scholes et al. 2000	0.0989	0.0751	0.0800	0.0050		0.0100	0.0600	0.0024	0.1000	0.0050	0.0150	0.4000	0.0800				0.0000					0.0001		0.0003
98	IG3-17	INEEL CVS Phase 3	Scholes et al. 2000	0.0893	0.0600	0.0800	0.0300		0.0097	0.0600	0.0024	0.1000	0.0050	0.0150	0.4000	0.0800				0.0000					0.0001		0.0003
99	IG3-18	INEEL CVS Phase 3	Scholes et al. 2000	0.1200	0.0600	0.0400	0.0050		0.0100	0.0580	0.0024	0.1500	0.0100	0.0145	0.4000	0.0600				0.0000					0.0001		0.0003
100	IG3-19	INEEL CVS Phase 3	Scholes et al. 2000	0.1200	0.0600	0.0800	0.0150		0.0100	0.0600	0.0024	0.1051	0.0050	0.0150	0.4000	0.0439				0.0000					0.0001		0.0003
101	IG3-20	INEEL CVS Phase 3	Scholes et al. 2000	0.0800	0.1200	0.0800	0.0300		0.0050	0.0305	0.0024	0.1000	0.0050	0.0050	0.4120	0.0400				0.0000					0.0001		0.0003
102	IG3-21	INEEL CVS Phase 3	Scholes et al. 2000	0.1000	0.1115	0.0400	0.0150		0.0050	0.0600	0.0024	0.1000	0.0050	0.0050	0.4075	0.0800				0.0000					0.0001		0.0003
103	IG3-22	INEEL CVS Phase 3	Scholes et al. 2000	0.1000	0.0600	0.0400	0.0300		0.0050	0.0538	0.0024	0.1500	0.0050	0.0050	0.4000	0.0800				0.0000					0.0001		0.0003
104	IG3-23	INEEL CVS Phase 3	Scholes et al. 2000	0.1200	0.0600	0.0400	0.0050		0.0050	0.0300	0.0024	0.1497	0.0100	0.0050	0.4478	0.0400				0.0000					0.0001		0.0003
105	IG3-24	INEEL CVS Phase 3	Scholes et al. 2000	0.1200	0.0600	0.0400	0.0050		0.0050	0.0319	0.0024	0.1500	0.0100	0.0050	0.4506	0.0400				0.0000					0.0001		0.0003
106	IG3-25	INEEL CVS Phase 3	Scholes et al. 2000	0.1200	0.0600	0.0400	0.0050		0.0050	0.0300	0.0024	0.1441	0.0050	0.0050	0.4434	0.0400				0.0000					0.0001		0.0003
107	IG3-26	INEEL CVS Phase 3	Scholes et al. 2000	0.1200	0.0843	0.0800	0.0150		0.0050	0.0300	0.0024	0.1000	0.0050	0.0150	0.4147	0.0600				0.0000					0.0001		0.0003
108	IG3-27	INEEL CVS Phase 3	Scholes et al. 2000	0.0843	0.0917	0.0483	0.0226		0.0087	0.0393	0.0024	0.1237	0.0072	0.0106	0.4173	0.0617				0.0000					0.0001		0.0003
109	IG3-28	INEEL CVS Phase 3	Scholes et al. 2000	0.0850	0.0925	0.0487	0.0228		0.0088	0.0396	0.0024	0.1246	0.0073	0.0107	0.4207	0.0622				0.0000					0.0001		0.0003
110	IG3-29	INEEL CVS Phase 3	Scholes et al. 2000	0.1501	0.1501	0.0008	0.0005		0.0000	0.0845	0.0014	0.0500	0.0000	0.0000	0.5308	0.0301				0.0000					0.0000		0.0002
111	IG3-30	INEEL CVS Phase 3	Scholes et al. 2000	0.0375	0.1250	0.0009	0.0005		0.0250	0.0631	0.0016	0.0875	0.0000	0.0125	0.5396	0.1050				0.0000					0.0000		0.0002
112	CVS1-1	Hanford CVS 1	Hrma et al. 1994	0.0636	0.1142	0.0275	0.0568		0.0000	0.0376	0.0363	0.1003	0.0042	0.0007	0.4801	0.0429	0.0000	0.0000		0.0007		0.0000		0.0055		0.0011	
113	CVS1-2	Hanford CVS 1	Hrma et al. 1994	0.1500	0.0500	0.1000	0.0200		0.0000	0.0700	0.0000	0.0500	0.0010	0.0002	0.5500	0.0000	0.0000	0.0000		0.0002		0.0000		0.0013		0.0003	
114	CVS1-3	Hanford CVS 1	Hrma et al. 1994	0.1400	0.2000	0.0000	0.0200		0.0000	0.0700	0.0800	0.0500	0.0010	0.0002	0.4200	0.0100	0.0000	0.0000		0.0002		0.0000		0.0013		0.0003	
115	CVS1-4	Hanford CVS 1	Hrma et al. 1994	0.0000	0.2000	0.0200	0.0200		0.0000	0.0100	0.0800	0.0900	0.0010	0.0002	0.5700	0.0000	0.0000	0.0000		0.0002		0.0000		0.0013		0.0003	
116	CVS1-5	Hanford CVS 1	Hrma et al. 1994	0.0800	0.0500	0.0000	0.1500		0.0000	0.0700	0.0000	0.0700	0.0010	0.0002	0.5700	0.0000	0.0000	0.0000		0.0002		0.0000		0.0013		0.0003	
117	CVS1-6	Hanford CVS 1	Hrma et al. 1994	0.0000	0.2000	0.0000	0.0200		0.0000	0.0700	0.0000	0.0500	0.0103	0.0018	0.4400	0.1200	0.0000	0.0000		0.0018		0.0000		0.0134		0.0027	
118	CVS1-7	Hanford CVS 1	Hrma et al. 1994	0.0000	0.0500	0.1000	0.0336		0.0000	0.0100	0.0000	0.0964	0.0010	0.0002	0.5700	0.1300	0.0000	0.0000		0.0002		0.0000		0.0013		0.0003	
119	CVS1-8	Hanford CVS 1	Hrma et al. 1994	0.0000	0.0500	0.0000	0.1500		0.0000	0.0100	0.0800	0.0837	0.0010	0.0002	0.5363	0.0800	0.0000	0.0000		0.0002		0.0000		0.0013		0.0003	
120	CVS1-9	Hanford CVS 1	Hrma et al. 1994	0.0000	0.1962	0.0000	0.1400		0.0000	0.0100	0.0800	0.0538	0.0103	0.0018	0.4200	0.0000	0.0000	0.0000		0.0018		0.0000		0.0134		0.0027	
121	CVS1-10	Hanford CVS 1	Hrma et al. 1994	0.1200	0.0851	0.0000	0.0200		0.0000	0.0100	0.0000	0.0949	0.0103	0.0018	0.5700	0.0000	0.0000	0.0000		0.0018		0.0000		0.0134		0.0027	
122	CVS1-11	Hanford CVS 1	Hrma et al. 1994	0.1400	0.1549	0.1000	0.0200		0.0000	0.0100	0.0000	0.0751	0.0082	0.0014	0.4200	0.0000	0.0000	0.0000		0.0014		0.0000		0.0107		0.0022	
123	CVS1-12	Hanford CVS 1	Hrma et al. 1994	0.0000	0.1764	0.1000	0.1500		0.0000	0.0700	0.0000	0.0736	0.0010	0.0002	0.4200	0.0000	0.0000	0.0000		0.0002		0.0000		0.0013		0.0003	
124	CVS1-13	Hanford CVS 1	Hrma et al. 1994	0.0038	0.2000	0.0000	0.0200		0.0000	0.0100	0.0000	0.1862	0.0010	0.0002	0.5700	0.0000	0.0000	0.0000		0.0002		0.0000		0.0013		0.0003	
125	CVS1-14	Hanford CVS 1	Hrma et al. 1994	0.0238	0.2000	0.0000	0.0200		0.0000	0.0100	0.0000	0.1862	0.0010	0.0002	0.4200	0.1300	0.0000	0.0000		0.0002		0.0000		0.0013		0.0003	
126	CVS1-15	Hanford CVS 1	Hrma et al. 1994	0.0000	0.0500	0.0000	0.0200		0.0000	0.0700	0.0800	0.1211	0.0103	0.0018	0.5589	0.0000	0.0000	0.0000		0.0018		0.0000		0.0134		0.0027	
127	CVS1-16	Hanford CVS 1	Hrma et al. 1994	0.1442	0.0500	0.0000	0.0858		0.0000	0.0100	0.0800	0.1873	0.0010	0.0002	0.4327	0.0000	0.0000	0.0000		0.0002		0.0000		0.0013		0.0003	
128	CVS1-17	Hanford CVS 1	Hrma et al. 1994	0.0000	0.0500	0.1000	0.1400		0.0000	0.0100	0.0000	0.1455	0.0103	0.0018	0.4545	0.0000	0.0000	0.0000		0.0018		0.0000		0.0134		0.0027	
129	CVS1-18	Hanford CVS 1	Hrma et al. 1994	0.0000	0.0500	0.0200	0.0200		0.0000	0.0700	0.0800	0.1186	0.0093	0.0016	0.4214	0.1300	0.0000	0.0000		0.0016		0.0000		0.0121		0.0024	
130	CVS1-19	Hanford CVS 1	Hrma et al. 1994	0.0636	0.1142	0.0275	0.0568		0.0000	0.0376	0.0363	0.1003	0.0042	0.0007	0.4801	0.0429	0.0000	0.0000		0.0007		0.0000		0.0055		0.0011	
131	CVS1-20	Hanford CVS 1	Hrma et al. 1994	0.0636	0.1142	0.0275	0.0568		0.0000	0.0376	0.0363	0.1003	0.0042	0.0007	0.4801	0.0429	0.0000	0.0000		0.0007		0.0000		0.0055		0.0011	
132	CVS1-21	Hanford CVS 1	Hrma et al. 1994	0.0000	0.2000	0.0200	0.0200		0.0000	0.0100	0.0800	0.0900	0.0010	0.0002	0.5700	0.0000	0.0000	0.0000		0.0002		0.0000		0.0013		0.0003	
133	CVS1-22	Hanford CVS 1	Hrma et al. 1994	0.0000	0.0500	0.0000	0.1500		0.0000	0.0100	0.0800	0.0837	0.0010	0.0002	0.5363	0.0800	0.0000	0.0000		0.0002		0.0000		0.0013		0.0003	
134	CVS1-23	Hanford CVS 1	Hrma et al. 1994	0.0456	0.0956	0.0289	0.1179		0.0000	0.0375	0.0084	0.1052	0.0040	0.0007	0.5153	0.0063	0.0000	0.0000		0.0007		0.0000		0.0053		0.0011	
135	CVS2-1	Hanford CVS 2	Hrma et al. 1994	0.0800	0.0874	0.0000	0.0400		0.0000	0.0600	0.0500	0.0700	0.0082	0.0014	0.5226	0.0100	0.0000	0.0000		0.0014		0.0000		0.0107		0.0022	
136	CVS2-2	Hanford CVS 2	Hrma et al. 1994	0.1100	0.0700	0.0700	0.0450		0.0000	0.0600	0.0000	0.0883	0.0026	0.0004	0.5017	0.0300	0.0000	0.0000		0.0004		0.0000		0.0034		0.0007	
137	CVS2-3	Hanford CVS 2	Hrma et al. 1994	0.1032	0.1320	0.0700	0.0450		0.0000	0.0435	0.0100	0.0700	0.0026	0.0004	0.4645	0.0368	0.0000	0.0000		0.0004		0.0000		0.0034		0.0007	
138	CVS2-4	Hanford CVS 2	Hrma et al. 1994	0.0619	0.1095	0.0700	0.0400		0.0000	0.0536	0.0000	0.0700	0.0026	0.0004	0.5600	0.0100	0.0000	0.0000		0.0004		0.0000		0.0034		0.0007	
139	CVS2-5	Hanford CVS 2	Hrma et al. 1994	0.0800	0.1590	0.0348	0.0400		0.0000	0.0200	0.0000	0.1010	0.0082	0.0014	0.4752	0.0100	0.0000	0.0000		0.0014		0.0000		0.0107		0.0022	
140	CVS2-6	Hanford CVS 2	Hrma et al. 1994	0.0159	0.0700	0.0700	0.1200		0.0000	0.0382	0.0046	0.0700	0.0066	0.0011	0.5372	0.0100	0.0000	0.0000		0.0011		0.0000		0.0086		0.0017	
141	CVS2-7	Hanford CVS 2	Hrma et al. 1994	0.0953	0.1700	0.0094	0.0400		0.0000	0.0591	0.0000	0.0700	0.0067	0.0012	0.4814	0.0100	0.0000	0.0000		0.0012		0.0000		0.0087		0.0017	
142	CVS2-8	Hanford CVS 2	Hrma et al. 1994	0.0610	0.0700	0.0000	0.1140		0.0000	0.0600	0.0500	0.0985	0.0026	0.0004	0.5115	0.0100	0.0000	0.0000		0.0004		0.0000		0.0034		0.0007	
143	CVS2-9	Hanford CVS 2	Hrma et al. 1994	0.0138	0.0944	0.0000	0.0712		0.0000	0.0600	0.0000	0.0924	0.0026	0.0004	0.5432	0.1000	0.0000	0.0000		0.0004		0.0000		0.0034		0.0007	
144	CVS2-10	Hanford CVS 2	Hrma et al. 1994	0.1043	0.1700	0.0000	0.0669		0.0000	0.0200	0.0000	0.1306	0.0030	0.0005	0.4694	0.0100	0.0000	0.0000		0.0005		0.0000		0.0039		0.0008	
145	CVS2-11	Hanford CVS 2	Hrma et al. 1994	0.0100	0.0751	0.0700	0.0400		0.0000	0.0600	0.0100	0.0833	0.0068	0.0012	0.4916	0.0935	0.0000	0.0000		0.0012		0.0000		0.0089		0.0018	
146	CVS2-12	Hanford CVS 2	Hrma et al. 1994	0.0901	0.1700	0.0700	0.0400		0.0000	0.0466	0.0100	0.0700	0.0026	0.0004	0.4683	0.0100	0.0000	0.0000		0.0004		0.0000		0.0034		0.0007	
147	CVS2-13	Hanford CVS 2	Hrma et al. 1994	0.0896	0.0700	0.0300	0.0400		0.0000	0.0225	0.0500	0.1692	0.0026	0.0004	0.4937	0.0100	0.0000	0.0000		0.0004		0.0000		0.0034		0.0007	
148	CVS2-14	Hanford CVS 2	Hrma et al. 1994	0.0243	0.1312	0.0500	0.0400		0.0000	0.0486	0.0200	0.0802	0.0047	0.0008	0.4600	0.1000	0.0000	0.0000		0.0008		0.0000		0.0061		0.0012	
149	CVS2-15	Hanford CVS 2	Hrma et al. 1994	0.0756	0.0700	0.0601	0.0400		0.0000	0.0214	0.0000	0.1700	0.0082	0.0014	0.4729	0.0100	0.0000	0.0000		0.0014		0.0000		0.0107		0.0022	
150	CVS2-16	Hanford CVS 2	Hrma et al. 1994	0.0231	0.1053	0.0083	0.0719		0.0000	0.0375	0.0084	0.1125	0.0061	0.0011	0.5353	0.0385	0.0000	0.0000		0.0011		0.0000		0.0080		0.0016	
151	CVS2-17	Hanford CVS 2	Hrma et al. 1994	0.0636	0.1142	0.0275	0.0568		0.0000	0.0376	0.0363	0.1003	0.0042	0.0007	0.4801	0.0429	0.0000	0.0000		0.0007		0.0000		0.0055		0.0011	
152	CVS2-18	Hanford CVS 2	Hrma et al. 1994	0.0231	0.1053	0.0083	0.0719		0.0000	0.0375	0.0084	0.1125	0.0061	0.0011	0.5353	0.0385	0.0000	0.0000		0.0011		0.0000		0.0080		0.0016	
153	CVS2-19	Hanford CVS 2	Hrma et al. 1994	0.0235	0.1048	0.0082	0.0733		0.0000	0.0373	0.0084	0.1129	0.0060	0.0010	0.5328	0.0392	0.0000	0.0000		0.0010		0.0000		0.0065		0.0002	
154	CVS2-20	Hanford CVS 2	Hrma et al. 1994	0.0100	0.0500	0.0000	0.0600		0.0000	0.0669	0.0000	0.1031	0.0010	0.0002	0.5700	0.1300	0.0000	0.0000		0.0002		0.0000		0.0013		0.0003	
155	CVS2-21	Hanford CVS 2	Hrma et al. 1994	0.0686	0.1314	0.0000	0.0200		0.0000	0.0700	0.0800	0.0500	0.0010	0.0002	0.5700	0.0000	0.0000	0.0000		0.0002		0.0000		0.0013		0.0003	
156	CVS2-22	Hanford CVS 2	Hrma et al. 1994	0.0365	0.0500	0.0000	0.0200		0.0000	0.0700	0.0800	0.0735	0.0103	0.0018	0.5700	0.0000	0.0000	0.0000		0.0018		0.0000		0.0134		0.0027	
157	CVS2-23	Hanford CVS 2	Hrma et al. 1994	0.0578	0.0522	0.0800	0.0200		0.0000	0.0100	0.0000	0.2000	0.0010	0.0002	0.5700	0.0000	0.0000	0.0000		0.0002		0.0000		0.0013		0.0003	
158	CVS2-24	Hanford CVS 2	Hrma et al. 1994	0.0961	0.2000	0.0000	0.0200		0.0000	0.0700	0.0000	0.0736	0.0097	0.0017	0.4464	0.0000	0.0000	0.0000		0.0017		0.0000		0.0126		0.0025	
159	CVS2-25	Hanford CVS 2	Hrma et al. 1994	0.0033	0.0500	0.0800	0.1500		0.0000	0.0700	0.0000	0.0841	0.0058	0.0010	0.5059	0.0000	0.0000	0.0000		0.0010		0.0000		0.0076		0.0015	
160	CVS2-26	Hanford CVS 2	Hrma et al. 1994	0.0257	0.2000	0.0800	0.0200		0.0000	0.0700	0.0000	0.0512	0.0010	0.0002	0.4431	0.1000	0.0000	0.0000		0.0002		0.0000		0.0013		0.0003	
161	CVS2-27	Hanford CVS 2	Hrma et al. 1994	0.0782	0.0500	0.0000	0.0200		0.0000	0.0155	0.0800	0.2000	0.0010	0.0002	0.5463	0.0000	0.0000	0.0000		0.0002		0.0000		0.0013		0.0003	
162	CVS2-28	Hanford CVS 2	Hrma et al. 1994	0.0555	0.0500	0.0000	0.0200		0.0000	0.0126	0.0000	0.2000	0.0103	0.0018	0.5619	0.0000	0.0000	0.0000		0.0018		0.0000		0.0134		0.0027	
163	CVS2-29	Hanford CVS 2	Hrma et al. 1994	0.0000	0.2000	0.0800	0.0200		0.0000	0.0100	0.0000	0.0675	0.0103	0.0018	0.4391	0.0834	0.0000	0.0000		0.0018		0.0000		0.0134		0.0027	
164	CVS2-30	Hanford CVS 2	Hrma et al. 1994	0.0458	0.2000	0.0000	0.1320		0.0000	0.0100	0.0000	0.0832	0.0010	0.0002	0.5190	0.0000	0.0000	0.0000		0.0002		0.0000		0.0013		0.0003	

#	Glass ID	CoO-t	Co2O3-t	Cr2O3-t	Cs2O-t	CuO-t	Dy2O3-t	Eu2O3-t	F-t	Ga2O3-t	Gd2O3-t	HfO2-t	HgO-t	I-t	La2O3-t	MnO2-t	MnO-t	MoO-t	MoO2-t	MoO3-t	Nb2O5-t	Nd2O3-t	NpO2-t	PbO-t	PdO2-t	PdO-t	Pr2O3-t	Pr6O11-t	Rb2O-t	ReO-t
83	IG3-02b			0.0007	0.0000				0.0044					0.0000	0.0445		0.0001			0.0135	0.0002	0.0001		0.0000			0.0000		0.0000	
84	IG3-03			0.0007	0.0000				0.0000					0.0000	0.0500		0.0001			0.0150	0.0002	0.0001		0.0000			0.0000		0.0000	
85	IG3-04			0.0007	0.0000				0.0000					0.0000	0.0500		0.0001			0.0000	0.0002	0.0001		0.0000			0.0000		0.0000	
86	IG3-05			0.0007	0.0000				0.0467					0.0000	0.0000		0.0001			0.0150	0.0002	0.0001		0.0000			0.0000		0.0000	
87	IG3-06			0.0007	0.0000				0.0334					0.0000	0.0500		0.0001			0.0000	0.0002	0.0001		0.0000			0.0000		0.0000	
88	IG3-07			0.0007	0.0000				0.0000					0.0000	0.0000		0.0001			0.0150	0.0002	0.0001		0.0000			0.0000		0.0000	
89	IG3-08b			0.0007	0.0000				0.0065					0.0000	0.0068		0.0001			0.0127	0.0002	0.0001		0.0000			0.0000		0.0000	
90	IG3-09			0.0007	0.0000				0.0556					0.0000	0.0000		0.0001			0.0150	0.0002	0.0001		0.0000			0.0000		0.0000	
91	IG3-10b			0.0007	0.0000				0.0333					0.0000	0.0274		0.0001			0.0015	0.0002	0.0001		0.0000			0.0000		0.0000	
92	IG3-11			0.0007	0.0000				0.0000					0.0000	0.0000		0.0001			0.0000	0.0002	0.0001		0.0000			0.0000		0.0000	
93	IG3-12			0.0007	0.0000				0.0000					0.0000	0.0500		0.0001			0.0000	0.0002	0.0001		0.0000			0.0000		0.0000	
94	IG3-13			0.0007	0.0000				0.0600					0.0000	0.0000		0.0001			0.0000	0.0002	0.0001		0.0000			0.0000		0.0000	
95	IG3-14			0.0007	0.0000				0.0250					0.0000	0.0150		0.0001			0.0100	0.0002	0.0001		0.0000			0.0000		0.0000	
96	IG3-15			0.0007	0.0000				0.0250					0.0000	0.0350		0.0001			0.0100	0.0002	0.0001		0.0000			0.0000		0.0000	
97	IG3-16			0.0007	0.0000				0.0100					0.0000	0.0150		0.0001			0.0100	0.0002	0.0001		0.0000			0.0000		0.0000	
98	IG3-17			0.0007	0.0000				0.0100					0.0000	0.0150		0.0001			0.0100	0.0002	0.0001		0.0000			0.0000		0.0000	
99	IG3-18			0.0007	0.0000				0.0100					0.0000	0.0150		0.0001			0.0100	0.0002	0.0001		0.0000			0.0000		0.0000	
100	IG3-19			0.0007	0.0000				0.0250					0.0000	0.0350		0.0001			0.0100	0.0002	0.0001		0.0000			0.0000		0.0000	
101	IG3-20			0.0007	0.0000				0.0250					0.0000	0.0200		0.0001			0.0100	0.0002	0.0001		0.0000			0.0000		0.0000	
102	IG3-21			0.0007	0.0000				0.0100					0.0000	0.0350		0.0001			0.0100	0.0002	0.0001		0.0000			0.0000		0.0000	
103	IG3-22			0.0007	0.0000				0.0100					0.0000	0.0200		0.0001			0.0050	0.0002	0.0001		0.0000			0.0000		0.0000	
104	IG3-23			0.0007	0.0000				0.0250					0.0000	0.0150		0.0001			0.0100	0.0002	0.0001		0.0000			0.0000		0.0000	
105	IG3-24			0.0007	0.0000				0.0250					0.0000	0.0350		0.0001			0.0050	0.0002	0.0001		0.0000			0.0000		0.0000	
106	IG3-25			0.0007	0.0000				0.0250					0.0000	0.0350		0.0001			0.0050	0.0002	0.0001		0.0000			0.0000		0.0000	
107	IG3-26			0.0007	0.0000				0.0100					0.0000	0.0350		0.0001			0.0100	0.0002	0.0001		0.0000			0.0000		0.0000	
108	IG3-27			0.0007	0.0000				0.0216					0.0000	0.0225		0.0001			0.0072	0.0002	0.0001		0.0000			0.0000		0.0000	
109	IG3-28			0.0007	0.0000				0.0217					0.0000	0.0226		0.0001			0.0073	0.0002	0.0001		0.0000			0.0000		0.0000	
110	IG3-29			0.0004	0.0000				0.0000					0.0000	0.0000		0.0001			0.0001	0.0001	0.0001		0.0000			0.0000		0.0000	
111	IG3-30			0.0005	0.0000				0.0000					0.0000	0.0000		0.0001			0.0000	0.0002	0.0001		0.0000			0.0000		0.0000	
112	CVS1-1		0.0000	0.0009	0.0011	0.0011			0.0022						0.0046	0.0011				0.0022		0.0090		0.0000		0.0004		0.0007	0.0004	
113	CVS1-2		0.0000	0.0002	0.0003	0.0003			0.0005						0.0011	0.0003				0.0005		0.0022		0.0000		0.0001		0.0002	0.0001	
114	CVS1-3		0.0000	0.0002	0.0003	0.0003			0.0005						0.0011	0.0003				0.0005		0.0022		0.0000		0.0001		0.0002	0.0001	
115	CVS1-4		0.0000	0.0002	0.0003	0.0003			0.0005						0.0011	0.0003				0.0005		0.0022		0.0000		0.0001		0.0002	0.0001	
116	CVS1-5		0.0000	0.0002	0.0003	0.0003			0.0005						0.0011	0.0003				0.0005		0.0022		0.0000		0.0001		0.0002	0.0001	
117	CVS1-6		0.0000	0.0022	0.0027	0.0027			0.0054						0.0112	0.0027				0.0054		0.0221		0.0000		0.0009		0.0018	0.0009	
118	CVS1-7		0.0000	0.0002	0.0003	0.0003			0.0005						0.0011	0.0003				0.0005		0.0022		0.0000		0.0001		0.0002	0.0001	
119	CVS1-8		0.0000	0.0002	0.0003	0.0003			0.0005						0.0011	0.0003				0.0005		0.0022		0.0000		0.0001		0.0002	0.0001	
120	CVS1-9		0.0000	0.0022	0.0027	0.0027			0.0054						0.0112	0.0027				0.0054		0.0221		0.0000		0.0009		0.0018	0.0009	
121	CVS1-10		0.0000	0.0022	0.0027	0.0027			0.0054						0.0112	0.0027				0.0054		0.0221		0.0000		0.0009		0.0018	0.0009	
122	CVS1-11		0.0000	0.0018	0.0022	0.0022			0.0043						0.0090	0.0022				0.0043		0.0177		0.0000		0.0007		0.0014	0.0007	
123	CVS1-12		0.0000	0.0002	0.0003	0.0003			0.0005						0.0011	0.0003				0.0005		0.0022		0.0000		0.0001		0.0002	0.0001	
124	CVS1-13		0.0000	0.0002	0.0003	0.0003			0.0005						0.0011	0.0003				0.0005		0.0022		0.0000		0.0001		0.0002	0.0001	
125	CVS1-14		0.0000	0.0002	0.0003	0.0003			0.0005						0.0011	0.0003				0.0005		0.0022		0.0000		0.0001		0.0002	0.0001	
126	CVS1-15		0.0000	0.0022	0.0027	0.0027			0.0054						0.0112	0.0027				0.0054		0.0221		0.0000		0.0009		0.0018	0.0009	
127	CVS1-16		0.0000	0.0002	0.0003	0.0003			0.0005						0.0011	0.0003				0.0005		0.0022		0.0000		0.0001		0.0002	0.0001	
128	CVS1-17		0.0000	0.0022	0.0027	0.0027			0.0054						0.0112	0.0027				0.0054		0.0221		0.0000		0.0009		0.0018	0.0009	
129	CVS1-18		0.0000	0.0020	0.0024	0.0024			0.0048						0.0101	0.0024				0.0048		0.0199		0.0000		0.0008		0.0016	0.0008	
130	CVS1-19		0.0000	0.0009	0.0011	0.0011			0.0022						0.0046	0.0011				0.0022		0.0090		0.0000		0.0004		0.0007	0.0004	
131	CVS1-20		0.0000	0.0009	0.0011	0.0011			0.0022						0.0046	0.0011				0.0022		0.0090		0.0000		0.0004		0.0007	0.0004	
132	CVS1-21		0.0000	0.0002	0.0003	0.0003			0.0005						0.0011	0.0003				0.0005		0.0022		0.0000		0.0001		0.0002	0.0001	
133	CVS1-22		0.0000	0.0002	0.0003	0.0003			0.0005						0.0011	0.0003				0.0005		0.0022		0.0000		0.0001		0.0002	0.0001	
134	CVS1-23		0.0000	0.0009	0.0011	0.0011			0.0021						0.0044	0.0011				0.0021		0.0087		0.0000		0.0004		0.0007	0.0004	
135	CVS2-1		0.0000	0.0018	0.0022	0.0022			0.0043						0.0090	0.0022				0.0043		0.0177		0.0000		0.0007		0.0014	0.0007	
136	CVS2-2		0.0000	0.0006	0.0007	0.0007			0.0013						0.0028	0.0007				0.0013		0.0055		0.0000		0.0002		0.0004	0.0002	
137	CVS2-3		0.0000	0.0006	0.0007	0.0007			0.0013						0.0028	0.0007				0.0013		0.0055		0.0000		0.0002		0.0004	0.0002	
138	CVS2-4		0.0000	0.0006	0.0007	0.0007			0.0013						0.0028	0.0007				0.0013		0.0055		0.0000		0.0002		0.0004	0.0002	
139	CVS2-5		0.0000	0.0018	0.0022	0.0022			0.0043						0.0090	0.0022				0.0043		0.0177		0.0000		0.0007		0.0014	0.0007	
140	CVS2-6		0.0000	0.0014	0.0017	0.0017			0.0034						0.0072	0.0017				0.0034		0.0142		0.0000		0.0006		0.0011	0.0006	
141	CVS2-7		0.0000	0.0015	0.0017	0.0017			0.0035						0.0073	0.0017				0.0035		0.0143		0.0000		0.0006		0.0012	0.0006	
142	CVS2-8		0.0000	0.0006	0.0007	0.0007			0.0013						0.0028	0.0007				0.0013		0.0055		0.0000		0.0002		0.0004	0.0002	
143	CVS2-9		0.0000	0.0006	0.0007	0.0007			0.0013						0.0028	0.0007				0.0013		0.0055		0.0000		0.0002		0.0004	0.0002	
144	CVS2-10		0.0000	0.0006	0.0008	0.0008			0.0015						0.0032	0.0008				0.0015		0.0064		0.0000		0.0003		0.0005	0.0003	
145	CVS2-11		0.0000	0.0015	0.0018	0.0018			0.0036						0.0074	0.0018				0.0036		0.0147		0.0000		0.0006		0.0012	0.0006	
146	CVS2-12		0.0000	0.0006	0.0007	0.0007			0.0013						0.0028	0.0007				0.0013		0.0055		0.0000		0.0002		0.0004	0.0002	
147	CVS2-13		0.0000	0.0006	0.0007	0.0007			0.0013						0.0028	0.0007				0.0013		0.0055		0.0000		0.0002		0.0004	0.0002	
148	CVS2-14		0.0000	0.0010	0.0012	0.0012			0.0025						0.0051	0.0012				0.0025		0.0101		0.0000		0.0004		0.0008	0.0004	
149	CVS2-15		0.0000	0.0018	0.0022	0.0022			0.0043						0.0090	0.0022				0.0043		0.0177		0.0000		0.0007		0.0014	0.0007	
150	CVS2-16		0.0000	0.0013	0.0016	0.0016			0.0032						0.0066	0.0016				0.0032		0.0131		0.0000		0.0005		0.0011	0.0005	
151	CVS2-17		0.0000	0.0009	0.0011	0.0011			0.0022						0.0046	0.0011				0.0022		0.0090		0.0000		0.0004		0.0007	0.0004	
152	CVS2-18		0.0000	0.0013	0.0016	0.0016			0.0032						0.0066	0.0016				0.0032		0.0131		0.0000		0.0005		0.0011	0.0005	
153	CVS2-19		0.0000	0.0013	0.0015	0.0016			0.0019						0.0155	0.0016				0.0031		0.0057		0.0000		0.0000		0.0019	0.0000	
154	CVS2-20		0.0000	0.0002	0.0003	0.0003			0.0005						0.0011	0.0003				0.0005		0.0022		0.0000		0.0001		0.0002	0.0001	
155	CVS2-21		0.0000	0.0002	0.0003	0.0003			0.0005						0.0011	0.0003				0.0005		0.0022		0.0000		0.0001		0.0002	0.0001	
156	CVS2-22		0.0000	0.0022	0.0027	0.0027			0.0054						0.0112	0.0027				0.0054		0.0221		0.0000		0.0009		0.0018	0.0009	
157	CVS2-23		0.0000	0.0002	0.0003	0.0003			0.0005						0.0011	0.0003				0.0005		0.0022		0.0000		0.0001		0.0002	0.0001	
158	CVS2-24		0.0000	0.0021	0.0025	0.0025			0.0050						0.0105	0.0025				0.0050		0.0207		0.0000		0.0008		0.0017	0.0008	
159	CVS2-25		0.0000	0.0013	0.0015	0.0015			0.0030						0.0063	0.0015				0.0030		0.0125		0.0000		0.0005		0.0010	0.0005	
160	CVS2-26		0.0000	0.0002	0.0003	0.0003			0.0005						0.0011	0.0003				0.0005		0.0022		0.0000		0.0001		0.0002	0.0001	
161	CVS2-27		0.0000	0.0002	0.0003	0.0003			0.0005						0.0011	0.0003				0.0005		0.0022		0.0000		0.0001		0.0002	0.0001	
162	CVS2-28		0.0000	0.0022	0.0027	0.0027			0.0054						0.0112	0.0027				0.0054		0.0221		0.0000		0.0009		0.0018	0.0009	
163	CVS2-29		0.0000	0.0022	0.0027	0.0027			0.0054						0.0112	0.0027				0.0054		0.0221		0.0000		0.0009		0.0018	0.0009	
164	CVS2-30		0.0000	0.0002	0.0003	0.0003			0.0005						0.0011	0.0003				0.0005		0.0022		0.0000		0.0001		0.0002	0.0001	

#	Glass ID	ReO2-t	Re2O7-t	Rh2O3-t	RhO2-t	RuO2-t	Ru2O3-t	Sb2O3-t	Sb2O5-t	SeO2-t	Sm2O3-t	SnO-t	SnO2-t	SO3-t	SrO-t	Tc2O7-t	TeO2-t	ThO2-t	TiO2-t	Tl2O-t	Tl2O3-t	U3O8-t	UO2-t	UO3-t	V2O5-t	WO3-t	Y2O3-t	ZnO-t	Sum-t	Al2O3-a
83	IG3-02b	0.0001		0.0000		0.0000					0.0000		0.0006	0.0044	0.0037		0.0000										0.0000		1.0000	0.0452
84	IG3-03	0.0001		0.0000		0.0000					0.0000		0.0006	0.0050	0.0000		0.0000										0.0000		1.0000	0.0411
85	IG3-04	0.0001		0.0000		0.0000					0.0000		0.0006	0.0000	0.0400		0.0000										0.0000		1.0000	0.0361
86	IG3-05	0.0001		0.0000		0.0000					0.0000		0.0006	0.0000	0.0400		0.0000										0.0000		1.0000	0.0366
87	IG3-06	0.0001		0.0000		0.0000					0.0000		0.0006	0.0000	0.0000		0.0000										0.0000		1.0000	0.0420
88	IG3-07	0.0001		0.0000		0.0000					0.0000		0.0006	0.0000	0.0000		0.0000										0.0000		1.0000	0.1687
89	IG3-08b	0.0001		0.0000		0.0000					0.0000		0.0006	0.0041	0.0055		0.0000										0.0000		1.0000	0.0555
90	IG3-09	0.0001		0.0000		0.0000					0.0000		0.0006	0.0050	0.0000		0.0000										0.0000		1.0000	0.0268
91	IG3-10b	0.0001		0.0000		0.0000					0.0000		0.0006	0.0044	0.0357		0.0000										0.0000		1.0000	0.0404
92	IG3-11	0.0001		0.0000		0.0000					0.0000		0.0006	0.0050	0.0400		0.0000										0.0000		1.0000	0.1195
93	IG3-12	0.0001		0.0000		0.0000					0.0000		0.0006	0.0050	0.0400		0.0000										0.0000		1.0000	0.0371
94	IG3-13	0.0001		0.0000		0.0000					0.0000		0.0006	0.0000	0.0400		0.0000										0.0000		1.0000	0.0418
95	IG3-14	0.0001		0.0000		0.0000					0.0000		0.0006	0.0025	0.0100		0.0000										0.0000		1.0000	0.0805
96	IG3-15	0.0001		0.0000		0.0000					0.0000		0.0006	0.0025	0.0300		0.0000										0.0000		1.0000	0.1028
97	IG3-16	0.0001		0.0000		0.0000					0.0000		0.0006	0.0010	0.0300		0.0000										0.0000		1.0000	0.0970
98	IG3-17	0.0001		0.0000		0.0000					0.0000		0.0006	0.0010	0.0300		0.0000										0.0000		1.0000	0.0886
99	IG3-18	0.0001		0.0000		0.0000					0.0000		0.0006	0.0025	0.0300		0.0000										0.0000		1.0000	0.1206
100	IG3-19	0.0001		0.0000		0.0000					0.0000		0.0006	0.0010	0.0100		0.0000										0.0000		1.0000	0.1227
101	IG3-20	0.0001		0.0000		0.0000					0.0000		0.0006	0.0025	0.0300		0.0000										0.0000		1.0000	0.0823
102	IG3-21	0.0001		0.0000		0.0000					0.0000		0.0006	0.0010	0.0100		0.0000										0.0000		1.0000	0.0996
103	IG3-22	0.0001		0.0000		0.0000					0.0000		0.0006	0.0025	0.0287		0.0000										0.0000		1.0000	0.1006
104	IG3-23	0.0001		0.0000		0.0000					0.0000		0.0006	0.0025	0.0300		0.0000										0.0000		1.0000	0.1225
105	IG3-24	0.0001		0.0000		0.0000					0.0000		0.0006	0.0025	0.0100		0.0000										0.0000		1.0000	0.1204
106	IG3-25	0.0001		0.0000		0.0000					0.0000		0.0006	0.0025	0.0300		0.0000										0.0000		1.0000	0.1241
107	IG3-26	0.0001		0.0000		0.0000					0.0000		0.0006	0.0010	0.0100		0.0000										0.0000		1.0000	0.1222
108	IG3-27	0.0001		0.0000		0.0000					0.0000		0.0006	0.0100	0.0183		0.0000										0.0000		1.0000	0.0862
109	IG3-28	0.0001		0.0000		0.0000					0.0000		0.0006	0.0021	0.0184		0.0000										0.0000		1.0000	0.0874
110	IG3-29	0.0000		0.0000		0.0000					0.0000		0.0003	0.0000	0.0001		0.0000										0.0000		1.0000	0.1213
111	IG3-30	0.0000		0.0000		0.0000					0.0000		0.0004	0.0000	0.0002		0.0000										0.0000		1.0000	0.0384
112	CVS1-1			0.0004		0.0011		0.0000		0.0000	0.0004			0.0020	0.0007		0.0000		0.0000				0.0000				0.0004	0.0000	1.0000	0.0642
113	CVS1-2			0.0001		0.0003		0.0000		0.0000	0.0001			0.0005	0.0002		0.0000		0.0000				0.0000				0.0001	0.0000	1.0000	0.1500
114	CVS1-3			0.0001		0.0003		0.0000		0.0000	0.0001			0.0005	0.0002		0.0000		0.0000				0.0000				0.0001	0.0000	1.0000	0.1380
115	CVS1-4			0.0001		0.0003		0.0000		0.0000	0.0001			0.0005	0.0002		0.0000		0.0000				0.0000				0.0001	0.0000	1.0000	0.0000
116	CVS1-5			0.0001		0.0003		0.0000		0.0000	0.0001			0.0005	0.0002		0.0000		0.0000				0.0000				0.0001	0.0000	1.0000	0.0803
117	CVS1-6			0.0009		0.0027		0.0000		0.0000	0.0009			0.0049	0.0018		0.0000		0.0000				0.0000				0.0009	0.0000	1.0000	0.0009
118	CVS1-7			0.0001		0.0003		0.0000		0.0000	0.0001			0.0005	0.0002		0.0000		0.0000				0.0000				0.0001	0.0000	1.0000	0.0010
119	CVS1-8			0.0001		0.0003		0.0000		0.0000	0.0001			0.0005	0.0002		0.0000		0.0000				0.0000				0.0001	0.0000	1.0000	0.0009
120	CVS1-9			0.0009		0.0027		0.0000		0.0000	0.0009			0.0049	0.0018		0.0000		0.0000				0.0000				0.0009	0.0000	1.0000	0.0000
121	CVS1-10			0.0009		0.0027		0.0000		0.0000	0.0009			0.0049	0.0018		0.0000		0.0000				0.0000				0.0009	0.0000	1.0000	0.1210
122	CVS1-11			0.0007		0.0022		0.0000		0.0000	0.0007			0.0039	0.0014		0.0000		0.0000				0.0000				0.0007	0.0000	1.0000	0.1450
123	CVS1-12			0.0001		0.0003		0.0000		0.0000	0.0001			0.0005	0.0002		0.0000		0.0000				0.0000				0.0001	0.0000	1.0000	0.0000
124	CVS1-13			0.0001		0.0003		0.0000		0.0000	0.0001			0.0005	0.0002		0.0000		0.0000				0.0000				0.0001	0.0000	1.0000	0.0043
125	CVS1-14			0.0001		0.0003		0.0000		0.0000	0.0001			0.0005	0.0002		0.0000		0.0000				0.0000				0.0001	0.0000	1.0000	0.0240
126	CVS1-15			0.0009		0.0027		0.0000		0.0000	0.0009			0.0049	0.0018		0.0000		0.0000				0.0000				0.0009	0.0000	1.0000	0.0000
127	CVS1-16			0.0001		0.0003		0.0000		0.0000	0.0001			0.0005	0.0002		0.0000		0.0000				0.0000				0.0001	0.0000	1.0000	0.1430
128	CVS1-17			0.0009		0.0027		0.0000		0.0000	0.0009			0.0049	0.0018		0.0000		0.0000				0.0000				0.0009	0.0000	1.0000	0.0000
129	CVS1-18			0.0008		0.0024		0.0000		0.0000	0.0008			0.0044	0.0016		0.0000		0.0000				0.0000				0.0008	0.0000	1.0000	0.0009
130	CVS1-19			0.0004		0.0011		0.0000		0.0000	0.0004			0.0020	0.0007		0.0000		0.0000				0.0000				0.0004	0.0000	1.0000	0.0636
131	CVS1-20			0.0004		0.0011		0.0000		0.0000	0.0004			0.0020	0.0007		0.0000		0.0000				0.0000				0.0004	0.0000	1.0000	0.0637
132	CVS1-21			0.0001		0.0003		0.0000		0.0000	0.0001			0.0005	0.0002		0.0000		0.0000				0.0000				0.0001	0.0000	1.0000	0.0074
133	CVS1-22			0.0001		0.0003		0.0000		0.0000	0.0001			0.0005	0.0002		0.0000		0.0000				0.0000				0.0001	0.0000	1.0000	0.0008
134	CVS1-23			0.0004		0.0011		0.0000		0.0000	0.0004			0.0019	0.0007		0.0000		0.0000				0.0000				0.0004	0.0000	1.0000	0.0434
135	CVS2-1			0.0007		0.0022		0.0000		0.0000	0.0007			0.0039	0.0014		0.0000		0.0000				0.0000				0.0007	0.0000	1.0000	0.0795
136	CVS2-2			0.0002		0.0007		0.0000		0.0000	0.0002			0.0012	0.0004		0.0000		0.0000				0.0000				0.0002	0.0000	1.0000	0.1065
137	CVS2-3			0.0002		0.0007		0.0000		0.0000	0.0002			0.0012	0.0004		0.0000		0.0000				0.0000				0.0002	0.0000	1.0000	0.0995
138	CVS2-4			0.0002		0.0007		0.0000		0.0000	0.0002			0.0012	0.0004		0.0000		0.0000				0.0000				0.0002	0.0000	1.0000	0.0595
139	CVS2-5			0.0007		0.0022		0.0000		0.0000	0.0007			0.0039	0.0014		0.0000		0.0000				0.0000				0.0007	0.0000	1.0000	0.0690
140	CVS2-6			0.0006		0.0017		0.0000		0.0000	0.0006			0.0032	0.0011		0.0000		0.0000				0.0000				0.0006	0.0000	1.0000	0.0155
141	CVS2-7			0.0006		0.0017		0.0000		0.0000	0.0006			0.0032	0.0012		0.0000		0.0000				0.0000				0.0006	0.0000	1.0000	0.0895
142	CVS2-8			0.0002		0.0007		0.0000		0.0000	0.0002			0.0012	0.0004		0.0000		0.0000				0.0000				0.0002	0.0000	1.0000	0.0580
143	CVS2-9			0.0002		0.0007		0.0000		0.0000	0.0002			0.0012	0.0004		0.0000		0.0000				0.0000				0.0002	0.0000	1.0000	0.0140
144	CVS2-10			0.0003		0.0008		0.0000		0.0000	0.0003			0.0014	0.0005		0.0000		0.0000				0.0000				0.0003	0.0000	1.0000	0.1005
145	CVS2-11			0.0006		0.0018		0.0000		0.0000	0.0006			0.0033	0.0012		0.0000		0.0000				0.0000				0.0006	0.0000	1.0000	0.0104
146	CVS2-12			0.0002		0.0007		0.0000		0.0000	0.0002			0.0012	0.0004		0.0000		0.0000				0.0000				0.0002	0.0000	1.0000	0.0900
147	CVS2-13			0.0002		0.0007		0.0000		0.0000	0.0002			0.0012	0.0004		0.0000		0.0000				0.0000				0.0002	0.0000	1.0000	0.0895
148	CVS2-14			0.0004		0.0012		0.0000		0.0000	0.0004			0.0023	0.0008		0.0000		0.0000				0.0000				0.0004	0.0000	1.0000	0.0245
149	CVS2-15			0.0007		0.0022		0.0000		0.0000	0.0007			0.0039	0.0014		0.0000		0.0000				0.0000				0.0007	0.0000	1.0000	0.0745
150	CVS2-16			0.0005		0.0016		0.0000		0.0000	0.0005			0.0029	0.0011		0.0000		0.0000				0.0000				0.0005	0.0000	1.0000	0.0230
151	CVS2-17			0.0004		0.0011		0.0000		0.0000	0.0004			0.0020	0.0007		0.0000		0.0000				0.0000				0.0004	0.0000	1.0000	0.0615
152	CVS2-18			0.0005		0.0016		0.0000		0.0000	0.0005			0.0029	0.0011		0.0000		0.0000				0.0000				0.0005	0.0000	1.0000	0.0235
153	CVS2-19			0.0000		0.0015		0.0000		0.0000	0.0000			0.0044	0.0000		0.0000		0.0000				0.0000				0.0000	0.0049	1.0000	0.0300
154	CVS2-20			0.0001		0.0003		0.0000		0.0000	0.0001			0.0005	0.0002		0.0000		0.0000				0.0000				0.0001	0.0000	1.0000	0.0096
155	CVS2-21			0.0001		0.0003		0.0000		0.0000	0.0001			0.0005	0.0002		0.0000		0.0000				0.0000				0.0001	0.0000	1.0000	0.0669
156	CVS2-22			0.0009		0.0027		0.0000		0.0000	0.0009			0.0049	0.0018		0.0000		0.0000				0.0000				0.0009	0.0000	1.0000	0.0366
157	CVS2-23			0.0001		0.0003		0.0000		0.0000	0.0001			0.0005	0.0002		0.0000		0.0000				0.0000				0.0001	0.0000	1.0000	0.0561
158	CVS2-24			0.0008		0.0025		0.0000		0.0000	0.0008			0.0046	0.0017		0.0000		0.0000				0.0000				0.0008	0.0000	1.0000	0.0940
159	CVS2-25			0.0005		0.0015		0.0000		0.0000	0.0005			0.0028	0.0010		0.0000		0.0000				0.0000				0.0005	0.0000	1.0000	0.0040
160	CVS2-26			0.0001		0.0003		0.0000		0.0000	0.0001			0.0005	0.0002		0.0000		0.0000				0.0000				0.0001	0.0000	1.0000	0.0250
161	CVS2-27			0.0001		0.0003		0.0000		0.0000	0.0001			0.0005	0.0002		0.0000		0.0000				0.0000				0.0001	0.0000	1.0000	0.0764
162	CVS2-28			0.0009		0.0027		0.0000		0.0000	0.0009			0.0049	0.0018		0.0000		0.0000				0.0000				0.0009	0.0000	1.0000	0.0486
163	CVS2-29			0.0009		0.0027		0.0000		0.0000	0.0009			0.0049	0.0018		0.0000		0.0000				0.0000				0.0009	0.0000	1.0000	0.0005
164	CVS2-30			0.0001		0.0003		0.0000		0.0000	0.0001			0.0005	0.0002		0.0000		0.0000				0.0000				0.0001	0.0000	1.0000	0.0435

#	Glass ID	B2O3-a	CaO-a	Fe2O3-a	FeO-a	K2O-a	Li2O-a	MgO-a	Na2O-a	NiO-a	P2O5-a	SiO2-a	ZrO2-a	Ag2O-a	As2O3-a	As2O5-a	BaO-a	BeO-a	Bi2O3-a	Br-a	CdO-a	Ce2O3-a	CeO2-a	Cl-a	CoO-a	Co2O3-a	Cr2O3-a	Cs2O-a	CuO-a	F-a
83	IG3-02b	0.1601	0.1060	0.0045		0.0018	0.0080	0.0020	0.0703	0.0013	0.0016	0.5263	0.0118				0.0000					0.0000		0.0003			0.0006	0.0000		0.0033
84	IG3-03	0.0504	0.0003	0.0001		0.0205	0.0081	0.0026	0.2056	0.0137	0.0208	0.4257	0.1195				0.0001					0.0001		0.0003			0.0008	0.0000		0.0005
85	IG3-04	0.1793	0.0005	0.0297		0.0000	0.0265	0.0002	0.0527	0.0136	0.0228	0.5412	0.0000				0.0000					0.0000		0.0000			0.0001	0.0000		0.0005
86	IG3-05	0.0506	0.1200	0.0001		0.0204	0.0007	0.0002	0.1245	0.0142	0.0002	0.5348	0.0003				0.0000					0.0000		0.0000			0.0001	0.0000		0.0368
87	IG3-06	0.0499	0.1210	0.0006		0.0211	0.0295	0.0005	0.0508	0.0135	0.0093	0.4295	0.1061				0.0000					0.0000		0.0001			0.0001	0.0000		0.0261
88	IG3-07	0.1790	0.0001	0.0805		0.0000	0.0008	0.0004	0.1894	0.0137	0.0002	0.3530	0.0002				0.0000					0.0000		0.0001			0.0001	0.0000		0.0005
89	IG3-08b	0.1569	0.0173	0.0650		0.0027	0.0122	0.0002	0.1432	0.0116	0.0021	0.4156	0.1025				0.0000					0.0000		0.0000			0.0001	0.0000		0.0005
90	IG3-09	0.0522	0.0001	0.0821		0.0225	0.0930	0.0025	0.0650	0.0001	0.0246	0.6001	0.0000				0.0001					0.0001		0.0003			0.0008	0.0000		0.0347
91	IG3-10b	0.1685	0.0122	0.0471		0.0190	0.0404	0.0023	0.0683	0.0127	0.0013	0.3904	0.1146				0.0000					0.0001		0.0003			0.0007	0.0000		0.0145
92	IG3-11	0.0503	0.1199	0.0796		0.0000	0.0141	0.0042	0.2032	0.0001	0.0002	0.3674	0.0000				0.0001					0.0001		0.0006			0.0013	0.0001		0.0005
93	IG3-12	0.1793	0.0908	0.0295		0.0000	0.0010	0.0025	0.1139	0.0001	0.0002	0.3562	0.0905				0.0000					0.0001		0.0003			0.0007	0.0000		0.0005
94	IG3-13	0.0767	0.0007	0.0795		0.0000	0.0471	0.0003	0.1422	0.0143	0.0054	0.3658	0.1224				0.0000					0.0000		0.0000			0.0001	0.0000		0.0426
95	IG3-14	0.0602	0.0434	0.0298		0.0110	0.0595	0.0015	0.1058	0.0046	0.0075	0.5081	0.0325				0.0000					0.0000		0.0002			0.0004	0.0000		0.0213
96	IG3-15	0.0623	0.0842	0.0051		0.0111	0.0439	0.0025	0.1042	0.0025	0.0041	0.4134	0.0742				0.0000					0.0001		0.0003			0.0007	0.0000		0.0193
97	IG3-16	0.0745	0.0828	0.0049		0.0089	0.0583	0.0007	0.1031	0.0050	0.0062	0.4027	0.0630				0.0000					0.0000		0.0001			0.0002	0.0000		0.0073
98	IG3-17	0.0597	0.0833	0.0300		0.0108	0.0588	0.0009	0.1049	0.0045	0.0092	0.4001	0.0659				0.0000					0.0000		0.0001			0.0003	0.0000		0.0076
99	IG3-18	0.0616	0.0440	0.0047		0.0091	0.0582	0.0015	0.1510	0.0049	0.0081	0.4022	0.0482				0.0000					0.0000		0.0002			0.0005	0.0000		0.0075
100	IG3-19	0.0640	0.0857	0.0153		0.0112	0.0616	0.0007	0.1067	0.0046	0.0059	0.4161	0.0347				0.0000					0.0000		0.0001			0.0002	0.0000		0.0198
101	IG3-20	0.1218	0.0821	0.0310		0.0042	0.0321	0.0014	0.1032	0.0045	0.0041	0.4140	0.0376				0.0000					0.0000		0.0002			0.0004	0.0000		0.0193
102	IG3-21	0.1137	0.0438	0.0151		0.0056	0.0597	0.0008	0.1021	0.0044	0.0028	0.4193	0.0708				0.0000					0.0000		0.0001			0.0003	0.0000		0.0077
103	IG3-22	0.0622	0.0445	0.0333		0.0056	0.0544	0.0017	0.1591	0.0044	0.0028	0.4209	0.0715				0.0000					0.0000		0.0002			0.0005	0.0000		0.0080
104	IG3-23	0.0617	0.0442	0.0055		0.0047	0.0308	0.0016	0.1513	0.0088	0.0041	0.4658	0.0373				0.0000					0.0000		0.0002			0.0005	0.0000		0.0209
105	IG3-24	0.0605	0.0441	0.0050		0.0054	0.0314	0.0014	0.1557	0.0093	0.0044	0.4573	0.0382				0.0000					0.0000		0.0002			0.0004	0.0000		0.0205
106	IG3-25	0.0626	0.0448	0.0049		0.0046	0.0316	0.0017	0.1496	0.0046	0.0046	0.4482	0.0384				0.0000					0.0000		0.0002			0.0005	0.0000		0.0202
107	IG3-26	0.0866	0.0819	0.0145		0.0045	0.0312	0.0006	0.1017	0.0045	0.0074	0.4241	0.0471				0.0000					0.0000		0.0001			0.0002	0.0000		0.0072
108	IG3-27	0.0961	0.0542	0.0231		0.0081	0.0402	0.0054	0.1302	0.0001	0.0055	0.4268	0.0532				0.0001					0.0001		0.0007			0.0016	0.0001		0.0182
109	IG3-28	0.0963	0.0510	0.0248		0.0097	0.0409	0.0013	0.1289	0.0068	0.0081	0.4236	0.0559				0.0000					0.0000		0.0002			0.0004	0.0000		0.0180
110	IG3-29	0.0872	0.0834	0.0148		0.0045	0.0308	0.0007	0.0999	0.0043	0.0087	0.4156	0.0487				0.0000					0.0000		0.0001			0.0002	0.0000		0.0074
111	IG3-30	0.1257	0.0016	0.0001		0.0258	0.0634	0.0002	0.0888	0.0001	0.0097	0.5477	0.0910				0.0000					0.0000		0.0000			0.0001	0.0000		0.0005
112	CVS1-1	0.1160	0.0277	0.0566		0.0080	0.0340	0.0359	0.0891	0.0044	0.0007	0.4770	0.0418				0.0007				0.0055		0.0012				0.0010	0.0010	0.0011	0.0022
113	CVS1-2	0.0511	0.1020	0.0203		0.0040	0.0615	0.0000	0.0504	0.0013	0.0002	0.5200	0.0090				0.0002				0.0014		0.0003				0.0002	0.0003	0.0003	0.0005
114	CVS1-3	0.2010	0.0004	0.0202		0.0090	0.0601	0.0776	0.0511	0.0014	0.0002	0.4110	0.0090				0.0002				0.0014		0.0007				0.0003	0.0002	0.0003	0.0005
115	CVS1-4	0.2000	0.0204	0.0210		0.0050	0.0086	0.0791	0.0893	0.0014	0.0002	0.5460	0.0005				0.0002				0.0014		0.0003				0.0003	0.0003	0.0003	0.0005
116	CVS1-5	0.0517	0.0001	0.1490		0.0090	0.0620	0.0000	0.0641	0.0014	0.0002	0.5630	0.0002				0.0002				0.0013		0.0003				0.0000	0.0002	0.0003	0.0005
117	CVS1-6	0.1920	0.0012	0.0190		0.0070	0.0616	0.0000	0.0537	0.0094	0.0018	0.4150	0.1160				0.0016				0.0130		0.0027				0.0022	0.0025	0.0025	0.0054
118	CVS1-7	0.0507	0.1000	0.0334		0.0070	0.0087	0.0000	0.0946	0.0014	0.0002	0.5550	0.1220				0.0002				0.0014		0.0003				0.0002	0.0003	0.0003	0.0005
119	CVS1-8	0.0527	0.0003	0.1520		0.0060	0.0092	0.0807	0.0780	0.0015	0.0002	0.5450	0.0696				0.0002				0.0014		0.0003				0.0003	0.0003	0.0003	0.0005
120	CVS1-9	0.2020	0.0004	0.1400		0.0000	0.0091	0.0816	0.0562	0.0106	0.0018	0.4140	0.0002				0.0018				0.0141		0.0030				0.0022	0.0025	0.0027	0.0054
121	CVS1-10	0.0848	0.0005	0.0206		0.0050	0.0087	0.0000	0.0924	0.0105	0.0018	0.5650	0.0002				0.0018				0.0118		0.0030				0.0024	0.0024	0.0027	0.0054
122	CVS1-11	0.1600	0.1030	0.0206		0.0000	0.0098	0.0000	0.0730	0.0084	0.0014	0.4180	0.0002				0.0014				0.0110		0.0023				0.0019	0.0020	0.0023	0.0043
123	CVS1-12	0.1810	0.1020	0.1490		0.0000	0.0703	0.0000	0.0761	0.0014	0.0002	0.4170	0.0001				0.0002				0.0014		0.0003				0.0003	0.0002	0.0003	0.0005
124	CVS1-13	0.2030	0.0003	0.0205		0.0000	0.0086	0.0000	0.1740	0.0013	0.0002	0.5510	0.0006				0.0002				0.0014		0.0003				0.0002	0.0003	0.0003	0.0005
125	CVS1-14	0.1960	0.0002	0.0194		0.0060	0.0093	0.0000	0.1850	0.0013	0.0002	0.4040	0.1230				0.0002				0.0013		0.0003				0.0002	0.0002	0.0003	0.0005
126	CVS1-15	0.0507	0.0005	0.0201		0.0100	0.0568	0.0760	0.1120	0.0101	0.0018	0.5380	0.0002				0.0017				0.0136		0.0033				0.0023	0.0026	0.0025	0.0054
127	CVS1-16	0.0509	0.0004	0.0851		0.0070	0.0085	0.0771	0.1740	0.0014	0.0002	0.4230	0.0002				0.0002				0.0014		0.0003				0.0002	0.0003	0.0003	0.0005
128	CVS1-17	0.0513	0.0995	0.1370		0.0040	0.0091	0.0000	0.1540	0.0104	0.0018	0.4380	0.0004				0.0017				0.0136		0.0029				0.0023	0.0026	0.0026	0.0054
129	CVS1-18	0.0516	0.0220	0.0202		0.0130	0.0616	0.0754	0.1150	0.0093	0.0016	0.4190	0.0975				0.0016				0.0126		0.0026				0.0022	0.0022	0.0024	0.0048
130	CVS1-19	0.1150	0.0289	0.0559		0.0080	0.0345	0.0355	0.0964	0.0043	0.0007	0.4760	0.0400				0.0007				0.0057		0.0014				0.0010	0.0010	0.0011	0.0022
131	CVS1-20	0.1160	0.0270	0.0555		0.0140	0.0350	0.0344	0.1100	0.0044	0.0007	0.4750	0.0411				0.0007				0.0055		0.0012				0.0010	0.0011	0.0011	0.0022
132	CVS1-21	0.2010	0.0214	0.0207		0.0000	0.0086	0.0795	0.0855	0.0014	0.0002	0.5540	0.0002				0.0002				0.0014		0.0003				0.0004	0.0003	0.0003	0.0005
133	CVS1-22	0.0512	0.0009	0.1480		0.0070	0.0096	0.0754	0.0836	0.0018	0.0002	0.5340	0.0703				0.0002				0.0014		0.0003				0.0002	0.0003	0.0006	0.0005
134	CVS1-23	0.0945	0.0294	0.1140		0.0090	0.0296	0.0078	0.0943	0.0040	0.0007	0.5140	0.0064				0.0007				0.0052		0.0011				0.0009	0.0010	0.0010	0.0021
135	CVS2-1	0.0880	0.0008	0.0400		0.0330	0.0580	0.0465	0.0700	0.0088	0.0014	0.5340	0.0100				0.0014				0.0110		0.0028				0.0021	0.0018	0.0021	0.0043
136	CVS2-2	0.0705	0.0690	0.0425		0.0150	0.0530	0.0000	0.0780	0.0031	0.0005	0.5100	0.0280				0.0004				0.0034		0.0013				0.0007	0.0006	0.0007	0.0013
137	CVS2-3	0.1305	0.0690	0.0435		0.0340	0.0405	0.0097	0.0650	0.0033	0.0005	0.4670	0.0350				0.0050				0.0033		0.0015				0.0009	0.0005	0.0007	0.0013
138	CVS2-4	0.1090	0.0700	0.0385		0.0067	0.0465	0.0000	0.0630	0.0030	0.0005	0.5530	0.0100				0.0004				0.0032		0.0011				0.0008	0.0004	0.0006	0.0013
139	CVS2-5	0.1545	0.0260	0.0345		0.0170	0.0170	0.0000	0.0890	0.0083	0.0014	0.4870	0.0073				0.0012				0.0060		0.0025				0.0019	0.0019	0.0019	0.0043
140	CVS2-6	0.0690	0.0680	0.1125		0.0100	0.0350	0.0047	0.0630	0.0068	0.0012	0.5390	0.0095				0.0011				0.0082		0.0021				0.0016	0.0016	0.0016	0.0034
141	CVS2-7	0.1570	0.0170	0.0385		0.0083	0.0495	0.0000	0.0770	0.0066	0.0012	0.4690	0.0100				0.0011				0.0086		0.0021				0.0017	0.0017	0.0017	0.0035
142	CVS2-8	0.0695	0.0014	0.1065		0.0190	0.0540	0.0445	0.0900	0.0078	0.0005	0.4940	0.0049				0.0004				0.0033		0.0011				0.0008	0.0007	0.0007	0.0013
143	CVS2-9	0.0950	0.0006	0.0700		0.0150	0.0545	0.0000	0.0860	0.0030	0.0005	0.5470	0.0960				0.0004				0.0003		0.0001				0.0008	0.0006	0.0007	0.0013
144	CVS2-10	0.1690	0.0013	0.0635		0.0110	0.0019	0.0000	0.1180	0.0033	0.0005	0.4680	0.0100				0.0005				0.0037		0.0012				0.0009	0.0007	0.0007	0.0016
145	CVS2-11	0.0745	0.0680	0.0395		0.0045	0.0550	0.0111	0.0910	0.0069	0.0012	0.4910	0.0870				0.0011				0.0085		0.0024				0.0002	0.0018	0.0017	0.0036
146	CVS2-12	0.1745	0.0760	0.0400		0.0130	0.0450	0.0100	0.0690	0.0030	0.0005	0.4640	0.0006				0.0005				0.0034		0.0011				0.0007	0.0006	0.0007	0.0013
147	CVS2-13	0.0710	0.0320	0.0405		0.0370	0.0215	0.0480	0.1620	0.0031	0.0005	0.5050	0.0010				0.0005				0.0034		0.0013				0.0001	0.0005	0.0007	0.0013
148	CVS2-14	0.1320	0.0310	0.0395		0.0170	0.0340	0.0450	0.0700	0.0050	0.0008	0.4740	0.0900				0.0008				0.0063		0.0019				0.0014	0.0011	0.0012	0.0025
149	CVS2-15	0.0775	0.0550	0.0380		0.0079	0.0205	0.0000	0.1440	0.0082	0.0014	0.4740	0.0100				0.0013				0.0099		0.0026				0.0018	0.0017	0.0020	0.0043
150	CVS2-16	0.1040	0.0092	0.0700		0.0310	0.0360	0.0086	0.1050	0.0065	0.0011	0.5400	0.0380				0.0010				0.0079		0.0023				0.0016	0.0015	0.0016	0.0032
151	CVS2-17	0.1135	0.0300	0.0550		0.0180	0.0330	0.0330	0.0890	0.0045	0.0007	0.4810	0.0410				0.0007				0.0057		0.0018				0.0013	0.0010	0.0010	0.0022
152	CVS2-18	0.1060	0.0093	0.0705		0.0280	0.0365	0.0086	0.1090	0.0066	0.0011	0.5320	0.0400				0.0010				0.0080		0.0022				0.0017	0.0015	0.0016	0.0032
153	CVS2-19	0.1010	0.0108	0.0610		0.0000	0.0344	0.0809	0.1160	0.0063	0.0010	0.5110	0.0397				0.0023				0.0064		0.0010				0.0010	0.0002	0.0021	0.0019
154	CVS2-20	0.0486	0.0004	0.0564		0.0000	0.0628	0.0004	0.1455	0.0010	0.0008	0.5630	0.1180				0.0002				0.0012		0.0055				0.0003	0.0025	0.0003	0.0005
155	CVS2-21	0.1290	0.0005	0.0190		0.0000	0.0646	0.0705	0.0847	0.0010	0.0004	0.5495	0.0000				0.0002				0.0013		0.0002				0.0003	0.0003	0.0003	0.0005
156	CVS2-22	0.0502	0.0006	0.0203		0.0020	0.0703	0.0731	0.1355	0.0093	0.0020	0.5560	0.0000				0.0017				0.0123		0.0023				0.0021	0.0027	0.0025	0.0054
157	CVS2-23	0.0508	0.0760	0.0188		0.0000	0.0081	0.0004	0.2265	0.0010	0.0002	0.5485	0.0000				0.0002				0.0012		0.0001				0.0003	0.0004	0.0002	0.0005
158	CVS2-24	0.2008	0.0007	0.0185		0.0200	0.0673	0.0002	0.1290	0.0087	0.0020	0.4360	0.0000				0.0015				0.0116		0.0024				0.0020	0.0028	0.0023	0.0050
159	CVS2-25	0.0496	0.0765	0.1415		0.0000	0.0663	0.0007	0.1295	0.0054	0.0010	0.4903	0.0000				0.0009				0.0072		0.0013				0.0012	0.0019	0.0014	0.0030
160	CVS2-26	0.2000	0.0770	0.0190		0.0000	0.0680	0.0010	0.0520	0.0009	0.0004	0.4300	0.0890				0.0002				0.0013		0.0048				0.0002	0.0006	0.0003	0.0005
161	CVS2-27	0.0492	0.0005	0.0190		0.0000	0.0168	0.0715	0.2335	0.0009	0.0002	0.5333	0.0000				0.0002				0.0012		0.0002				0.0003	0.0003	0.0002	0.0005
162	CVS2-28	0.0443	0.0002	0.0175		0.0000	0.0103	0.0001	0.2030	0.0093	0.0020	0.4915	0.0000				0.0015				0.0109		0.0016				0.0012	0.0025	0.0022	0.0054
163	CVS2-29	0.2018	0.0758	0.0188		0.0000	0.0082	0.0007	0.1080	0.0093	0.0020	0.4170	0.0736				0.0017				0.0131		0.0065				0.0021	0.0028	0.0025	0.0054
164	CVS2-30	0.1960	0.0001	0.1218		0.0000	0.0084	0.0001	0.1250	0.0009	0.0002	0.4915	0.0000				0.0002				0.0012		0.0002				0.0003	0.0003	0.0003	0.0005

#	Glass ID	Ga2O3-a	Gd2O3-a	I-a	La2O3-a	MnO2-a	MnO-a	MoO-a	MoO3-a	Nb2O5-a	Nd2O3-a	NpO2-a	PbO-a	PdO2-a	PdO-a	Pr2O3-a	Pr6O11-a	PuO2-a	Rb2O-a	ReO-a	ReO2-a	Re2O7-a	Rh2O3-a	RhO2-a	RuO2-a	Sb2O3-a	Sb2O5-a	SeO2-a
83	IG3-02b			0.0000	0.0410		0.0001		0.0130	0.0002	0.0001		0.0000			0.0000			0.0000		0.0000		0.0000		0.0000			
84	IG3-03			0.0000	0.0462		0.0001		0.0142	0.0002	0.0001		0.0000			0.0000			0.0000		0.0001		0.0000		0.0000			
85	IG3-04			0.0000	0.0447		0.0000		0.0002	0.0000	0.0000		0.0000			0.0000			0.0000		0.0000		0.0000		0.0000			
86	IG3-05			0.0000	0.0001		0.0000		0.0149	0.0000	0.0000		0.0000			0.0000			0.0000		0.0000		0.0000		0.0000			
87	IG3-06			0.0000	0.0473		0.0000		0.0002	0.0000	0.0000		0.0000			0.0000			0.0000		0.0000		0.0000		0.0000			
88	IG3-07			0.0000	0.0001		0.0000		0.0145	0.0000	0.0000		0.0000			0.0000			0.0000		0.0000		0.0000		0.0000			
89	IG3-08b			0.0000	0.0064		0.0000		0.0121	0.0000	0.0000		0.0000			0.0000			0.0000		0.0000		0.0000		0.0000			
90	IG3-09			0.0000	0.0001		0.0001		0.0149	0.0002	0.0001		0.0000			0.0000			0.0000		0.0001		0.0000		0.0000			
91	IG3-10b			0.0000	0.0272		0.0001		0.0013	0.0002	0.0001		0.0000			0.0000			0.0000		0.0000		0.0000		0.0000			
92	IG3-11			0.0000	0.0001		0.0002		0.0002	0.0004	0.0002		0.0000			0.0000			0.0000		0.0001		0.0000		0.0001			
93	IG3-12			0.0000	0.0462		0.0001		0.0002	0.0002	0.0001		0.0000			0.0000			0.0000		0.0001		0.0000		0.0000			
94	IG3-13			0.0000	0.0001		0.0000		0.0002	0.0000	0.0000		0.0000			0.0000			0.0000		0.0000		0.0000		0.0000			
95	IG3-14			0.0000	0.0142		0.0001		0.0097	0.0001	0.0001		0.0000			0.0000			0.0000		0.0000		0.0000		0.0000			
96	IG3-15			0.0000	0.0326		0.0001		0.0096	0.0002	0.0001		0.0000			0.0000			0.0000		0.0001		0.0000		0.0000			
97	IG3-16			0.0000	0.0141		0.0000		0.0097	0.0001	0.0000		0.0000			0.0000			0.0000		0.0000		0.0000		0.0000			
98	IG3-17			0.0000	0.0139		0.0000		0.0094	0.0001	0.0000		0.0000			0.0000			0.0000		0.0000		0.0000		0.0000			
99	IG3-18			0.0000	0.0138		0.0001		0.0093	0.0001	0.0001		0.0000			0.0000			0.0000		0.0000		0.0000		0.0000			
100	IG3-19			0.0000	0.0325		0.0000		0.0096	0.0001	0.0000		0.0000			0.0000			0.0000		0.0000		0.0000		0.0000			
101	IG3-20			0.0000	0.0184		0.0001		0.0094	0.0001	0.0001		0.0000			0.0000			0.0000		0.0000		0.0000		0.0000			
102	IG3-21			0.0000	0.0322		0.0000		0.0095	0.0001	0.0000		0.0000			0.0000			0.0000		0.0000		0.0000		0.0000			
103	IG3-22			0.0000	0.0187		0.0001		0.0047	0.0002	0.0001		0.0000			0.0000			0.0000		0.0000		0.0000		0.0000			
104	IG3-23			0.0000	0.0140		0.0001		0.0095	0.0002	0.0001		0.0000			0.0000			0.0000		0.0000		0.0000		0.0000			
105	IG3-24			0.0000	0.0326		0.0001		0.0048	0.0001	0.0001		0.0000			0.0000			0.0000		0.0000		0.0000		0.0000			
106	IG3-25			0.0000	0.0328		0.0001		0.0048	0.0002	0.0001		0.0000			0.0000			0.0000		0.0000		0.0000		0.0000			
107	IG3-26			0.0000	0.0325		0.0000		0.0097	0.0001	0.0000		0.0000			0.0000			0.0000		0.0000		0.0000		0.0000			
108	IG3-27			0.0001	0.0213		0.0003		0.0069	0.0005	0.0002		0.0000			0.0001			0.0001		0.0001		0.0001		0.0001			
109	IG3-28			0.0000	0.0212		0.0001		0.0070	0.0001	0.0000		0.0000			0.0000			0.0000		0.0000		0.0000		0.0000			
110	IG3-29			0.0000	0.0315		0.0000		0.0094	0.0001	0.0000		0.0000			0.0000			0.0000		0.0000		0.0000		0.0000			
111	IG3-30			0.0000	0.0001		0.0000		0.0002	0.0000	0.0000		0.0000			0.0000			0.0000		0.0000		0.0000		0.0000			
112	CVS1-1				0.0044	0.0012			0.0022		0.0083				0.0004		0.0007		0.0004				0.0004		0.0011			
113	CVS1-2				0.0012	0.0003			0.0005		0.0021				0.0001		0.0002		0.0001				0.0001		0.0003			
114	CVS1-3				0.0012	0.0003			0.0005		0.0022				0.0001		0.0002		0.0001				0.0001		0.0003			
115	CVS1-4				0.0012	0.0004			0.0006		0.0021				0.0001		0.0002		0.0001				0.0001		0.0003			
116	CVS1-5				0.0011	0.0004			0.0006		0.0021				0.0001		0.0002		0.0001				0.0001		0.0003			
117	CVS1-6				0.0100	0.0027			0.0050		0.0188				0.0009		0.0018		0.0009				0.0009		0.0025			
118	CVS1-7				0.0012	0.0003			0.0005		0.0021				0.0001		0.0002		0.0001				0.0001		0.0003			
119	CVS1-8				0.0011	0.0004			0.0006		0.0021				0.0001		0.0002		0.0001				0.0001		0.0003			
120	CVS1-9				0.0111	0.0029			0.0055		0.0201				0.0009		0.0018		0.0009				0.0009		0.0024			
121	CVS1-10				0.0112	0.0028			0.0051		0.0201				0.0009		0.0018		0.0009				0.0009		0.0020			
122	CVS1-11				0.0090	0.0023			0.0043		0.0163				0.0007		0.0014		0.0007				0.0007		0.0021			
123	CVS1-12				0.0012	0.0004			0.0005		0.0020				0.0001		0.0002		0.0001				0.0001		0.0003			
124	CVS1-13				0.0011	0.0003			0.0006		0.0020				0.0001		0.0002		0.0001				0.0001		0.0003			
125	CVS1-14				0.0011	0.0003			0.0005		0.0020				0.0001		0.0002		0.0001				0.0001		0.0003			
126	CVS1-15				0.0105	0.0028			0.0053		0.0131				0.0009		0.0018		0.0009				0.0009		0.0021			
127	CVS1-16				0.0011	0.0004			0.0005		0.0021				0.0001		0.0002		0.0001				0.0001		0.0003			
128	CVS1-17				0.0108	0.0029			0.0053		0.0195				0.0009		0.0018		0.0009				0.0009		0.0021			
129	CVS1-18				0.0097	0.0025			0.0049		0.0179				0.0008		0.0016		0.0008				0.0008		0.0021			
130	CVS1-19				0.0044	0.0012			0.0022		0.0081				0.0004		0.0007		0.0004				0.0004		0.0016			
131	CVS1-20				0.0043	0.0011			0.0022		0.0081				0.0004		0.0007		0.0004				0.0004		0.0013			
132	CVS1-21				0.0013	0.0004			0.0006		0.0021				0.0001		0.0002		0.0001				0.0001		0.0003			
133	CVS1-22				0.0011	0.0003			0.0005		0.0020				0.0001		0.0002		0.0001				0.0001		0.0003			
134	CVS1-23				0.0041	0.0012			0.0021		0.0076				0.0004		0.0007		0.0004				0.0004		0.0011			
135	CVS2-1				0.0083	0.0032			0.0043		0.0150				0.0007		0.0014		0.0007				0.0007		0.0023			
136	CVS2-2				0.0027	0.0014			0.0013		0.0048				0.0002		0.0005		0.0002				0.0002		0.0007			
137	CVS2-3				0.0027	0.0013			0.0013		0.0048				0.0002		0.0005		0.0002				0.0002		0.0014			
138	CVS2-4				0.0025	0.0023			0.0013		0.0046				0.0002		0.0005		0.0002				0.0002		0.0007			
139	CVS2-5				0.0341	0.0025			0.0040		0.0130				0.0007		0.0014		0.0007				0.0007		0.0021			
140	CVS2-6				0.0064	0.0028			0.0032		0.0120				0.0006		0.0012		0.0006				0.0006		0.0018			
141	CVS2-7				0.0066	0.0030			0.0034		0.0120				0.0006		0.0012		0.0006				0.0006		0.0017			
142	CVS2-8				0.0025	0.0019			0.0013		0.0047				0.0002		0.0005		0.0002				0.0002		0.0007			
143	CVS2-9				0.0027	0.0009			0.0013		0.0048				0.0002		0.0005		0.0002				0.0002		0.0007			
144	CVS2-10				0.0030	0.0018			0.0015		0.0055				0.0003		0.0005		0.0003				0.0003		0.0008			
145	CVS2-11				0.0066	0.0031			0.0034		0.0120				0.0006		0.0012		0.0006				0.0006		0.0017			
146	CVS2-12				0.0027	0.0017			0.0014		0.0049				0.0002		0.0005		0.0002				0.0002		0.0007			
147	CVS2-13				0.0028	0.0022			0.0014		0.0049				0.0002		0.0005		0.0002				0.0002		0.0014			
148	CVS2-14				0.0048	0.0023			0.0025		0.0085				0.0004		0.0008		0.0004				0.0004		0.0014			
149	CVS2-15				0.0079	0.0036			0.0040		0.0150				0.0007		0.0014		0.0007				0.0007		0.0019			
150	CVS2-16				0.0061	0.0024			0.0032		0.0110				0.0005		0.0011		0.0005				0.0005		0.0019			
151	CVS2-17				0.0042	0.0018			0.0022		0.0079				0.0004		0.0007		0.0004				0.0004		0.0013			
152	CVS2-18				0.0062	0.0027			0.0032		0.0190				0.0005		0.0011		0.0005				0.0005		0.0018			
153	CVS2-19				0.0212	0.0024			0.0028		0.0070				0.0000		0.0019		0.0000				0.0000		0.0015			
154	CVS2-20				0.0010	0.0001			0.0005		0.0019				0.0001		0.0002		0.0001				0.0001		0.0002			
155	CVS2-21				0.0010	0.0004			0.0005		0.0021				0.0001		0.0002		0.0001				0.0001		0.0002			
156	CVS2-22				0.0100	0.0024			0.0050		0.0192				0.0001		0.0018		0.0001				0.0001		0.0015			
157	CVS2-23				0.0009	0.0004			0.0005		0.0016				0.0001		0.0002		0.0001				0.0001		0.0002			
158	CVS2-24				0.0093	0.0023			0.0047		0.0182				0.0009		0.0017		0.0009				0.0009		0.0016			
159	CVS2-25				0.0058	0.0013			0.0030		0.0117				0.0005		0.0010		0.0005				0.0005		0.0009			
160	CVS2-26				0.0008	0.0002			0.0005		0.0020				0.0001		0.0002		0.0001				0.0001		0.0002			
161	CVS2-27				0.0009	0.0002			0.0005		0.0017				0.0001		0.0002		0.0001				0.0001		0.0003			
162	CVS2-28				0.0087	0.0021			0.0044		0.0166				0.0009		0.0018		0.0009				0.0009		0.0018			
163	CVS2-29				0.0101	0.0026			0.0051		0.0212				0.0009		0.0018		0.0009				0.0009		0.0015			
164	CVS2-30				0.0009	0.0001			0.0005		0.0015				0.0001		0.0002		0.0001				0.0001		0.0002			

#	Glass ID	Sm2O3-a	SnO-a	SnO2-a	SO3-a	SrO-a	Tc2O7-a	TeO2-a	ThO2-a	TiO2-a	Tl2O-a	Tl2O3-a	U3O8-a	UO2-a	UO3-a	V2O5-a	WO3-a	Y2O3-a	ZnO-a	Sum-a	T_M (°C)	$T_{L,G}$ (°C)	$T_{L,U}$ (°C)	$T_{1\%}$ (°C)	Primary Phase	$C_{650°C}$	$C_{700°C}$	$C_{750°C}$
83	IG3-02b	0.0000		0.0005	0.0040	0.0036		0.0000										0.0000		1.0057	1250		963		CaMoO4			
84	IG3-03	0.0000		0.0006	0.0052	0.0000		0.0000										0.0000		0.9771	1350							
85	IG3-04	0.0000		0.0000	0.0004	0.0348		0.0000										0.0000		0.9836	1250							
86	IG3-05	0.0000		0.0000	0.0004	0.0359		0.0000										0.0000		0.9910	1150							
87	IG3-06	0.0000		0.0001	0.0010	0.0000		0.0000										0.0000		0.9486	1350		>1500		ZrO2			
88	IG3-07	0.0000		0.0001	0.0008	0.0000		0.0000										0.0000		1.0023	1250							
89	IG3-08b	0.0000		0.0000	0.0004	0.0056		0.0000										0.0000		1.0098	1275		>1350		ZrO2			
90	IG3-09	0.0000		0.0006	0.0052	0.0000		0.0000										0.0000		1.0265	1150							
91	IG3-10b	0.0000		0.0006	0.0048	0.0333		0.0000										0.0000		1.0009	1250		>1500		ZrO2			
92	IG3-11	0.0001		0.0010	0.0087	0.0343		0.0000										0.0000		1.0067	1150		1013		Na7Al6Si6O24S3			
93	IG3-12	0.0000		0.0006	0.0051	0.0353		0.0000										0.0000		0.9907	1150		973		CaAl2(SiO4)2			
94	IG3-13	0.0000		0.0001	0.0006	0.0365		0.0000										0.0000		0.9767	1150							
95	IG3-14	0.0000		0.0004	0.0030	0.0103		0.0000										0.0000		1.0043	1150		943		(Ca9Sr)(PO4)6F2			
96	IG3-15	0.0000		0.0006	0.0050	0.0284		0.0000										0.0000		1.0077	1200		1203		ZrO2			
97	IG3-16	0.0000		0.0002	0.0014	0.0278		0.0000										0.0000		0.9680	1150		1133		ZrO2			
98	IG3-17	0.0000		0.0002	0.0018	0.0274		0.0000										0.0000		0.9775	1150		1173		ZrO2			
99	IG3-18	0.0000		0.0004	0.0031	0.0279		0.0000										0.0000		0.9773	1150		1023		Na6Ca2(Al6Si6O24)(SO4)2			
100	IG3-19	0.0000		0.0002	0.0014	0.0101		0.0000										0.0000		1.0033	1150		893		La2NiO4			
101	IG3-20	0.0000		0.0003	0.0029	0.0277		0.0000										0.0000		0.9972	1150		893		Ca10(SiO4)3(SO4)3F2			
102	IG3-21	0.0000		0.0002	0.0017	0.0103		0.0000										0.0000		0.9999	1150		1013		ZrO2			
103	IG3-22	0.0000		0.0004	0.0034	0.0271		0.0000										0.0000		1.0246	1200		1163		ZrO2			
104	IG3-23	0.0000		0.0004	0.0033	0.0278		0.0000										0.0000		1.0154	1150		903		Na6Ca2(Al6Si6O24)(SO4)2			
105	IG3-24	0.0000		0.0004	0.0030	0.0102		0.0000										0.0000		1.0057	1150		883		La8(SiO4)6O2			
106	IG3-25	0.0000		0.0004	0.0034	0.0284		0.0000										0.0000		1.0110	1150		903		La2NiO4			
107	IG3-26	0.0000		0.0002	0.0013	0.0104		0.0000										0.0000		0.9881	1150		1063		Ca10(SiO4)3(SO4)3F2			
108	IG3-27	0.0001		0.0013	0.0111	0.0180		0.0000										0.0000		1.0102	1150		953		Ca10(SiO4)3(SO4)3F2			
109	IG3-28	0.0000		0.0003	0.0026	0.0179		0.0000										0.0000		1.0027	1150		873		Ca10(SiO4)3(SO4)3F2			
110	IG3-29	0.0000		0.0002	0.0015	0.0101		0.0000										0.0000		0.9804	1150		873		LiAlSi3O8			
111	IG3-30	0.0000		0.0000	0.0004	0.0000		0.0000										0.0000		0.9939	1150		883		NaLiZrSi6O15			
112	CVS1-1	0.0004			0.0020	0.0008				0.0002								0.0004		0.9910		987			zircon			
113	CVS1-2	0.0001			0.0005	0.0002				0.0000								0.0001		0.9787		942			Ca asilicate			
114	CVS1-3	0.0001			0.0005	0.0002				0.0001								0.0001		0.9885		942			olivine			
115	CVS1-4	0.0001			0.0005	0.0002				0.0000								0.0001		0.9806		957			SiO2			
116	CVS1-5	0.0001			0.0005	0.0002				0.0001								0.0001		0.9897		1035			spinel			
117	CVS1-6	0.0009			0.0049	0.0017				0.0003								0.0009		0.9598		1118			zircon			
118	CVS1-7	0.0001			0.0005	0.0002				0.0003								0.0001		0.9833		1187			zircon			
119	CVS1-8	0.0001			0.0005	0.0002				0.0002								0.0001		1.0056		1118			zircon			
120	CVS1-9	0.0009			0.0049	0.0018				0.0000								0.0010		1.0025		>1118			spinel			
121	CVS1-10	0.0009			0.0049	0.0018				0.0001								0.0010		0.9944		>1118			spinel			
122	CVS1-11	0.0007			0.0039	0.0015				0.0000								0.0008		1.0091		1035			spinel			
123	CVS1-12	0.0001			0.0005	0.0003				0.0000								0.0001		1.0064		841			orthopyroxene			
124	CVS1-13	0.0001			0.0005	0.0002				0.0000								0.0001		0.9726								
125	CVS1-14	0.0001			0.0005	0.0002				0.0003								0.0001		0.9771								
126	CVS1-15	0.0009			0.0049	0.0017				0.0001								0.0009		0.9544		880			olivine			
127	CVS1-16	0.0001			0.0005	0.0002				0.0000								0.0001		0.9797		>1118			spinel			
128	CVS1-17	0.0009			0.0049	0.0018				0.0000								0.0009		0.9901		1000			spinel			
129	CVS1-18	0.0008			0.0044	0.0016				0.0003								0.0008		0.9645		>1118			ZrO2			
130	CVS1-19	0.0004			0.0020	0.0007				0.0002								0.0004		0.9949		961			spinel			
131	CVS1-20	0.0004			0.0020	0.0007				0.0002								0.0004		1.0122		966			spinel			
132	CVS1-21	0.0001			0.0005	0.0002				0.0000								0.0001		0.9892		957			SiO2			
133	CVS1-22	0.0001			0.0005	0.0002				0.0002								0.0001		0.9920		>1118			spinel			
134	CVS1-23	0.0004			0.0019	0.0007				0.0001								0.0004		0.9805		980			spinel			
135	CVS2-1	0.0007			0.0039	0.0014				0.0002								0.0007		1.0390		1048			spinel			
136	CVS2-2	0.0002			0.0012	0.0005				0.0004								0.0002		0.9988		839			Ca asilicate			
137	CVS2-3	0.0002			0.0012	0.0005				0.0002								0.0003		1.0256		942			zircon			
138	CVS2-4	0.0002			0.0012	0.0005				0.0003								0.0002		0.9824		810			Ca asilicate			
139	CVS2-5	0.0007			0.0039	0.0012				0.0003								0.0006		0.9965		988			spinel			
140	CVS2-6	0.0006			0.0032	0.0011				0.0001								0.0006		0.9882		>1004			spinel			
141	CVS2-7	0.0006			0.0032	0.0012				0.0001								0.0006		0.9790		934			spinel			
142	CVS2-8	0.0002			0.0012	0.0005				0.0003								0.0002		0.9727		>1118			spinel			
143	CVS2-9	0.0002			0.0012	0.0005				0.0004								0.0002		0.9996		1018			zircon			
144	CVS2-10	0.0003			0.0014	0.0005				0.0003								0.0003		0.9726		>868			spinel			
145	CVS2-11	0.0006			0.0033	0.0012				0.0003								0.0006		0.9949		1035			zircon			
146	CVS2-12	0.0002			0.0012	0.0005				0.0002								0.0002		1.0085		847			clinopyroxene			
147	CVS2-13	0.0002			0.0012	0.0005				0.0003								0.0003		1.0350		909			clinopyroxene			
148	CVS2-14	0.0004			0.0023	0.0008				0.0006								0.0004		1.0039		1118			zircon			
149	CVS2-15	0.0007			0.0039	0.0014				0.0003								0.0007		0.9773		956			spinel			
150	CVS2-16	0.0005			0.0029	0.0010				0.0002								0.0005		1.0237		906			spinel			
151	CVS2-17	0.0004			0.0020	0.0007				0.0003								0.0004		0.9967		971			spinel			
152	CVS2-18	0.0005			0.0029	0.0010				0.0003								0.0006		1.0309		895			spinel			
153	CVS2-19	0.0000			0.0044	0.0000				0.0010								0.0000	0.0048	1.0541		>883			spinel			
154	CVS2-20	0.0001			0.0005	0.0002				0.0004								0.0001		1.0222		1084			zircon			
155	CVS2-21	0.0001			0.0005	0.0002				0.0001								0.0001		0.9947		911			orthopyroxene			
156	CVS2-22	0.0001			0.0049	0.0017				0.0002								0.0008		1.0324		994			spinel			
157	CVS2-23	0.0001			0.0005	0.0002				0.0001								0.0001		0.9941		887			Ca asilicate			
158	CVS2-24	0.0009			0.0046	0.0015				0.0001								0.0008		1.0527		800			spinel			
159	CVS2-25	0.0005			0.0028	0.0010				0.0001								0.0005		1.0115		>951			spinel			
160	CVS2-26	0.0001			0.0005	0.0002				0.0003								0.0001		0.9753		1049			zircon			
161	CVS2-27	0.0001			0.0005	0.0002				0.0007								0.0001		1.0097								
162	CVS2-28	0.0009			0.0049	0.0014				0.0001								0.0007		0.8978								
163	CVS2-29	0.0009			0.0049	0.0017				0.0003								0.0009		1.0032		1108			zircon			
164	CVS2-30	0.0001			0.0005	0.0002				0.0001								0.0001		0.9949		1090			spinel			

#	Glass ID	$C_{800°C}$	$C_{850°C}$	$C_{900°C}$	$C_{950°C}$	$C_{1000°C}$	$C_{1050°C}$	$C_{1100°C}$	$C_{1150°C}$	$C_{1200°C}$	Quenched Visual/OM	Quenched XRD	CCC XRD	ρ (g/cm³)	Fulc Visc A	Fulc Visc B	Fulc Visc To	Arrh Visc E	Arrh Visc F	T1 (°C)	V1 (Pa·s)
83	IG3-02b										single-phase	amorphous	amorphous	2.600				-12.092	21014.0	1255.4	5.070
84	IG3-03										multi-phase	Na2MoO4, Na(AlSi3O8)	La2Mo2O9 and KAlP2O7	2.830				-14.454	24640.0	1354.2	1.920
85	IG3-04										multi-phase	LaPO4, Na5P3O10, SiP2O7	La(PO4) and La2(MoO4)3	2.560				-11.676	21039.0	1255.4	7.610
86	IG3-05										multi-phase	amorphous	CaF2, FeO, and LiAlSi2O6	2.650				-12.817	20915.0	1158.7	5.660
87	IG3-06										single-phase	amorphous	Ca8La2(PO4)5O2 and (CaLa)Si2	2.910				-15.390	24906.0	1256.2	2.340
88	IG3-07										multi-phase	amorphous	(FeNi2)o2(BO3)	2.530				-10.088	17358.0	1256.8	3.460
89	IG3-08b										single-phase	amorphous	amorphous	2.710				-12.949	21483.0	1256.3	2.860
90	IG3-09										multi-phase	LiF, Li3PO4, LiFeO2, Fe7S8	LiF, Li3PO4, Li2SiO3, LiKSO4, a	2.500				-10.851	17520.0	1158.0	3.860
91	IG3-10b										single-phase	amorphous	amorphous	2.810				-13.478	20120.0	1159.0	1.790
92	IG3-11										single-phase	amorphous	Na4Ca4(Si6O18)NaAlSiO4, and	2.740				-11.935	18283.0	1158.8	2.240
93	IG3-12										single-phase	amorphous	amorphous	2.870				-16.362	24601.0	1158.8	2.170
94	IG3-13										multi-phase	LiF, Fe2O3, ZrO2, Na17Al5O16	Sr9NaBO2(PO4)6, LiF, Li2NiF4,	2.870				-12.111	17109.0	1160.1	0.820
95	IG3-14										single-phase	amorphous	CaF2, LiAlSi2O6, Sr2FeO4, and	2.630				-11.133	17804.0	1158.5	3.590
96	IG3-15										single-phase	amorphous	amorphous	2.790				-12.660	19591.0	1158.6	2.680
97	IG3-16										single-phase	amorphous	amorphous	2.740				-12.427	18809.0	1159.0	1.980
98	IG3-17										single-phase	amorphous	amorphous	2.770				-12.267	18380.0	1157.1	1.760
99	IG3-18										single-phase	amorphous	amorphous	2.690				-11.520	17694.0	1157.0	2.290
100	IG3-19										single-phase	amorphous	La2NiO4	2.710				-11.594	17476.0	1160.8	1.760
101	IG3-20										single-phase	amorphous	amorphous	2.720				-11.911	18117.0	1160.4	1.990
102	IG3-21										single-phase	amorphous	amorphous	2.710				-11.878	18053.0	1159.5	2.020
103	IG3-22										single-phase	amorphous	amorphous	2.750				-12.222	18589.0	1156.2	2.120
104	IG3-23										single-phase	amorphous	SiF4	2.670				-11.539	19014.0	1159.0	5.520
105	IG3-24										single-phase	amorphous	amorphous	2.660				-11.534	19016.0	1158.7	5.560
106	IG3-25										single-phase	amorphous	amorphous	2.690				-11.723	19251.0	1160.3	5.300
107	IG3-26										single-phase	amorphous	(Ca,Na)5(SiO4,PO4)3F	2.720				-13.543	22053.0	1160.6	6.070
108	IG3-27										single-phase	amorphous	SiF4 and CaSrSi4	2.700				-11.712	18175.0	1159.0	2.580
109	IG3-28										single-phase	amorphous	amorphous	2.690				-11.761	18154.0	1160.1	2.410
110	IG3-29										single-phase	amorphous		2.430				-10.103	17535.0	1160.0	8.300
111	IG3-30										single-phase	amorphous		2.580				-12.223	20261.0	1159.3	6.790
112	CVS1-1												6-8 vol% clinopyroxene, spinel	2.684	-5.310	5390.8	387.1	-12.744	20714.4	1250.0	2.540
113	CVS1-2												<1 vol% unidentified	2.550	-5.140	6367.0	326.5	-11.854	20617.5	1248.0	5.810
114	CVS1-3												2-3 vol% olivine (mg,Fe)2SiO4	2.513	-6.470	6286.5	294.3	-12.805	19435.3	1149.0	2.390
115	CVS1-4												<1 vol% unidentified	2.482	-7.110	7998.7	287.6	-15.012	24398.4	1149.0	8.790
116	CVS1-5												3-5 vol% spinel, 1 vol% Li2SiO3,	2.619	-5.720	7937.5	194.1	-10.031	18036.5	1348.0	3.190
117	CVS1-6												8-10 vol% zircon ZrSiO4, <1 vol%	2.744	-6.300	5392.9	379.9			1052.0	5.590
118	CVS1-7												3-5 vol% Ca2ZrSi4O12	2.783	-6.860	8128.0	420.6	-15.257	27789.3	1348.0	6.750
119	CVS1-8												10-12 vol% zircon ZrSiO4, 2-4 vc	2.797	-5.670	7000.0	375.9			1350.0	4.570
120	CVS1-9												5-7 vol% unidentified, <1 vol% cr	2.745	-7.180	7000.0	334.0			1251.0	1.580
121	CVS1-10												1-2 vol% spinel	2.543	-2.560	4100.5	563.7	-10.189	20778.3	(1449)	(7.98)
122	CVS1-11												none	2.625						1251.0	5.680
123	CVS1-12												1-2 vol% hematite a-Fe2O3, 2-3	2.754	-5.180	2995.9	454.1	-11.558	15162.3	1148.0	0.420
124	CVS1-13												none	2.541	-4.480	3586.7	518.4	-13.672	21274.1	1247.0	1.550
125	CVS1-14												none	2.684	-5.990	5055.2	449.9	-15.257	23573.7	1249.0	1.410
126	CVS1-15												2-3 vol% Li2SiO3, <1 vol% olivin	2.691	-5.470	5493.2	293.1	-10.472	16285.9	1251.0	1.300
127	CVS1-16												15-18 vol% nepheline NaAlSiO4,	2.598	-6.150	7080.9	365.4	-12.047	21223.4	1348.0	2.890
128	CVS1-17												1-2 vol% maghemite g-Fe2O3	2.921	-5.140	4146.9	451.9	-12.736	19360.4	1252.0	1.040
129	CVS1-18												12-13 vol% ZrO2, 2-3 vol% Li2Si	2.916	-34.310	135565.1	-2730.0			(1251)	(0.77)
130	CVS1-19												8-10 vol% clinopyroxene	2.671	-6.450	7170.9	275.5	-12.484	20317.4	1251.0	2.460
131	CVS1-20												8-10 vol% clinopyroxene	2.671	-6.530	7629.9	228.1	-11.740	19235.1	1252.0	2.520
132	CVS1-21												<1 vol% unidentified	2.502	-3.900	4025.1	494.2	-13.194	22133.7	1249.0	4.140
133	CVS1-22												10-12 vol% zircon ZrSiO4, 2-4 vc	2.792	-6.160	7000.0	435.7	-13.629	24521.0	1351.0	4.430
134	CVS1-23												2-3 vol% clinopyroxene	2.692	-6.000	7237.8	214.1	-10.642	17661.9	1252.0	2.660
135	CVS2-1												2-3 vol% olivine (Mg,Fe)2SiO4, <	2.645	-7.660	10547.3	63.1	-11.860	19788.6	1199.0	5.110
136	CVS2-2												none	2.651	-5.830	6776.1	265.8	-11.352	18785.1	1249.0	2.900
137	CVS2-3												none	2.631	-5.470	5748.8	349.9	-12.226	19866.7	1249.0	2.560
138	CVS2-4												<1 vol% unidentified	2.601	-5.630	6567.1	272.3	-11.428	18906.0	1198.0	4.370
139	CVS2-5												1-2 vol% unidentified	2.613	-4.670	5076.1	400.6	-12.139	20299.4	1250.0	3.720
140	CVS2-6												5 vol% clinopyroxene	2.770	-4.770	4955.0	398.9	-12.001	19705.3	1250.0	2.870
141	CVS2-7												2-3 vol% unidentified	2.554	-4.670	4761.9	371.4	-10.811	17473.7	1250.0	2.170
142	CVS2-8												3-4 vol% spinel, orthopyroxene (I	2.671	-5.830	6627.4	242.4	-10.480	17050.6	1299.0	1.570
143	CVS2-9												none	2.710	-6.500	7389.7	278.0	-13.167	21579.4	1250.0	3.040
144	CVS2-10												2 vol% spinel	2.535	-4.020	4618.3	406.8	-10.994	18801.1	1250.0	4.390
145	CVS2-11												<2 vol% unidentified	2.823	-6.370	5985.4	351.4	-13.876	21352.4	1198.0	2.010
146	CVS2-12												<2 vol% unidentified	2.598	-4.240	3705.0	470.7	-12.361	19332.4	1198.0	2.370
147	CVS2-13												none	2.620	-6.360	7751.6	221.3	-11.573	19310.5	1248.0	3.320
148	CVS2-14												none	2.774	-5.650	4912.8	420.9	-13.573	20898.7	1249.0	1.330
149	CVS2-15												2-3 vol% unidentified	2.562	-5.340	5529.2	341.8	-11.615	18686.6	1249.0	2.160
150	CVS2-16												<1 vol% unidentified	2.679	-6.700	8140.3	202.9	-11.864	19585.6	1248.0	2.930
151	CVS2-17												10 vol% clinopyroxene	2.674	-5.440	5744.0	343.5	-11.995	19490.2	1250.0	2.460
152	CVS2-18													2.687	-6.120	7093.8	260.6	-11.780	19427.9	1248.0	2.890
153	CVS2-19												none	2.699	-5.690	6319.8	319.0	-12.176	20074.3	1249.0	2.950
154	CVS2-20												none	2.733	-6.530	7702.3	298.5	-13.843	23295.3	1245.0	5.070
155	CVS2-21												none	2.492	-5.820	6876.2	246.7	-11.021	18250.7	1244.0	2.930
156	CVS2-22												7 vol% orthopyroxene (MG,Fe)Si	2.661	-5.570	6443.1	273.3	-11.012	18221.9	1248.0	2.790
157	CVS2-23												none	2.591	-5.270	6320.8	314.0	-11.693	19924.7	1243.0	4.630
158	CVS2-24												1-2 vol% unidentified	2.580	-6.840	7662.1	131.7	-10.294	15638.9	1247.0	1.030
159	CVS2-25												8 vol% clinopyroxene, 10 vol% Li	2.832	-5.150	4096.9	398.5	-11.162	16332.5	1246.0	0.720
160	CVS2-26												none	2.697	-5.990	4592.6	411.5	-13.167	19093.2	1244.0	0.630
161	CVS2-27												none	2.539	-6.070	8126.6	220.1	-11.577	20286.0	1241.0	6.610
162	CVS2-28												1-2 vol% unidentified	2.644	-4.570	5824.3	337.0	-11.083	19493.3	1246.0	6.280
163	CVS2-29												<1 vol% unidentified	2.760	-5.910	5180.5	466.5	-16.232	25527.3	1248.0	2.060
164	CVS2-30												9 vol% hematite (a-Fe2O3), 2 vol	2.469	-3.390	4967.6	408.7	-10.318	19428.3	1247.0	12.560

#	Glass ID	T2 (°C)	V2 (Pa·s)	T3 (°C)	V3 (Pa·s)	T4 (°C)	V4 (Pa·s)	T5 (°C)	V5 (Pa·s)	T6 (°C)	V6 (Pa·s)	T7 (°C)	V7 (Pa·s)	T8 (°C)	V8 (Pa·s)	T9 (°C)	V9 (Pa·s)	T10 (°C)	V10 (Pa·s)	TCLP Ag	TCLP As	TCLP Ba	TCLP Cd	TCLP Cr	TCLP Ni	TCLP Pb
83	IG3-02b	1205.2	7.950	1155.6	13.1	1106.0	23.2	1056.1	44.8	1156.4	13.1	1254.7	5.2	1304.0	3.5	1353.9	2.5	1254.5	5.3							
84	IG3-03	1304.2	3.020	1254.7	5.0	1205.3	8.7	1156.0	16.4	1106.6	33.6	1255.5	5.0	1354.2	2.0	1403.8	1.3	1453.4	0.9							
85	IG3-04	1205.5	12.490	1156	21.0	1106.5	36.3	1056.6	66.2	1156.9	20.6	1255.7	7.8	1305.0	5.2	1355.8	3.9	1256.7	7.7							
86	IG3-05	1107.6	9.710	1057	17.5	1007.1	33.8	957.5	71.8	1058.3	17.3	1157.6	5.8	1206.5	3.8	1256.0	2.6	1157.0	6.3							
87	IG3-06	1206.3	3.910	1156.8	8.1	1157.8	7.8	1256.0	2.3	1305.5	1.5	1354.8	1.0	1255.4	2.6											
88	IG3-07	1206.4	5.070	1156.7	7.7	1107.1	12.0	1057.2	19.9	1157.6	7.7	1256.0	3.5	1305.3	2.5	1354.8	1.8	1255.7	3.6							
89	IG3-08b	1206.4	4.530	1156.9	7.7	1107.3	13.7	1057.2	26.1	1157.7	7.9	1256.3	3.0	1305.5	2.0	1354.8	1.4	1255.5	3.0							
90	IG3-09	1106.8	5.990	1056.4	9.7	1006.3	16.8	956.4	32.6	1156.9	4.0	1205.9	2.8	1255.1	2.0	1155.7	4.1									
91	IG3-10b	1107.7	2.940	1057	5.2	1006.9	9.6	957.1	18.7	1057.9	4.8	1157.0	1.7	1206.1	1.1	1255.4	0.8	1156.0	1.8							
92	IG3-11	1107.6	3.520	1056.9	5.9	1006.9	10.5	957.1	20.2	1058.0	5.9	1157.2	2.3	1206.2	1.5	1255.5	1.1	1156.3	2.3							
93	IG3-12	1107.8	3.930	1057.5	7.7	1007.5	17.2	957.8	44.5	1058.5	7.6	1157.7	2.2	1206.7	1.4	1255.9	0.9	1156.4	2.3							
94	IG3-13	1108.8	1.300	1058.2	2.1	1008.2	3.5	958.6	5.9	1059.1	2.1	1158.2	0.9	1207.3	0.6	1256.3	0.4	1157.0	0.9							
95	IG3-14	1107.3	5.670	1056.9	9.3	1007.2	16.0	957.6	29.4	1058.5	9.2	1157.8	3.6	1206.8	2.5	1255.9	1.8	1156.6	3.8							
96	IG3-15	1107.5	4.460	1057.1	7.7	1007.1	14.1	957.3	27.7	1057.9	7.5	1157.0	2.8	1206.2	1.8	1255.4	1.2	1155.9	2.9							
97	IG3-16	1107.7	3.160	1057	5.4	1006.8	9.6	957.0	18.8	1057.8	5.4	1157.2	2.1	1206.3	1.4	1255.4	0.9	1156.0	2.1							
98	IG3-17	1106.2	2.790	1055.7	4.7	1005.8	8.3	956.1	15.4	1056.4	4.6	1155.8	1.8	1205.3	1.2	1255.1	0.8	1155.6	1.8							
99	IG3-18	1106.2	3.560	1055.7	5.9	1005.8	10.2	956.0	18.8	1056.4	5.8	1155.9	2.3	1205.3	1.6	1254.7	1.1	1155.2	2.4							
100	IG3-19	1108.9	2.730	1058.1	4.5	1008.2	7.7	958.3	14.4	1059.5	4.4	1158.6	1.8	1207.4	1.3	1256.5	0.9	1157.1	1.9							
101	IG3-20	1108.9	3.130	1058.1	5.2	1008.1	9.4	958.3	17.8	1059.5	5.2	1158.6	2.1	1207.5	1.4	1256.6	1.0	1157.1	2.1							
102	IG3-21	1107.6	3.180	1056.8	5.3	1006.8	9.3	957.0	17.5	1058.0	5.2	1157.1	2.1	1206.1	1.4	1255.2	1.0	1155.7	2.1							
103	IG3-22	1106.1	3.360	1056.1	5.7	1006.2	10.1	956.5	19.1	1057.7	5.6	1157.0	2.2	1205.8	1.4	1254.9	1.0	1155.5	2.2							
104	IG3-23	1107.8	8.870	1057.4	15.3	1007.3	27.2	957.5	52.5	1058.6	15.6	1157.6	5.6	1206.3	3.7	1255.3	2.6	1156.0	5.9							
105	IG3-24	1107.5	8.990	1056.7	15.3	1006.7	27.5	956.9	54.2	1058.0	15.5	1157.1	5.7	1205.8	3.8	1254.9	2.7	1155.6	6.0							
106	IG3-25	1109.1	8.660	1058.6	14.8	1008.6	26.9	958.9	52.5	1059.8	15.2	1158.8	5.4	1207.5	3.6	1256.5	2.5	1157.3	5.8							
107	IG3-26	1109.1	10.560	1058.3	19.5	1008.3	38.6	958.6	84.9	1059.7	20.1	1158.7	6.3	1207.3	3.9	1256.0	2.6	1156.9	6.4							
108	IG3-27	1107.9	4.070	1057.6	6.8	1007.6	12.0	958.0	22.4	1058.8	6.8	1157.7	2.7	1206.6	1.8	1255.5	1.3	1156.3	2.7							
109	IG3-28	1108.7	3.770	1058	6.3	1007.9	11.1	958.1	21.4	1059.1	6.2	1158.1	2.5	1207.0	1.7	1256.0	1.2	1156.9	2.6							
110	IG3-29	1108.7	12.880	1058.1	20.9	1008.1	35.8	958.4	65.9	1059.5	20.8	1158.3	8.5	1207.0	5.8	1255.6	4.1	1156.6	8.7							
111	IG3-30	1108.1	11.140	1057.8	19.3	1008.0	36.1	958.4	73.7	1059.4	19.1	1158.3	6.8	1207.0	4.4	1255.7	3.0	1156.5	7.0							
112	CVS1-1	1150	5.810	1050	16.7	949.0	72.4																			
113	CVS1-2	1149	13.580	1050	38.3	951.0	156.5																			
114	CVS1-3	1050	6.480	951	21.8	(852)	(121.81)																			
115	CVS1-4	1051	28.950	951	140.5																					
116	CVS1-5	1250	6.020	1150	13.2	1050.0	35.1	950.0	118.9																	
117	CVS1-6	952	22.730	(851)	(171.56)																					
118	CVS1-7	1248	19.470	1148	75.2																					
119	CVS1-8	1252	10.210	(1152)	(36.16)																					
120	CVS1-9	1152	3.980	(1052)	(36.16)																					
121	CVS1-10	1350	13.830	1250	30.8	1150.0	83.5																			
122	CVS1-11	1152	14.480	(1052)	(153.94)	(952)	(277.82)																			
123	CVS1-12	1049	0.880	952	2.3	(852)	(10.47)	(752)	(131.67)																	
124	CVS1-13	1148	3.360	1049	9.8	949.0	46.8																			
125	CVS1-14	1150	3.370	1051	11.4	950.0	61.3																			
126	CVS1-15	1151	2.530	1051	5.9	951.0	17.8	(851)	(79.16)																	
127	CVS1-16	1249	6.480	1149	18.0	(1049)	(113.81)																			
128	CVS1-17	1152	2.220	1052	5.8	953.0	23.1																			
129	CVS1-18	(1052)	(4.62)	(952)	(12.23)																					
130	CVS1-19	1151	5.730	1051	16.4	951.0	64.5																			
131	CVS1-20	1152	5.510	1053	15.3	953.0	53.9																			
132	CVS1-21	1150	9.580	(1049)	(28.12)	950.0	138.8																			
133	CVS1-22	1252	11.200	1153	36.0																					
134	CVS1-23	1153	5.550	1053	13.9	953.0	44.7																			
135	CVS2-1	1123	9.810	1048	21.3	958.0	70.8																			
136	CVS2-2	1199	4.240	1150	6.1	1149.0	6.2	1147.0	6.5	1100.0	9.7	1097.0	10.4	1047.0	17.2	999.0	30.7	948.0	60.1							
137	CVS2-3	1198	3.580	1150	5.5	1148.0	5.6	1147.0	5.9	1100.0	8.8	1096.0	9.7	1048.0	15.7	998.0	30.1	949.0	61.9							
138	CVS2-4	1124	7.810	1048	17.4	948.0	59.5																			
139	CVS2-5	1200	5.410	1149	7.9	1150.0	8.1	1147.0	8.5	1097.0	13.6	1100.0	13.7	1047.0	23.8	999.0	46.3	948.0	98.4							
140	CVS2-6	1199	4.100	1150	6.2	1149.0	6.2	1148.0	6.4	1100.0	10.0	1098.0	10.0	1048.0	17.3	999.0	33.3	949.0	68.4							
141	CVS2-7	1199	2.850	1150	4.2	1148.0	4.4	1149.0	4.4	1099.0	6.5	1098.0	6.6	1048.0	10.7	998.0	19.0	949.0	35.5							
142	CVS2-8	1250	2.130	1200	2.9	1150.0	4.3	1148.0	4.4	1145.0	4.6	1100.0	6.6	1097.0	7.1	1046.0	11.2	995.0	19.9							
143	CVS2-9	1200	4.520	1198	4.7	1150.0	7.2	1149.0	7.3	1148.0	7.4	1123.0	9.6	1100.0	12.0	1099.0	12.4	1048.0	22.1							
144	CVS2-10	1200	6.070	1149	8.7	1150.0	8.7	1147.0	9.4	1100.0	14.2	1098.0	14.5	1048.0	24.1	999.0	44.8	949.0	88.8							
145	CVS2-11	1123	3.980	1048	9.2	948.0	38.8																			
146	CVS2-12	1123	4.180	1048	8.9	945.0	35.6																			
147	CVS2-13	1199	4.850	1149	7.0	1148.0	7.2	1146.0	7.7	1099.0	11.8	1096.0	12.5	1046.0	20.5	997.0	39.3	948.0	72.4							
148	CVS2-14	1199	2.000	1149	2.9	1150.0	2.9	1148.0	3.0	1100.0	5.0	1099.0	5.0	1048.0	8.9	998.0	17.5	949.0	38.4							
149	CVS2-15	1199	2.940	1149	4.4	1150.0	4.4	1148.0	4.7	1100.0	7.0	1099.0	7.2	1048.0	11.7	998.0	22.7	949.0	42.4							
150	CVS2-16	1199	4.270	1198	4.4	1148.0	6.7	1149.0	6.7	1147.0	6.9	1123.0	8.4	1099.0	10.6	1097.0	11.2	1047.0	18.6							
151	CVS2-17	1199	3.450	1149	5.4	1149.0	5.6	1147.0	5.7	1100.0	8.5	1098.0	8.9	1048.0	14.9	999.0	27.4	949.0	57.7							
152	CVS2-18	1199	4.200	1148	6.5	1150.0	6.5	1145.0	6.8	1099.0	10.5	1097.0	10.5	1047.0	17.8	997.0	34.0	948.0	66.8							
153	CVS2-19	1200	4.440	1149	6.8	1150.0	6.8	1148.0	7.1	1100.0	11.0	1097.0	11.5	1048.0	18.7	999.0	36.9	949.0	77.0							
154	CVS2-20	1194	7.800	1144	12.8	1144.0	13.0	1144.0	13.1	1094.0	23.5	1094.0	23.5	1044.0	44.7	994.0	94.5	944.0	218.4							
155	CVS2-21	1195	4.160	1145	6.2	1146.0	6.2	1145.0	6.4	1096.0	9.7	1096.0	9.9	1046.0	16.2	995.0	28.8	946.0	55.6							
156	CVS2-22	1198	4.100	1148	6.0	1148.0	6.1	1148.0	6.2	1098.0	9.3	1098.0	9.4	1047.0	15.6	997.0	28.2	947.0	54.3							
157	CVS2-23	1194	6.760	1145	10.2	1145.0	10.5	1144.0	10.6	1095.0	17.0	1096.0	17.0	1045.0	29.4	995.0	53.7	945.0	117.2							
158	CVS2-24	1199	1.410	1144	2.0	1148.0	2.0	1147.0	2.1	1098.0	3.0	1097.0	3.1	1047.0	4.7	997.0	7.3	947.0	13.1							
159	CVS2-25	1197	0.970	1148	1.4	1147.0	1.4	1148.0	1.4	1098.0	2.0	1097.0	2.0	1048.0	3.1	998.0	5.5	947.0	10.1							
160	CVS2-26	1194	0.880	1146	1.3	1145.0	1.3	1147.0	1.3	1097.0	2.1	1095.0	2.1	1046.0	3.5	996.0	6.3	946.0	13.7							
161	CVS2-27	1194	9.770	1144	15.1	1144.0	15.1	1143.0	15.9	1094.0	24.9	1094.0	25.1	1045.0	42.9	993.0	88.7	943.0	173.1							
162	CVS2-28	1197	9.210	1147	13.3	1148.0	13.7	1146.0	14.5	1097.0	21.7	1097.0	22.0	1046.0	37.5	996.0	75.7	946.0	145.2							
163	CVS2-29	1199	3.230	1149	5.2	1149.0	5.4	1149.0	5.5	1099.0	9.8	1098.0	9.9	1048.0	20.4	998.0	46.6	949.0	124.8							
164	CVS2-30	1197	18.610	1147	26.6	1148.0	28.2	1147.0	28.9	1098.0	46.7	1096.0	46.8	1047.0	78.6	998.0	155.8									

#	Glass ID	TCLP Se	TCLP Zn	TCLP Al	TCLP B	TCLP Sb	TCLP Tl	TCLP V	Q PCT B (g/m²)	Q PCT Li (g/m²)	Q PCT Na (g/m²)	Q PCT Si (g/m²)	Q PCT pH	CCC PCT B (g/m²)	CCC PCT Li (g/m²)	CCC PCT Na (g/m²)	CCC PCT Si (g/m²)	CCC PCT pH	T1 (°C)
83	IG3-02b								0.593	0.696	0.090	0.162	8.760						
84	IG3-03								0.994	0.337	1.630	0.268	11.310						
85	IG3-04								4.491	3.929	2.991	0.349	8.820						
86	IG3-05								0.200		0.568	0.135	10.230						
87	IG3-06								0.194	0.386	0.270	0.055	9.870						
88	IG3-07								4.859		2.617	0.104	9.000						
89	IG3-08b								0.792	0.801	0.545	0.103	8.830						
90	IG3-09								0.681	0.965	0.684	0.346	9.880						
91	IG3-10b								1.581	1.451	1.124	0.097	8.960						
92	IG3-11								0.313	0.985	1.825	0.171	11.560						
93	IG3-12								0.581		0.699	0.073	9.160						
94	IG3-13								0.410	0.458	0.658	0.099	10.110						
95	IG3-14								0.401	0.540	0.513	0.175	10.440						
96	IG3-15								0.227	0.428	0.448	0.083	10.680						
97	IG3-16								0.444	0.709	0.713	0.161	11.130						
98	IG3-17								0.493	0.727	0.736	0.163	11.090						
99	IG3-18								0.642	0.735	1.214	0.243	11.330						
100	IG3-19								0.377	0.583	0.641	0.150	11.010						
101	IG3-20								0.315	0.424	0.421	0.083	9.950						
102	IG3-21								0.498	0.606	0.517	0.143	10.660						
103	IG3-22								0.553	0.613	1.006	0.185	11.340						
104	IG3-23								0.261	0.291	0.492	0.116	10.780						
105	IG3-24								0.300	0.325	0.565	0.135	10.780						
106	IG3-25								0.256	0.321	0.539	0.114	10.730						
107	IG3-26								0.164	0.333	0.288	0.067	10.420						
108	IG3-27								0.396	0.453	0.507	0.117	10.610						
109	IG3-28								0.433	0.460	0.542	0.126	10.620						
110	IG3-29								0.607	0.676	0.065	0.394	9.590						
111	IG3-30								2.129	1.779	1.154	0.378	10.290						
112	CVS1-1								0.521	0.529	0.403	0.167	10.920	0.386	0.498	0.358	0.149	10.200	
113	CVS1-2								0.066	0.154	0.064	0.054	11.420	1.500	1.304	0.546	0.230	11.560	
114	CVS1-3								0.864	0.791	0.580	0.172	9.850	0.732	0.817	0.540	0.190	9.760	
115	CVS1-4								20.639	16.935	17.034	0.540	9.670	14.791	18.495	18.269	0.699	9.320	
116	CVS1-5								0.355	0.462	0.191	0.318	11.220	0.878	1.859	0.496	0.956	11.500	
117	CVS1-6								6.113	4.892	3.046	0.312	10.070	5.036	3.902	2.796	0.286	9.580	
118	CVS1-7								0.287	0.331	0.339	0.114	10.910	0.312	0.280	0.326	0.142	10.290	
119	CVS1-8								1.238	0.744	0.805	0.265	10.420	4.180	2.151	1.658	0.438	9.590	
120	CVS1-9								10.993	8.602	7.897	0.345	8.690	31.138	37.850	37.262	0.303	9.060	
121	CVS1-10								0.127	0.386	0.095	0.104	9.760	0.119	0.301	0.092	0.097	9.140	
122	CVS1-11								0.099	0.187	0.099	0.041	9.990	0.197	0.280	0.126	0.043	9.550	
123	CVS1-12								4.662	4.171	4.395	0.825	11.120	2.989	3.948	4.083	0.906	11.190	
124	CVS1-13								14.072	12.903	12.413	0.786	10.370	12.379	12.796	12.485	2.062	10.320	
125	CVS1-14								9.847	8.011	5.790	0.149	9.630	8.601	6.774	5.067	0.137	9.710	
126	CVS1-15								18.778	11.198	13.995	0.967	13.030	19.614	8.571	14.022	0.650	11.990	
127	CVS1-16								0.523	0.266	0.540	0.241	12.010	21.688	10.075	8.058	1.717	12.280	
128	CVS1-17								2.235	2.075	2.304	0.663	11.570	1.122	1.200	1.220	0.434	11.450	
129	CVS1-18								11.238	8.065	8.040	1.531	12.250	22.186	5.714	12.216	1.699	12.300	
130	CVS1-19								0.523	0.533	0.433	0.166	10.290	0.410	0.503	0.363	0.138	10.110	
131	CVS1-20								0.455	0.468	0.396	0.156	10.160	0.443	0.515	0.364	0.149	10.210	
132	CVS1-21								18.850	15.591	15.536	0.459	9.680	16.881	19.355	18.718	0.694	9.320	
133	CVS1-22								1.119	0.704	0.760	0.259	9.810	3.859	2.000	1.538	0.458	9.620	
134	CVS1-23								0.525	0.535	0.487	0.229	10.290	0.370	0.373	0.339	0.193	9.870	
135	CVS2-1								0.312	0.369	0.208	0.170	10.210	0.386	0.305	0.248	0.237	10.300	
136	CVS2-2								0.128	0.276	0.188	0.075	10.920	0.136	0.215	0.160	0.077	10.770	
137	CVS2-3								0.137	0.222	0.125	0.064	10.080	0.134	0.198	0.116	0.060	10.140	
138	CVS2-4								0.158	0.300	0.182	0.101	10.400	0.147	0.241	0.154	0.090	10.300	
139	CVS2-5								0.284	0.382	0.284	0.106	9.580	0.263	0.285	0.264	0.146	9.610	
140	CVS2-6								1.185	1.303	1.284	0.421	10.480	1.240	1.064	0.934	0.418	10.260	
141	CVS2-7								0.740	0.812	0.343	0.164	9.890	0.653	0.666	0.337	0.189	9.820	
142	CVS2-8								0.484	0.523	0.445	0.263	10.750	0.850	1.183	0.561	0.522	11.340	
143	CVS2-9								0.560	0.620	0.374	0.241	10.340	0.545	0.484	0.314	0.236	10.240	
144	CVS2-10								1.332	1.322	0.828	0.115	9.460	0.965	0.968	0.645	0.162	9.510	
145	CVS2-11								1.587	1.564	1.370	0.510	11.460	1.019	1.108	1.092	0.426	11.330	
146	CVS2-12								0.194	0.262	0.184	0.075	9.900	0.136	0.213	0.156	0.082	9.900	
147	CVS2-13								0.360	0.362	0.478	0.182	11.140	0.345	0.335	0.390	0.177	10.940	
148	CVS2-14								1.656	1.468	1.268	0.261	10.460	1.580	1.254	1.210	0.258	10.500	
149	CVS2-15								0.331	0.451	0.608	0.180	11.300	1.493	1.558	0.163	0.208	9.870	
150	CVS2-16								2.937	2.349	2.182	0.558	10.360	2.634	1.878	1.722	0.535	10.300	
151	CVS2-17								0.495	0.571	0.474	0.167	10.270	0.676	0.629	0.423	0.156	10.300	
152	CVS2-18								2.578	2.094	1.886	0.546	10.340	2.443	1.778	1.617	0.559	10.230	
153	CVS2-19								1.990	1.654	1.481	0.450	10.350	1.358	1.095	1.045	0.377	10.260	
154	CVS2-20								0.347	0.386	0.279	0.187	10.890	0.322	0.402	0.268	0.206	10.900	
155	CVS2-21								3.854	2.534	2.089	0.506	10.260	3.181	2.458	1.752	0.487	10.340	
156	CVS2-22								9.646	5.453	6.097	2.249	11.720	5.932	3.978	4.497	2.166	11.480	
157	CVS2-23								0.173	0.604	0.809	0.144	11.810	0.203	0.559	0.708	0.140	11.760	
158	CVS2-24								4.522	3.226	2.060	0.179	9.800	4.019	3.226	1.831	0.187	9.910	
159	CVS2-25								4.662	2.765	3.526	1.214	11.910	1.775	4.255	1.202	1.345	12.040	
160	CVS2-26								1.628	1.436	1.349	0.275	10.110	1.326	1.567	1.448	0.328	10.170	
161	CVS2-27								3.270	1.835	2.342	0.890	11.870	2.572	1.734	2.096	0.860	11.840	
162	CVS2-28								5.144	3.682	3.538	1.654	11.540	3.601	3.158	3.032	1.654	11.540	
163	CVS2-29								1.286	1.355	1.273	0.192	9.110	0.949	1.075	1.108	0.243	9.220	
164	CVS2-30								6.512	4.194	2.552	0.174	8.740	18.006	14.462	8.682	0.301	8.760	

#	Glass ID	EC1 (S/cm)	T2 (°C)	EC2 (S/cm)	T3 (°C)	EC3 (S/cm)	T4 (°C)	EC4 (S/cm)	T5 (°C)	EC5 (S/cm)	T6 (°C)	EC6 (S/cm)	A	B	To
83	IG3-02b														
84	IG3-03														
85	IG3-04														
86	IG3-05														
87	IG3-06														
88	IG3-07														
89	IG3-08b														
90	IG3-09														
91	IG3-10b														
92	IG3-11														
93	IG3-12														
94	IG3-13														
95	IG3-14														
96	IG3-15														
97	IG3-16														
98	IG3-17														
99	IG3-18														
100	IG3-19														
101	IG3-20														
102	IG3-21														
103	IG3-22														
104	IG3-23														
105	IG3-24														
106	IG3-25														
107	IG3-26														
108	IG3-27														
109	IG3-28														
110	IG3-29														
111	IG3-30														
112	CVS1-1														
113	CVS1-2														
114	CVS1-3														
115	CVS1-4														
116	CVS1-5														
117	CVS1-6														
118	CVS1-7														
119	CVS1-8														
120	CVS1-9														
121	CVS1-10														
122	CVS1-11														
123	CVS1-12														
124	CVS1-13														
125	CVS1-14														
126	CVS1-15														
127	CVS1-16														
128	CVS1-17														
129	CVS1-18														
130	CVS1-19														
131	CVS1-20														
132	CVS1-21														
133	CVS1-22														
134	CVS1-23														
135	CVS2-1														
136	CVS2-2														
137	CVS2-3														
138	CVS2-4														
139	CVS2-5														
140	CVS2-6														
141	CVS2-7														
142	CVS2-8														
143	CVS2-9														
144	CVS2-10														
145	CVS2-11														
146	CVS2-12														
147	CVS2-13														
148	CVS2-14														
149	CVS2-15														
150	CVS2-16														
151	CVS2-17														
152	CVS2-18														
153	CVS2-19														
154	CVS2-20														
155	CVS2-21														
156	CVS2-22														
157	CVS2-23														
158	CVS2-24														
159	CVS2-25														
160	CVS2-26														
161	CVS2-27														
162	CVS2-28														
163	CVS2-29														
164	CVS2-30														

#	Glass ID	Study	Reference	Al2O3-t	B2O3-t	CaO-t	Fe2O3-t	FeO-t	K2O-t	Li2O-t	MgO-t	Na2O-t	NiO-t	P2O5-t	SiO2-t	ZrO2-t	Ag2O-t	As2O3-t	As2O5-t	BaO-t	BeO-t	Bi2O3-t	Br-t	CdO-t	Ce2O3-t	CeO2-t	Cl-t
165	CVS2-31	Hanford CVS 2	Hrma et al. 1994	0.0526	0.1843	0.0800	0.0200		0.0000	0.0331	0.0000	0.0500	0.0010	0.0002	0.5700	0.0000	0.0000	0.0000		0.0002		0.0000		0.0013		0.0003	
166	CVS2-32	Hanford CVS 2	Hrma et al. 1994	0.0027	0.0500	0.0000	0.0200		0.0000	0.0428	0.0000	0.2000	0.0010	0.0002	0.5445	0.1300	0.0000	0.0000		0.0002		0.0000		0.0013		0.0003	
167	CVS2-33	Hanford CVS 2	Hrma et al. 1994	0.0892	0.0544	0.0000	0.0200		0.0000	0.0364	0.0800	0.2000	0.0103	0.0018	0.4200	0.0000	0.0000	0.0000		0.0018		0.0000		0.0134		0.0027	
168	CVS2-34	Hanford CVS 2	Hrma et al. 1994	0.1388	0.1743	0.0000	0.0200		0.0000	0.0369	0.0000	0.2000	0.0010	0.0002	0.4200	0.0000	0.0000	0.0000		0.0002		0.0000		0.0013		0.0003	
169	CVS2-35	Hanford CVS 2	Hrma et al. 1994	0.1340	0.0500	0.0800	0.0632		0.0000	0.0428	0.0000	0.2000	0.0010	0.0002	0.4200	0.0000	0.0000	0.0000		0.0002		0.0000		0.0013		0.0003	
170	CVS2-36	Hanford CVS 2	Hrma et al. 1994	0.0088	0.0500	0.0800	0.1500		0.0000	0.0700	0.0000	0.0891	0.0010	0.0002	0.5421	0.0000	0.0000	0.0000		0.0002		0.0000		0.0013		0.0003	
171	CVS2-37	Hanford CVS 2	Hrma et al. 1994	0.1400	0.0839	0.0000	0.0200		0.0000	0.0700	0.0000	0.1061	0.0010	0.0002	0.5700	0.0000	0.0000	0.0000		0.0002		0.0000		0.0013		0.0003	
172	CVS2-38	Hanford CVS 2	Hrma et al. 1994	0.0272	0.1109	0.0000	0.1428		0.0000	0.0100	0.0800	0.1044	0.0010	0.0002	0.5147	0.0000	0.0000	0.0000		0.0002		0.0000		0.0013		0.0003	
173	CVS2-39	Hanford CVS 2	Hrma et al. 1994	0.0258	0.0500	0.0000	0.0742		0.0000	0.0700	0.0800	0.1362	0.0010	0.0002	0.4838	0.0700	0.0000	0.0000		0.0002		0.0000		0.0013		0.0003	
174	CVS2-40	Hanford CVS 2	Hrma et al. 1994	0.1000	0.0639	0.0200	0.0200		0.0000	0.0421	0.0500	0.1500	0.0031	0.0005	0.5040	0.0200	0.0000	0.0000		0.0005		0.0000		0.0040		0.0008	
175	CVS2-41	Hanford CVS 2	Hrma et al. 1994	0.1000	0.0694	0.0500	0.0300		0.0000	0.0700	0.0200	0.0781	0.0031	0.0005	0.5325	0.0200	0.0000	0.0000		0.0005		0.0000		0.0040		0.0008	
176	CVS2-42	Hanford CVS 2	Hrma et al. 1994	0.0300	0.0500	0.0320	0.1000		0.0000	0.0700	0.0380	0.0625	0.0031	0.0005	0.5675	0.0200	0.0000	0.0000		0.0005		0.0000		0.0040		0.0008	
177	CVS2-43	Hanford CVS 2	Hrma et al. 1994	0.0500	0.1477	0.0200	0.0300		0.0000	0.0653	0.0300	0.0500	0.0031	0.0005	0.5070	0.0700	0.0000	0.0000		0.0005		0.0000		0.0040		0.0008	
178	CVS2-44	Hanford CVS 2	Hrma et al. 1994	0.0623	0.1078	0.0500	0.0200		0.0000	0.0699	0.0200	0.0500	0.0031	0.0005	0.5700	0.0200	0.0000	0.0000		0.0005		0.0000		0.0040		0.0008	
179	CVS2-45	Hanford CVS 2	Hrma et al. 1994	0.0592	0.1106	0.0200	0.0308		0.0000	0.0595	0.0500	0.0500	0.0072	0.0013	0.5299	0.0200	0.0000	0.0000		0.0013		0.0000		0.0094		0.0019	
180	CVS2-46	Hanford CVS 2	Hrma et al. 1994	0.0746	0.1259	0.0200	0.0200		0.0000	0.0700	0.0200	0.0577	0.0067	0.0012	0.5264	0.0200	0.0000	0.0000		0.0012		0.0000		0.0088		0.0018	
181	CVS2-47	Hanford CVS 2	Hrma et al. 1994	0.0400	0.0500	0.0500	0.0200		0.0000	0.0429	0.0200	0.1277	0.0072	0.0013	0.5294	0.0500	0.0000	0.0000		0.0013		0.0000		0.0094		0.0019	
182	CVS2-48	Hanford CVS 2	Hrma et al. 1994	0.0854	0.1442	0.0500	0.0200		0.0000	0.0390	0.0200	0.0968	0.0056	0.0010	0.4700	0.0200	0.0000	0.0000		0.0010		0.0000		0.0073		0.0015	
183	CVS2-49	Hanford CVS 2	Hrma et al. 1994	0.0785	0.1357	0.0200	0.0515		0.0000	0.0413	0.0200	0.0957	0.0031	0.0005	0.5073	0.0200	0.0000	0.0000		0.0005		0.0000		0.0040		0.0008	
184	CVS2-50	Hanford CVS 2	Hrma et al. 1994	0.0636	0.1142	0.0275	0.0568		0.0000	0.0376	0.0363	0.1003	0.0042	0.0007	0.4801	0.0429	0.0000	0.0000		0.0007		0.0000		0.0055		0.0011	
185	CVS2-51	Hanford CVS 2	Hrma et al. 1994	0.0235	0.1048	0.0082	0.0733		0.0000	0.0373	0.0084	0.1129	0.0060	0.0010	0.5328	0.0392	0.0000	0.0000		0.0010		0.0000		0.0065		0.0002	
186	CVS2-52	Hanford CVS 2	Hrma et al. 1994	0.0233	0.0817	0.0008	0.0720		0.0000	0.0788	0.0009	0.0450	0.0061	0.0011	0.6000	0.0385	0.0000	0.0000		0.0011		0.0000		0.0079		0.0016	
187	CVS2-53	Hanford CVS 2	Hrma et al. 1994	0.0800	0.0874	0.0000	0.0400		0.0000	0.0600	0.0500	0.0700	0.0082	0.0014	0.5226	0.0100	0.0000	0.0000		0.0014		0.0000		0.0107		0.0022	
188	CVS2-54	Hanford CVS 2	Hrma et al. 1994	0.0235	0.1048	0.0082	0.0733		0.0000	0.0373	0.0084	0.1129	0.0060	0.0010	0.5328	0.0392	0.0000	0.0000		0.0010		0.0000		0.0065		0.0002	
189	CVS2-55	Hanford CVS 2	Hrma et al. 1994	0.0235	0.1048	0.0082	0.0733		0.0000	0.0373	0.0084	0.1129	0.0000	0.0000	0.5328	0.0392	0.0000	0.0000		0.0000		0.0000		0.0000		0.0000	
190	CVS2-56	Hanford CVS 2	Hrma et al. 1994	0.0235	0.1048	0.0082	0.0733		0.0000	0.0373	0.0084	0.1129	0.0000	0.0000	0.5328	0.0392	0.0000	0.0000		0.0000		0.0000		0.0000		0.0000	
191	CVS2-57	Hanford CVS 2	Hrma et al. 1994	0.0235	0.1048	0.0082	0.0733		0.0000	0.0373	0.0084	0.1129	0.0000	0.0000	0.5328	0.0392	0.0000	0.0000		0.0000		0.0000		0.0000		0.0000	
192	CVS2-58	Hanford CVS 2	Hrma et al. 1994	0.1500	0.2000	0.0200	0.0200		0.0000	0.0700	0.0800	0.0500	0.0010	0.0002	0.3900	0.0100	0.0000	0.0000		0.0002		0.0000		0.0013		0.0003	
193	CVS2-59	Hanford CVS 2	Hrma et al. 1994	0.1150	0.1718	0.0375	0.0200		0.0000	0.0727	0.0005	0.1268	0.0011	0.0002	0.4380	0.0075	0.0000	0.0000		0.0002		0.0000		0.0014		0.0003	
194	CVS2-60	Hanford CVS 2	Hrma et al. 1994	0.0925	0.0876	0.0063	0.0200		0.0000	0.0743	0.0005	0.1725	0.0011	0.0002	0.5281	0.0075	0.0000	0.0000		0.0002		0.0000		0.0014		0.0003	
195	CVS2-61	Hanford CVS 2	Hrma et al. 1994	0.1625	0.0664	0.0000	0.0200		0.0000	0.0730	0.0000	0.1200	0.0013	0.0002	0.5281	0.0175	0.0000	0.0000		0.0002		0.0000		0.0017		0.0003	
196	CVS2-62	Hanford CVS 2	Hrma et al. 1994	0.0500	0.1765	0.0500	0.0200		0.0000	0.0156	0.0005	0.1125	0.0010	0.0002	0.5579	0.0075	0.0000	0.0000		0.0002		0.0000		0.0013		0.0003	
197	CVS2-63	Hanford CVS 2	Hrma et al. 1994	0.1800	0.1717	0.1000	0.0200		0.0000	0.0051	0.0000	0.1900	0.0010	0.0002	0.3232	0.0000	0.0000	0.0000		0.0002		0.0000		0.0013		0.0003	
198	CVS2-64	Hanford CVS 2	Hrma et al. 1994	0.0288	0.0509	0.0025	0.0812		0.0009	0.0642	0.0008	0.0925	0.0098	0.0037	0.5697	0.0431	0.0000	0.0000		0.0000		0.0000		0.0129		0.0026	
199	CVS2-65	Hanford CVS 2	Hrma et al. 1994	0.0196	0.1128	0.0007	0.0013		0.0087	0.0697	0.0004	0.0860	0.0000	0.0000	0.5344	0.1548	0.0000	0.0000		0.0000		0.0000		0.0000		0.0000	
200	CVS2-66	Hanford CVS 2	Hrma et al. 1994	0.1180	0.0917	0.0097	0.0388		0.0000	0.0523	0.0061	0.1211	0.0052	0.0000	0.5175	0.0026	0.0000	0.0000		0.0005		0.0000		0.0000		0.0000	
201	CVS2-67	Hanford CVS 2	Hrma et al. 1994	0.2043	0.1587	0.0024	0.0004		0.0000	0.0583	0.0001	0.1086	0.0000	0.0049	0.4596	0.0000	0.0000	0.0000		0.0000		0.0000		0.0000		0.0000	
202	CVS2-68	Hanford CVS 2	Hrma et al. 1994	0.1640	0.1355	0.0007	0.0046		0.0016	0.0696	0.0002	0.0797	0.0000	0.0000	0.5040	0.0001	0.0000	0.0000		0.0000		0.0000		0.0000		0.0000	
203	CVS2-69	Hanford CVS 2	Hrma et al. 1994	0.0816	0.0781	0.0079	0.0334		0.0000	0.0713	0.0032	0.0664	0.0000	0.0326	0.5660	0.0005	0.0000	0.0000		0.0000		0.0000		0.0011		0.0000	
204	CVS2-70	Hanford CVS 2	Hrma et al. 1994	0.1819	0.1418	0.0008	0.0080		0.0000	0.0691	0.0008	0.0812	0.0008	0.0007	0.4854	0.0005	0.0000	0.0011		0.0000		0.0000		0.0011		0.0013	
205	CVS2-71	Hanford CVS 2	Hrma et al. 1994	0.0288	0.0509	0.0025	0.0812		0.0000	0.0642	0.0008	0.0925	0.0068	0.0012	0.5697	0.0431	0.0000	0.0000		0.0012		0.0000		0.0089		0.0018	
206	CVS2-72	Hanford CVS 2	Hrma et al. 1994	0.1180	0.0917	0.0097	0.0388		0.0000	0.0523	0.0061	0.1211	0.0043	0.0008	0.5175	0.0026	0.0000	0.0000		0.0008		0.0000		0.0057		0.0011	
207	CVS2-73	Hanford CVS 2	Hrma et al. 1994	0.1640	0.1355	0.0007	0.0046		0.0000	0.0696	0.0002	0.0797	0.0043	0.0007	0.5040	0.0001	0.0000	0.0000		0.0007		0.0000		0.0056		0.0011	
208	CVS2-74	Hanford CVS 2	Hrma et al. 1994	0.0816	0.0781	0.0079	0.0334		0.0000	0.0713	0.0032	0.0664	0.0094	0.0016	0.5660	0.0005	0.0000	0.0000		0.0016		0.0000		0.0123		0.0025	
209	CVS2-75	Hanford CVS 2	Hrma et al. 1994	0.1819	0.1418	0.0008	0.0080		0.0000	0.0691	0.0008	0.0812	0.0031	0.0005	0.4854	0.0005	0.0000	0.0000		0.0005		0.0000		0.0041		0.0008	
210	CVS2-76	Hanford CVS 2	Hrma et al. 1994	0.0200	0.0600	0.0400	0.1050		0.0000	0.0632	0.0050	0.1800	0.0021	0.0004	0.5018	0.0050	0.0000	0.0000		0.0004		0.0000		0.0027		0.0005	
211	CVS2-77	Hanford CVS 2	Hrma et al. 1994	0.0200	0.0600	0.0050	0.0050		0.0000	0.0700	0.0050	0.1800	0.0093	0.0016	0.4550	0.1100	0.0000	0.0000		0.0016		0.0000		0.0121		0.0024	
212	CVS2-78	Hanford CVS 2	Hrma et al. 1994	0.0200	0.1600	0.0050	0.0699		0.0000	0.0254	0.0400	0.0500	0.0021	0.0004	0.5600	0.0497	0.0000	0.0000		0.0004		0.0000		0.0027		0.0005	
213	CVS2-79	Hanford CVS 2	Hrma et al. 1994	0.0200	0.1600	0.0050	0.1050		0.0000	0.0121	0.0050	0.0500	0.0093	0.0016	0.5479	0.0050	0.0000	0.0000		0.0016		0.0000		0.0121		0.0024	
214	CVS2-80	Hanford CVS 2	Hrma et al. 1994	0.0200	0.1600	0.0050	0.1050		0.0000	0.0176	0.0400	0.0500	0.0021	0.0004	0.5074	0.0750	0.0000	0.0000		0.0004		0.0000		0.0027		0.0005	
215	CVS2-81	Hanford CVS 2	Hrma et al. 1994	0.0200	0.0600	0.0050	0.1050		0.0000	0.0700	0.0400	0.1734	0.0084	0.0015	0.4400	0.0050	0.0000	0.0000		0.0015		0.0000		0.0110		0.0022	
216	CVS2-82	Hanford CVS 2	Hrma et al. 1994	0.0200	0.0950	0.0050	0.0050		0.0000	0.0700	0.0400	0.1800	0.0021	0.0004	0.5600	0.0050	0.0000	0.0000		0.0004		0.0000		0.0027		0.0005	
217	CVS2-83	Hanford CVS 2	Hrma et al. 1994	0.0200	0.0951	0.0400	0.0050		0.0000	0.0699	0.0050	0.1800	0.0093	0.0016	0.4900	0.0050	0.0000	0.0000		0.0016		0.0000		0.0121		0.0024	
218	CVS2-84	Hanford CVS 2	Hrma et al. 1994	0.0200	0.0600	0.0050	0.1050		0.0000	0.0700	0.0050	0.1800	0.0021	0.0004	0.4550	0.0800	0.0000	0.0000		0.0004		0.0000		0.0027		0.0005	
219	CVS2-85	Hanford CVS 2	Hrma et al. 1994	0.1700	0.0600	0.0050	0.0050		0.0000	0.0700	0.0200	0.1800	0.0046	0.0008	0.4400	0.0050	0.0000	0.0000		0.0008		0.0000		0.0060		0.0012	
220	CVS2-86	Hanford CVS 2	Hrma et al. 1994	0.1700	0.0600	0.0400	0.0050		0.0000	0.0136	0.0050	0.1800	0.0046	0.0008	0.4764	0.0050	0.0000	0.0000		0.0008		0.0000		0.0060		0.0012	
221	CVS2-87	Hanford CVS 2	Hrma et al. 1994	0.0987	0.0800	0.0137	0.0250		0.0000	0.0180	0.0050	0.1800	0.0021	0.0004	0.4983	0.0613	0.0000	0.0000		0.0004		0.0000		0.0027		0.0005	
222	CVS2-88	Hanford CVS 2	Hrma et al. 1994	0.1050	0.0600	0.0400	0.0250		0.0000	0.0700	0.0050	0.1403	0.0021	0.0004	0.4597	0.0750	0.0000	0.0000		0.0004		0.0000		0.0027		0.0005	
223	CVS2-89	Hanford CVS 2	Hrma et al. 1994	0.0200	0.1171	0.0400	0.1050		0.0000	0.0100	0.0050	0.1800	0.0021	0.0004	0.4400	0.0629	0.0000	0.0000		0.0004		0.0000		0.0027		0.0005	
224	CVS2-90	Hanford CVS 2	Hrma et al. 1994	0.0200	0.1600	0.0050	0.1008		0.0000	0.0700	0.0050	0.0542	0.0021	0.0004	0.5600	0.0050	0.0000	0.0000		0.0004		0.0000		0.0027		0.0005	
225	CVS2-91	Hanford CVS 2	Hrma et al. 1994	0.0200	0.1600	0.0050	0.0050		0.0000	0.0100	0.0400	0.1050	0.0093	0.0016	0.5600	0.0050	0.0000	0.0000		0.0016		0.0000		0.0121		0.0024	
226	CVS2-92	Hanford CVS 2	Hrma et al. 1994	0.0200	0.1600	0.0050	0.0050		0.0000	0.0700	0.0400	0.1000	0.0093	0.0016	0.4400	0.0700	0.0000	0.0000		0.0016		0.0000		0.0121		0.0024	
227	CVS2-93	Hanford CVS 2	Hrma et al. 1994	0.0200	0.1337	0.0098	0.0986		0.0000	0.0700	0.0050	0.1279	0.0093	0.0016	0.4400	0.0050	0.0000	0.0000		0.0016		0.0000		0.0121		0.0024	
228	CVS2-94	Hanford CVS 2	Hrma et al. 1994	0.0703	0.1600	0.0400	0.0271		0.0000	0.0526	0.0050	0.1800	0.0021	0.0004	0.4400	0.0050	0.0000	0.0000		0.0004		0.0000		0.0027		0.0005	
229	CVS2-95	Hanford CVS 2	Hrma et al. 1994	0.0367	0.1112	0.0113	0.0897		0.0004	0.0428	0.0166	0.1671	0.0061	0.0000	0.4895	0.0041	0.0000			0.0000		0.0000		0.0000		0.0000	
230	CVS2-96	Hanford CVS 2	Hrma et al. 1994	0.0636	0.1142	0.0275	0.0568		0.0000	0.0376	0.0363	0.1003	0.0042	0.0007	0.4801	0.0429	0.0000	0.0000		0.0007		0.0000		0.0055		0.0011	
231	CVS2-97	Hanford CVS 2	Hrma et al. 1994	0.0235	0.1048	0.0082	0.0733		0.0000	0.0373	0.0084	0.1129	0.0060	0.0010	0.5328	0.0392	0.0000	0.0000		0.0010		0.0000		0.0065		0.0002	
232	CVS2-98	Hanford CVS 2	Hrma et al. 1994	0.1388	0.1743	0.0000	0.0200		0.0000	0.0369	0.0000	0.2000	0.0010	0.0002	0.4200	0.0000	0.0000	0.0000		0.0002		0.0000		0.0013		0.0003	
233	CVS2-99	Hanford CVS 2	Hrma et al. 1994	0.0523	0.0969	0.0097	0.1019		0.0212	0.0356	0.0077	0.0980	0.0029	0.0055	0.5203	0.0199	0.0010	0.0000		0.0005		0.0000		0.0030		0.0014	
234	CVS2-100	Hanford CVS 2	Hrma et al. 1994	0.0286	0.0740	0.0035	0.1229		0.0164	0.0596	0.0012	0.0626	0.0069	0.0088	0.5329	0.0443	0.0003	0.0000		0.0007		0.0000		0.0080		0.0000	
235	CVS2-101	Hanford CVS 2	Hrma et al. 1994	0.0367	0.1112	0.0113	0.0897		0.0004	0.0428	0.0166	0.1671	0.0061	0.0000	0.4895	0.0041	0.0000			0.0000		0.0000		0.0000		0.0000	
236	CVS2-102	Hanford CVS 2	Hrma et al. 1994	0.0231	0.1053	0.0083	0.0719		0.0000	0.0375	0.0084	0.1125	0.0061	0.0011	0.5353	0.0385	0.0000	0.0000		0.0011		0.0000		0.0080		0.0016	
237	CVS2-103	Hanford CVS 2	Hrma et al. 1994	0.0293	0.1337	0.0105	0.0913		0.0000	0.0476	0.0107	0.1428	0.0077	0.0013	0.4100	0.0489	0.0000	0.0000		0.0013		0.0000		0.0101		0.0020	
238	CVS2-104	Hanford CVS 2	Hrma et al. 1994	0.0273	0.1246	0.0098	0.0851		0.0000	0.0444	0.0099	0.1332	0.0072	0.0013	0.4500	0.0456	0.0000	0.0000		0.0013		0.0000		0.0094		0.0019	
239	CVS2-105	Hanford CVS 2	Hrma et al. 1994	0.0254	0.1156	0.0091	0.0789		0.0000	0.0412	0.0092	0.1235	0.0067	0.0012	0.4900	0.0423	0.0000	0.0000		0.0012		0.0000		0.0087		0.0017	
240	CVS2-106	Hanford CVS 2	Hrma et al. 1994	0.0214	0.0974	0.0077	0.0665		0.0000	0.0347	0.0078	0.1041	0.0056	0.0010	0.5700	0.0356	0.0000	0.0000		0.0010		0.0000		0.0074		0.0015	
241	CVS2-107	Hanford CVS 2	Hrma et al. 1994	0.0245	0.0500	0.0088	0.0763		0.0000	0.0398	0.0089	0.1195	0.0065	0.0011	0.5684	0.0409	0.0000	0.0000		0.0011		0.0000		0.0084		0.0017	
242	CVS2-108	Hanford CVS 2	Hrma et al. 1994	0.0220	0.1500	0.0079	0.0683		0.0000	0.0356	0.0080	0.1069	0.0058	0.0010	0.5086	0.0366	0.0000	0.0000		0.0010		0.0000		0.0076		0.0015	
243	CVS2-109	Hanford CVS 2	Hrma et al. 1994	0.0207	0.2000	0.0074	0.0643		0.0000	0.0335	0.0075	0.1006	0.0055	0.0009	0.4786	0.0344	0.0000	0.0000		0.0009		0.0000		0.0071		0.0014	
244	CVS2-110	Hanford CVS 2	Hrma et al. 1994	0.0247	0.1127	0.0089	0.0770		0.0000	0.0401	0.0090	0.0500	0.0065	0.0011	0.5730	0.0412	0.0000	0.0000		0.0011		0.0000		0.0085		0.0017	
245	CVS2-111	Hanford CVS 2	Hrma et al. 1994	0.0221	0.1009	0.0080	0.0689		0.0000	0.0359	0.0081	0.1500	0.0058	0.0010	0.5127	0.0369	0.0000	0.0000		0.0010		0.0000		0.0076		0.0015	
246	CVS2-112	Hanford CVS 2	Hrma et al. 1994	0.0208	0.0949	0.0075	0.0648		0.0000	0.0338	0.0076	0.2000	0.0055	0.0010	0.4825	0.0347	0.0000	0.0000		0.0010		0.0000		0.0072		0.0014	

#	Glass ID	CoO-t	Co2O3-t	Cr2O3-t	Cs2O-t	CuO-t	Dy2O3-t	Eu2O3-t	F-t	Ga2O3-t	Gd2O3-t	HfO2-t	HgO-t	I-t	La2O3-t	MnO2-t	MnO-t	MoO-t	MoO2-t	MoO3-t	Nb2O5-t	Nd2O3-t	NpO2-t	PbO-t	PdO2-t	PdO-t	Pr2O3-t	Pr6O11-t	Rb2O-t	ReO-t
165	CVS2-31		0.0000	0.0002	0.0003	0.0003			0.0005						0.0011	0.0003				0.0005		0.0022		0.0000		0.0001		0.0002	0.0001	
166	CVS2-32		0.0000	0.0002	0.0003	0.0003			0.0005						0.0011	0.0003				0.0005		0.0022		0.0000		0.0001		0.0002	0.0001	
167	CVS2-33		0.0000	0.0022	0.0027	0.0027			0.0054						0.0112	0.0027				0.0054		0.0221		0.0000		0.0009		0.0018	0.0009	
168	CVS2-34		0.0000	0.0002	0.0003	0.0003			0.0005						0.0011	0.0003				0.0005		0.0022		0.0000		0.0001		0.0002	0.0001	
169	CVS2-35		0.0000	0.0002	0.0003	0.0003			0.0005						0.0011	0.0003				0.0005		0.0022		0.0000		0.0001		0.0002	0.0001	
170	CVS2-36		0.0000	0.0002	0.0003	0.0003			0.0005						0.0011	0.0003				0.0005		0.0022		0.0000		0.0001		0.0002	0.0001	
171	CVS2-37		0.0000	0.0002	0.0003	0.0003			0.0005						0.0011	0.0003				0.0005		0.0022		0.0000		0.0001		0.0002	0.0001	
172	CVS2-38		0.0000	0.0002	0.0003	0.0003			0.0005						0.0011	0.0003				0.0005		0.0022		0.0000		0.0001		0.0002	0.0001	
173	CVS2-39		0.0000	0.0002	0.0003	0.0003			0.0005						0.0011	0.0003				0.0005		0.0022		0.0000		0.0001		0.0002	0.0001	
174	CVS2-40		0.0000	0.0007	0.0008	0.0008			0.0016						0.0034	0.0008				0.0016		0.0066		0.0000		0.0003		0.0005	0.0003	
175	CVS2-41		0.0000	0.0007	0.0008	0.0008			0.0016						0.0034	0.0008				0.0016		0.0066		0.0000		0.0003		0.0005	0.0003	
176	CVS2-42		0.0000	0.0007	0.0008	0.0008			0.0016						0.0034	0.0008				0.0016		0.0066		0.0000		0.0003		0.0005	0.0003	
177	CVS2-43		0.0000	0.0007	0.0008	0.0008			0.0016						0.0034	0.0008				0.0016		0.0066		0.0000		0.0003		0.0005	0.0003	
178	CVS2-44		0.0000	0.0007	0.0008	0.0008			0.0016						0.0034	0.0008				0.0016		0.0066		0.0000		0.0003		0.0005	0.0003	
179	CVS2-45		0.0000	0.0016	0.0019	0.0019			0.0038						0.0078	0.0019				0.0038		0.0155		0.0000		0.0006		0.0013	0.0006	
180	CVS2-46		0.0000	0.0015	0.0018	0.0018			0.0035						0.0073	0.0018				0.0035		0.0144		0.0000		0.0006		0.0012	0.0006	
181	CVS2-47		0.0000	0.0016	0.0019	0.0019			0.0038						0.0078	0.0019				0.0038		0.0155		0.0000		0.0006		0.0013	0.0006	
182	CVS2-48		0.0000	0.0012	0.0015	0.0015			0.0029						0.0061	0.0015				0.0029		0.0121		0.0000		0.0005		0.0010	0.0005	
183	CVS2-49		0.0000	0.0007	0.0008	0.0008			0.0016						0.0034	0.0008				0.0016		0.0066		0.0000		0.0003		0.0005	0.0003	
184	CVS2-50		0.0000	0.0009	0.0011	0.0011			0.0022						0.0046	0.0011				0.0022		0.0090		0.0000		0.0004		0.0007	0.0004	
185	CVS2-51		0.0000	0.0013	0.0015	0.0016			0.0019						0.0155	0.0016				0.0031		0.0057		0.0000		0.0000		0.0019	0.0000	
186	CVS2-52		0.0000	0.0013	0.0016	0.0016			0.0032						0.0066	0.0016				0.0032		0.0130		0.0000		0.0005		0.0011	0.0005	
187	CVS2-53		0.0000	0.0018	0.0022	0.0022			0.0043						0.0090	0.0022				0.0043		0.0000		0.0000		0.0007		0.0014	0.0007	
188	CVS2-54		0.0000	0.0013	0.0015	0.0016			0.0019						0.0155	0.0016				0.0031		0.0000		0.0000		0.0000		0.0019	0.0000	
189	CVS2-55		0.0000	0.0089	0.0000	0.0000			0.0030						0.0000	0.0280				0.0000		0.0167		0.0000		0.0000		0.0000	0.0000	
190	CVS2-56		0.0000	0.0072	0.0000	0.0000			0.0030						0.0000	0.0465				0.0000		0.0000		0.0000		0.0000		0.0000	0.0000	
191	CVS2-57		0.0000	0.0054	0.0000	0.0000			0.0030						0.0000	0.0000				0.0000		0.0513		0.0000		0.0000		0.0000	0.0000	
192	CVS2-58		0.0000	0.0002	0.0003	0.0003			0.0005						0.0011	0.0003				0.0005		0.0022		0.0000		0.0001		0.0002	0.0001	
193	CVS2-59		0.0000	0.0002	0.0003	0.0003			0.0005						0.0011	0.0003				0.0005		0.0023		0.0000		0.0001		0.0002	0.0001	
194	CVS2-60		0.0000	0.0002	0.0003	0.0003			0.0006						0.0012	0.0003				0.0006		0.0024		0.0000		0.0001		0.0002	0.0001	
195	CVS2-61		0.0000	0.0003	0.0003	0.0003			0.0007						0.0014	0.0003				0.0007		0.0028		0.0000		0.0001		0.0002	0.0001	
196	CVS2-62		0.0000	0.0002	0.0003	0.0003			0.0005						0.0011	0.0003				0.0005		0.0021		0.0000		0.0001		0.0002	0.0001	
197	CVS2-63		0.0000	0.0002	0.0003	0.0003			0.0005						0.0011	0.0003				0.0005		0.0022		0.0000		0.0001		0.0002	0.0001	
198	CVS2-64		0.0000	0.0011	0.0026	0.0000			0.0003						0.0028	0.0000				0.0024		0.0146		0.0028		0.0005		0.0000	0.0000	
199	CVS2-65		0.0000	0.0048	0.0000	0.0000			0.0000						0.0004	0.0000				0.0000		0.0062		0.0000		0.0000		0.0000	0.0000	
200	CVS2-66		0.0000	0.0108	0.0000	0.0000			0.0006						0.0043	0.0145				0.0063		0.0000		0.0000		0.0000		0.0000	0.0000	
201	CVS2-67		0.0000	0.0014	0.0000	0.0000			0.0013						0.0000	0.0000				0.0000		0.0000		0.0000		0.0000		0.0000	0.0000	
202	CVS2-68		0.0000	0.0297	0.0000	0.0000			0.0057						0.0000	0.0027				0.0007		0.0000		0.0000		0.0000		0.0000	0.0000	
203	CVS2-69		0.0000	0.0238	0.0000	0.0018			0.0011						0.0000	0.0149				0.0000		0.0017		0.0015		0.0014		0.0000	0.0000	
204	CVS2-70		0.0000	0.0117	0.0000	0.0016			0.0000						0.0005	0.0035				0.0000		0.0005		0.0000		0.0014		0.0000	0.0000	
205	CVS2-71		0.0000	0.0015	0.0018	0.0018			0.0036						0.0074	0.0018				0.0036		0.0146		0.0000		0.0006		0.0012	0.0006	
206	CVS2-72		0.0000	0.0009	0.0011	0.0011			0.0023						0.0047	0.0011				0.0023		0.0093		0.0000		0.0004		0.0008	0.0004	
207	CVS2-73		0.0000	0.0009	0.0011	0.0011			0.0022						0.0047	0.0011				0.0022		0.0092		0.0000		0.0004		0.0007	0.0004	
208	CVS2-74		0.0000	0.0021	0.0025	0.0025			0.0049						0.0103	0.0025				0.0049		0.0202		0.0000		0.0008		0.0016	0.0008	
209	CVS2-75		0.0000	0.0007	0.0008	0.0008			0.0016						0.0034	0.0008				0.0016		0.0067		0.0000		0.0003		0.0005	0.0003	
210	CVS2-76		0.0000	0.0004	0.0005	0.0005			0.0011						0.0022	0.0005				0.0011		0.0044		0.0000		0.0002		0.0004	0.0002	
211	CVS2-77		0.0000	0.0020	0.0024	0.0024			0.0048						0.0101	0.0024				0.0048		0.0199		0.0000		0.0008		0.0016	0.0008	
212	CVS2-78		0.0000	0.0004	0.0005	0.0005			0.0011						0.0022	0.0005				0.0011		0.0044		0.0000		0.0002		0.0004	0.0002	
213	CVS2-79		0.0000	0.0020	0.0024	0.0024			0.0048						0.0101	0.0024				0.0048		0.0199		0.0000		0.0008		0.0016	0.0008	
214	CVS2-80		0.0000	0.0004	0.0005	0.0005			0.0011						0.0022	0.0005				0.0011		0.0044		0.0000		0.0002		0.0004	0.0002	
215	CVS2-81		0.0000	0.0018	0.0022	0.0022			0.0044						0.0091	0.0022				0.0044		0.0180		0.0000		0.0007		0.0015	0.0007	
216	CVS2-82		0.0000	0.0004	0.0005	0.0005			0.0011						0.0022	0.0005				0.0011		0.0044		0.0000		0.0002		0.0004	0.0002	
217	CVS2-83		0.0000	0.0020	0.0024	0.0024			0.0048						0.0101	0.0024				0.0048		0.0199		0.0000		0.0008		0.0016	0.0008	
218	CVS2-84		0.0000	0.0004	0.0005	0.0005			0.0011						0.0022	0.0005				0.0011		0.0044		0.0000		0.0002		0.0004	0.0002	
219	CVS2-85		0.0000	0.0010	0.0012	0.0012			0.0024						0.0050	0.0012				0.0024		0.0099		0.0000		0.0004		0.0008	0.0004	
220	CVS2-86		0.0000	0.0010	0.0012	0.0012			0.0024						0.0050	0.0012				0.0024		0.0099		0.0000		0.0004		0.0008	0.0004	
221	CVS2-87		0.0000	0.0004	0.0005	0.0005			0.0011						0.0022	0.0005				0.0011		0.0044		0.0000		0.0002		0.0004	0.0002	
222	CVS2-88		0.0000	0.0004	0.0005	0.0005			0.0011						0.0022	0.0005				0.0011		0.0044		0.0000		0.0002		0.0004	0.0002	
223	CVS2-89		0.0000	0.0004	0.0005	0.0005			0.0011						0.0022	0.0005				0.0011		0.0044		0.0000		0.0002		0.0004	0.0002	
224	CVS2-90		0.0000	0.0004	0.0005	0.0005			0.0011						0.0022	0.0005				0.0011		0.0044		0.0000		0.0002		0.0004	0.0002	
225	CVS2-91		0.0000	0.0020	0.0024	0.0024			0.0048						0.0101	0.0024				0.0048		0.0199		0.0000		0.0008		0.0016	0.0008	
226	CVS2-92		0.0000	0.0020	0.0024	0.0024			0.0048						0.0101	0.0024				0.0048		0.0199		0.0000		0.0008		0.0016	0.0008	
227	CVS2-93		0.0000	0.0020	0.0024	0.0024			0.0048						0.0101	0.0024				0.0048		0.0199		0.0000		0.0008		0.0016	0.0008	
228	CVS2-94		0.0000	0.0004	0.0005	0.0005			0.0011						0.0022	0.0005				0.0011		0.0044		0.0000		0.0002		0.0004	0.0002	
229	CVS2-95		0.0000	0.0000	0.0000	0.0000			0.0000						0.0041		0.0134			0.0000		0.0000		0.0000		0.0000		0.0000	0.0000	
230	CVS2-96		0.0000	0.0009	0.0011	0.0011			0.0022						0.0046	0.0011				0.0022		0.0090		0.0000		0.0004		0.0007	0.0004	
231	CVS2-97		0.0000	0.0013	0.0015	0.0016			0.0019						0.0155	0.0016				0.0031		0.0057		0.0000		0.0000		0.0019	0.0000	
232	CVS2-98		0.0000	0.0002	0.0003	0.0003			0.0005						0.0011	0.0003				0.0005		0.0022		0.0000		0.0001		0.0002	0.0001	
233	CVS2-99		0.0010	0.0020	0.0000	0.0002			0.0000						0.0014	0.0048				0.0001		0.0046		0.0020		0.0000		0.0000	0.0000	
234	CVS2-100		0.0000	0.0006	0.0000	0.0003			0.0000						0.0046	0.0021				0.0000		0.0145		0.0011		0.0000		0.0000	0.0000	
235	CVS2-101		0.0000	0.0000	0.0000	0.0000			0.0000						0.0041		0.0134			0.0000		0.0000		0.0000		0.0000		0.0000	0.0000	
236	CVS2-102		0.0000	0.0013	0.0016	0.0016			0.0032						0.0066	0.0016				0.0032		0.0131		0.0000		0.0005		0.0011	0.0005	
237	CVS2-103		0.0000	0.0017	0.0020	0.0020			0.0040						0.0084	0.0020				0.0040		0.0166		0.0000		0.0007		0.0013	0.0007	
238	CVS2-104		0.0000	0.0016	0.0019	0.0019			0.0038						0.0078	0.0019				0.0038		0.0155		0.0000		0.0006		0.0013	0.0006	
239	CVS2-105		0.0000	0.0015	0.0017	0.0017			0.0035						0.0073	0.0017				0.0035		0.0144		0.0000		0.0006		0.0012	0.0006	
240	CVS2-106		0.0000	0.0012	0.0015	0.0015			0.0029						0.0061	0.0015				0.0029		0.0121		0.0000		0.0005		0.0010	0.0005	
241	CVS2-107		0.0000	0.0014	0.0017	0.0017			0.0034						0.0070	0.0017				0.0034		0.0139		0.0000		0.0006		0.0011	0.0006	
242	CVS2-108		0.0000	0.0013	0.0015	0.0015			0.0030						0.0063	0.0015				0.0030		0.0124		0.0000		0.0005		0.0010	0.0005	
243	CVS2-109		0.0000	0.0012	0.0014	0.0014			0.0028						0.0059	0.0014				0.0028		0.0117		0.0000		0.0005		0.0009	0.0005	
244	CVS2-110		0.0000	0.0014	0.0017	0.0017			0.0034						0.0071	0.0017				0.0034		0.0140		0.0000		0.0006		0.0011	0.0006	
245	CVS2-111		0.0000	0.0013	0.0015	0.0015			0.0030						0.0063	0.0015				0.0030		0.0125		0.0000		0.0005		0.0010	0.0005	
246	CVS2-112		0.0000	0.0012	0.0014	0.0014			0.0029						0.0060	0.0014				0.0029		0.0118		0.0000		0.0005		0.0010	0.0005	

#	Glass ID	ReO2-t	Re2O7-t	Rh2O3-t	RhO2-t	RuO2-t	Ru2O3-t	Sb2O3-t	Sb2O5-t	SeO2-t	Sm2O3-t	SnO-t	SnO2-t	SO3-t	SrO-t	Tc2O7-t	TeO2-t	ThO2-t	TiO2-t	Tl2O-t	Tl2O3-t	U3O8-t	UO2-t	UO3-t	V2O5-t	WO3-t	Y2O3-t	ZnO-t	Sum-t	Al2O3-a
165	CVS2-31			0.0001		0.0003		0.0000		0.0000	0.0001			0.0005	0.0002		0.0000		0.0000				0.0000				0.0001	0.0000	1.0000	0.0514
166	CVS2-32			0.0001		0.0003		0.0000		0.0000	0.0001			0.0005	0.0002		0.0000		0.0000				0.0000				0.0001	0.0000	1.0000	0.0027
167	CVS2-33			0.0009		0.0027		0.0000		0.0000	0.0009			0.0049	0.0018		0.0000		0.0000				0.0000				0.0009	0.0000	1.0000	0.0875
168	CVS2-34			0.0001		0.0003		0.0000		0.0000	0.0001			0.0005	0.0002		0.0000		0.0000				0.0000				0.0001	0.0000	1.0000	0.1350
169	CVS2-35			0.0001		0.0003		0.0000		0.0000	0.0001			0.0005	0.0002		0.0000		0.0000				0.0000				0.0001	0.0000	1.0000	0.1305
170	CVS2-36			0.0001		0.0003		0.0000		0.0000	0.0001			0.0005	0.0002		0.0000		0.0000				0.0000				0.0001	0.0000	1.0000	0.0088
171	CVS2-37			0.0001		0.0003		0.0000		0.0000	0.0001			0.0005	0.0002		0.0000		0.0000				0.0000				0.0001	0.0000	1.0000	0.1358
172	CVS2-38			0.0001		0.0003		0.0000		0.0000	0.0001			0.0005	0.0002		0.0000		0.0000				0.0000				0.0001	0.0000	1.0000	0.0273
173	CVS2-39			0.0001		0.0003		0.0000		0.0000	0.0001			0.0005	0.0002		0.0000		0.0000				0.0000				0.0001	0.0000	1.0000	0.0247
174	CVS2-40			0.0003		0.0008		0.0000		0.0000	0.0003			0.0015	0.0005		0.0000		0.0000				0.0000				0.0003	0.0000	1.0000	0.0970
175	CVS2-41			0.0003		0.0008		0.0000		0.0000	0.0003			0.0015	0.0005		0.0000		0.0000				0.0000				0.0003	0.0000	1.0000	0.0970
176	CVS2-42			0.0003		0.0008		0.0000		0.0000	0.0003			0.0015	0.0005		0.0000		0.0000				0.0000				0.0003	0.0000	1.0000	0.0290
177	CVS2-43			0.0003		0.0008		0.0000		0.0000	0.0003			0.0015	0.0005		0.0000		0.0000				0.0000				0.0003	0.0000	1.0000	0.0477
178	CVS2-44			0.0003		0.0008		0.0000		0.0000	0.0003			0.0015	0.0005		0.0000		0.0000				0.0000				0.0003	0.0000	1.0000	0.0610
179	CVS2-45			0.0006		0.0019		0.0000		0.0000	0.0006			0.0035	0.0013		0.0000		0.0000				0.0000				0.0006	0.0000	1.0000	0.0575
180	CVS2-46			0.0006		0.0018		0.0000		0.0000	0.0006			0.0032	0.0012		0.0000		0.0000				0.0000				0.0006	0.0000	1.0000	0.0721
181	CVS2-47			0.0006		0.0019		0.0000		0.0000	0.0006			0.0035	0.0013		0.0000		0.0000				0.0000				0.0006	0.0000	1.0000	0.0390
182	CVS2-48			0.0005		0.0015		0.0000		0.0000	0.0005			0.0027	0.0010		0.0000		0.0000				0.0000				0.0005	0.0000	1.0000	0.0835
183	CVS2-49			0.0003		0.0008		0.0000		0.0000	0.0003			0.0015	0.0005		0.0000		0.0000				0.0000				0.0003	0.0000	1.0000	0.0763
184	CVS2-50			0.0004		0.0011		0.0000		0.0000	0.0004			0.0020	0.0007		0.0000		0.0000				0.0000				0.0004	0.0000	1.0000	0.0625
185	CVS2-51			0.0000		0.0015		0.0000		0.0000	0.0000			0.0044	0.0000		0.0000		0.0000				0.0000				0.0000	0.0049	1.0000	0.0285
186	CVS2-52			0.0005		0.0016		0.0000		0.0000	0.0005			0.0029	0.0011		0.0000		0.0000				0.0000				0.0005	0.0000	1.0000	0.0260
187	CVS2-53			0.0007		0.0022		0.0000		0.0000	0.0007			0.0039	0.0014		0.0000		0.0000				0.0177				0.0007	0.0000	1.0000	0.0840
188	CVS2-54			0.0000		0.0015		0.0000		0.0000	0.0000			0.0044	0.0000		0.0000		0.0000				0.0057				0.0000	0.0049	1.0000	0.0330
189	CVS2-55			0.0000		0.0000		0.0000		0.0000	0.0000			0.0030	0.0000		0.0000		0.0000				0.0000				0.0000	0.0000	1.0000	0.0270
190	CVS2-56			0.0000		0.0000		0.0000		0.0000	0.0000			0.0030	0.0000		0.0000		0.0000				0.0000				0.0000	0.0000	1.0000	0.0260
191	CVS2-57			0.0000		0.0000		0.0000		0.0000	0.0000			0.0000	0.0000		0.0000		0.0000				0.0000				0.0000	0.0000	1.0000	0.0250
192	CVS2-58			0.0001		0.0003		0.0000		0.0000	0.0001			0.0005	0.0002		0.0000		0.0000				0.0000				0.0001	0.0000	1.0000	0.1500
193	CVS2-59			0.0001		0.0003		0.0000		0.0000	0.0001			0.0005	0.0002		0.0000		0.0000				0.0000				0.0001	0.0000	1.0000	0.1055
194	CVS2-60			0.0001		0.0003		0.0000		0.0000	0.0001			0.0005	0.0002		0.0000		0.0000				0.0000				0.0001	0.0000	1.0000	
195	CVS2-61			0.0001		0.0003		0.0000		0.0000	0.0001			0.0006	0.0002		0.0000		0.0000				0.0000				0.0001	0.0000	1.0000	
196	CVS2-62			0.0001		0.0003		0.0000		0.0000	0.0001			0.0005	0.0002		0.0000		0.0000				0.0000				0.0001	0.0000	1.0000	
197	CVS2-63			0.0001		0.0003		0.0000		0.0000	0.0001			0.0005	0.0002		0.0000		0.0000				0.0000				0.0001	0.0000	1.0000	
198	CVS2-64			0.0005		0.0018		0.0000		0.0000	0.0000			0.0028	0.0000		0.0000		0.0028				0.0000				0.0000	0.0015	1.0000	
199	CVS2-65			0.0001		0.0000		0.0000		0.0000	0.0000			0.0000	0.0000		0.0000		0.0000				0.0000				0.0000	0.0000	1.0000	
200	CVS2-66			0.0000		0.0000		0.0000		0.0000	0.0000			0.0000	0.0000		0.0000		0.0000				0.0000				0.0000	0.0000	1.0000	
201	CVS2-67			0.0000		0.0000		0.0000		0.0000	0.0000			0.0000	0.0000		0.0000		0.0000				0.0000				0.0000	0.0000	1.0000	
202	CVS2-68			0.0000		0.0000		0.0000		0.0000	0.0000			0.0001	0.0000		0.0000		0.0000				0.0000				0.0000	0.0012	1.0000	
203	CVS2-69			0.0006		0.0006		0.0000		0.0036	0.0000			0.0069	0.0000		0.0000		0.0000				0.0000				0.0000	0.0000	1.0000	0.0774
204	CVS2-70			0.0007		0.0007		0.0005		0.0035	0.0000			0.0003	0.0000		0.0005		0.0000				0.0000				0.0000	0.0000	1.0000	0.1670
205	CVS2-71			0.0006		0.0018		0.0000		0.0000	0.0006			0.0033	0.0012		0.0000		0.0000				0.0000				0.0006	0.0000	1.0000	
206	CVS2-72			0.0004		0.0011		0.0000		0.0000	0.0004			0.0021	0.0008		0.0000		0.0000				0.0000				0.0004	0.0000	1.0000	
207	CVS2-73			0.0004		0.0011		0.0000		0.0000	0.0004			0.0021	0.0007		0.0000		0.0000				0.0000				0.0004	0.0000	1.0000	
208	CVS2-74			0.0008		0.0025		0.0000		0.0000	0.0008			0.0045	0.0016		0.0000		0.0000				0.0000				0.0008	0.0000	1.0000	0.0741
209	CVS2-75			0.0003		0.0008		0.0000		0.0000	0.0003			0.0015	0.0005		0.0000		0.0000				0.0000				0.0003	0.0000	1.0000	
210	CVS2-76			0.0002		0.0005		0.0000		0.0000	0.0002			0.0010	0.0004		0.0000		0.0000				0.0000				0.0002	0.0000	1.0000	
211	CVS2-77			0.0008		0.0024		0.0000		0.0000	0.0008			0.0044	0.0016		0.0000		0.0000				0.0000				0.0008	0.0000	1.0000	
212	CVS2-78			0.0002		0.0005		0.0000		0.0000	0.0002			0.0010	0.0004		0.0000		0.0000				0.0000				0.0002	0.0000	1.0000	
213	CVS2-79			0.0008		0.0024		0.0000		0.0000	0.0008			0.0044	0.0016		0.0000		0.0000				0.0000				0.0008	0.0000	1.0000	0.0200
214	CVS2-80			0.0002		0.0005		0.0000		0.0000	0.0002			0.0010	0.0004		0.0000		0.0000				0.0000				0.0002	0.0000	1.0000	
215	CVS2-81			0.0007		0.0022		0.0000		0.0000	0.0007			0.0040	0.0015		0.0000		0.0000				0.0000				0.0007	0.0000	1.0000	
216	CVS2-82			0.0002		0.0005		0.0000		0.0000	0.0002			0.0010	0.0004		0.0000		0.0000				0.0000				0.0002	0.0000	1.0000	
217	CVS2-83			0.0008		0.0024		0.0000		0.0000	0.0008			0.0044	0.0016		0.0000		0.0000				0.0000				0.0008	0.0000	1.0000	
218	CVS2-84			0.0002		0.0005		0.0000		0.0000	0.0002			0.0010	0.0004		0.0000		0.0000				0.0000				0.0002	0.0000	1.0000	
219	CVS2-85			0.0004		0.0012		0.0000		0.0000	0.0004			0.0022	0.0008		0.0000		0.0000				0.0000				0.0004	0.0000	1.0000	
220	CVS2-86			0.0004		0.0012		0.0000		0.0000	0.0004			0.0022	0.0008		0.0000		0.0000				0.0000				0.0004	0.0000	1.0000	
221	CVS2-87			0.0002		0.0005		0.0000		0.0000	0.0002			0.0010	0.0004		0.0000		0.0000				0.0000				0.0002	0.0000	1.0000	
222	CVS2-88			0.0002		0.0005		0.0000		0.0000	0.0002			0.0010	0.0004		0.0000		0.0000				0.0000				0.0002	0.0000	1.0000	
223	CVS2-89			0.0002		0.0005		0.0000		0.0000	0.0002			0.0010	0.0004		0.0000		0.0000				0.0000				0.0002	0.0000	1.0000	
224	CVS2-90			0.0002		0.0005		0.0000		0.0000	0.0002			0.0010	0.0004		0.0000		0.0000				0.0000				0.0002	0.0000	1.0000	
225	CVS2-91			0.0008		0.0024		0.0000		0.0000	0.0008			0.0044	0.0016		0.0000		0.0000				0.0000				0.0008	0.0000	1.0000	0.0185
226	CVS2-92			0.0008		0.0024		0.0000		0.0000	0.0008			0.0044	0.0016		0.0000		0.0000				0.0000				0.0008	0.0000	1.0000	
227	CVS2-93			0.0008		0.0024		0.0000		0.0000	0.0008			0.0044	0.0016		0.0000		0.0000				0.0000				0.0008	0.0000	1.0000	
228	CVS2-94			0.0002		0.0005		0.0000		0.0000	0.0002			0.0010	0.0004		0.0000		0.0000				0.0000				0.0002	0.0000	1.0000	
229	CVS2-95			0.0000		0.0000					0.0000			0.0000	0.0000		0.0000		0.0071			0.0000			0.0000		0.0000	0.0000	1.0000	0.0339
230	CVS2-96			0.0004		0.0011		0.0000		0.0000	0.0004			0.0020	0.0007		0.0000		0.0000				0.0000				0.0004	0.0000	1.0000	0.0597
231	CVS2-97			0.0000		0.0015		0.0000		0.0000	0.0000			0.0044	0.0000		0.0000		0.0000				0.0000				0.0000	0.0049	1.0000	0.0287
232	CVS2-98			0.0001		0.0003		0.0000		0.0000	0.0001			0.0005	0.0002		0.0000		0.0000				0.0000				0.0001	0.0000	1.0000	0.1275
233	CVS2-99			0.0000		0.0000		0.0000		0.0000	0.0000			0.0040	0.0004		0.0000		0.0012				0.0000				0.0000	0.0005	1.0000	
234	CVS2-100			0.0000		0.0009		0.0000		0.0000	0.0000			0.0032	0.0005		0.0005		0.0008				0.0000				0.0000	0.0002	1.0000	
235	CVS2-101			0.0000		0.0000					0.0000			0.0000	0.0000		0.0000		0.0071			0.0000			0.0000		0.0000	0.0000	1.0000	0.0341
236	CVS2-102			0.0005		0.0016		0.0000		0.0000	0.0005			0.0029	0.0011		0.0000		0.0000				0.0000				0.0005	0.0000	1.0000	
237	CVS2-103			0.0007		0.0020		0.0000		0.0000	0.0007			0.0037	0.0013		0.0000		0.0000				0.0000				0.0007	0.0000	1.0000	
238	CVS2-104			0.0006		0.0019		0.0000		0.0000	0.0006			0.0035	0.0013		0.0000		0.0000				0.0000				0.0006	0.0000	1.0000	
239	CVS2-105			0.0006		0.0017		0.0000		0.0000	0.0006			0.0032	0.0012		0.0000		0.0000				0.0000				0.0006	0.0000	1.0000	
240	CVS2-106			0.0005		0.0015		0.0000		0.0000	0.0005			0.0027	0.0010		0.0000		0.0000				0.0000				0.0005	0.0000	1.0000	
241	CVS2-107			0.0006		0.0017		0.0000		0.0000	0.0006			0.0031	0.0011		0.0000		0.0000				0.0000				0.0006	0.0000	1.0000	
242	CVS2-108			0.0005		0.0015		0.0000		0.0000	0.0005			0.0028	0.0010		0.0000		0.0000				0.0000				0.0005	0.0000	1.0000	
243	CVS2-109			0.0005		0.0014		0.0000		0.0000	0.0005			0.0026	0.0009		0.0000		0.0000				0.0000				0.0005	0.0000	1.0000	
244	CVS2-110			0.0006		0.0017		0.0000		0.0000	0.0006			0.0031	0.0011		0.0000		0.0000				0.0000				0.0006	0.0000	1.0000	
245	CVS2-111			0.0005		0.0015		0.0000		0.0000	0.0005			0.0028	0.0010		0.0000		0.0000				0.0000				0.0005	0.0000	1.0000	
246	CVS2-112			0.0005		0.0014		0.0000		0.0000	0.0005			0.0026	0.0010		0.0000		0.0000				0.0000				0.0005	0.0000	1.0000	

#	Glass ID	B2O3-a	CaO-a	Fe2O3-a	FeO-a	K2O-a	Li2O-a	MgO-a	Na2O-a	NiO-a	P2O5-a	SiO2-a	ZrO2-a	Ag2O-a	As2O3-a	As2O5-a	BaO-a	BeO-a	Bi2O3-a	Br-a	CdO-a	Ce2O3-a	CeO2-a	Cl-a	CoO-a	Co2O3-a	Cr2O3-a	Cs2O-a	CuO-a	F-a
165	CVS2-31	0.1895	0.0757	0.0193		0.0000	0.0295	0.0007	0.0901	0.0010	0.0004	0.5415	0.0000				0.0002				0.0013		0.0002				0.0001	0.0005	0.0003	0.0005
166	CVS2-32	0.0491	0.0005	0.0194		0.0000	0.0412	0.0004	0.2445	0.0009	0.0009	0.5383	0.1225				0.0002				0.0012		0.0055				0.0002	0.0003	0.0002	0.0005
167	CVS2-33	0.0540	0.0005	0.0190		0.0000	0.0350	0.0710	0.2200	0.0092	0.0010	0.4100	0.0000				0.0017				0.0125		0.0029				0.0021	0.0028	0.0025	0.0054
168	CVS2-34	0.1700	0.0005	0.0195		0.0000	0.0350	0.0002	0.2100	0.0009	0.0001	0.4000	0.0009				0.0002				0.0012		0.0002				0.0002	0.0006	0.0003	0.0005
169	CVS2-35	0.0493	0.0776	0.0597		0.0000	0.0420	0.0006	0.2450	0.0009	0.0002	0.3978	0.0000				0.0002				0.0012		0.0002				0.0002	0.0002	0.0002	0.0005
170	CVS2-36	0.0497	0.0780	0.1443		0.0000	0.0692	0.0005	0.1395	0.0009	0.0002	0.5338	0.0000				0.0002				0.0012		0.0002				0.0002	0.0002	0.0002	0.0005
171	CVS2-37	0.0830	0.0002	0.0190		0.0000	0.0642	0.0000	0.1405	0.0009	0.0004	0.5508	0.0000				0.0002				0.0012		0.0001				0.0003	0.0003	0.0003	0.0005
172	CVS2-38	0.1100	0.0002	0.1338		0.0000	0.0085	0.0706	0.1435	0.0010	0.0005	0.5005	0.0000				0.0002				0.0013		0.0002				0.0003	0.0003	0.0003	0.0005
173	CVS2-39	0.0483	0.0005	0.0675		0.0000	0.0643	0.0690	0.1725	0.0009	0.0005	0.4551	0.0601				0.0002				0.0012		0.0032				0.0002	0.0004	0.0002	0.0005
174	CVS2-40	0.0630	0.0190	0.0190		0.0000	0.0400	0.0440	0.1660	0.0028	0.0005	0.4900	0.0160				0.0005				0.0038		0.0019				0.0007	0.0010	0.0008	0.0016
175	CVS2-41	0.0680	0.0480	0.0285		0.0000	0.0660	0.0180	0.1200	0.0030	0.0006	0.5100	0.0170				0.0052				0.0039		0.0019				0.0006	0.0011	0.0008	0.0016
176	CVS2-42	0.0490	0.0310	0.0930		0.0000	0.0660	0.0335	0.0660	0.0029	0.0006	0.5500	0.0170				0.0050				0.0037		0.0014				0.0006	0.0009	0.0007	0.0016
177	CVS2-43	0.1418	0.0209	0.0283		0.0000	0.0593	0.0266	0.0809	0.0030	0.0008	0.4870	0.0610				0.0005				0.0037		0.0039				0.0007	0.0012	0.0008	0.0016
178	CVS2-44	0.1050	0.0470	0.0190		0.0000	0.0650	0.0175	0.0530	0.0029	0.0005	0.4900	0.0160				0.0005				0.0004		0.0018				0.0006	0.0010	0.0008	0.0016
179	CVS2-45	0.1100	0.0190	0.0290		0.0000	0.0560	0.0445	0.0520	0.0065	0.0010	0.4700	0.0170				0.0012				0.0088		0.0030				0.0014	0.0022	0.0018	0.0038
180	CVS2-46	0.1225	0.0196	0.0194		0.0000	0.0632	0.0181	0.0927	0.0065	0.0010	0.5060	0.0150				0.0011				0.0081		0.0023				0.0014	0.0024	0.0017	0.0035
181	CVS2-47	0.0495	0.0490	0.0190		0.0000	0.0400	0.0175	0.1300	0.0065	0.0015	0.5200	0.0440				0.0015				0.0088		0.0041				0.0017	0.0020	0.0018	0.0038
182	CVS2-48	0.1300	0.0490	0.0190		0.0000	0.0380	0.0175	0.1100	0.0051	0.0010	0.4600	0.0170				0.0009				0.0069		0.0016				0.0011	0.0017	0.0014	0.0029
183	CVS2-49	0.1325	0.0191	0.0494		0.0000	0.0368	0.0176	0.1280	0.0031	0.0006	0.4800	0.0167				0.0005				0.0038		0.0018				0.0001	0.0113	0.0008	0.0016
184	CVS2-50	0.1150	0.0270	0.0535		0.0000	0.0370	0.0317	0.1100	0.0037	0.0007	0.4400	0.0370				0.0006				0.0051		0.0030				0.0008	0.0012	0.0001	0.0219
185	CVS2-51	0.0975	0.0099	0.0570		0.0000	0.0320	0.0072	0.1200	0.0059	0.0015	0.4600	0.0340				0.0022				0.0059		0.0021				0.0010	0.0016	0.0019	0.0019
186	CVS2-52	0.0875	0.0012	0.0755		0.0000	0.0830	0.0001	0.0680	0.0000	0.0020	0.5800	0.0390				0.0011				0.0075		0.0016				0.0013	0.0016	0.0015	0.0032
187	CVS2-53	0.0910	0.0018	0.0360		0.0000	0.0630	0.0440	0.0650	0.0077	0.0020	0.5000	0.0091				0.0013				0.0100		0.0020				0.0017	0.0022	0.0020	0.0043
188	CVS2-54	0.1100	0.0094	0.0660		0.0000	0.0390	0.0075	0.1000	0.0056	0.0010	0.5100	0.0350				0.0009				0.0062		0.0002				0.0013	0.0015	0.0015	0.0019
189	CVS2-55	0.1150	0.0069	0.0765		0.0000	0.0405	0.0071	0.1100	0.0000	0.0004	0.5200	0.0390				0.0000				0.0000		0.0000				0.0082	0.0000	0.0000	0.0030
190	CVS2-56	0.1100	0.0066	0.0760		0.0000	0.0405	0.0069	0.0940	0.0000	0.0004	0.5000	0.0370				0.0000				0.0000		0.0002				0.0066	0.0000	0.0066	0.0030
191	CVS2-57	0.1100	0.0067	0.0755		0.0000	0.0385	0.0068	0.1000	0.0000	0.0006	0.4900	0.0380				0.0000				0.0000		0.0000				0.0049	0.0000	0.0000	0.0030
192	CVS2-58	0.2050	0.0190	0.0210		0.0000	0.0715	0.0755	0.0670	0.0007	0.0004	0.3600	0.0086				0.0002				0.0012		0.0002				0.0002	0.0003	0.0003	0.0005
193	CVS2-59	0.1620	0.0331	0.0173		0.0000	0.0658	0.0008	0.1140	0.0029	0.0002	0.3980	0.0064		0.0000		0.0002				0.0018		0.0003			0.0002	0.0003	0.0003	0.0003	0.0006
194	CVS2-60																													
195	CVS2-61																													
196	CVS2-62																													
197	CVS2-63																													
198	CVS2-64																													
199	CVS2-65																													
200	CVS2-66																													
201	CVS2-67																													
202	CVS2-68																													
203	CVS2-69	0.0768	0.0059	0.0306		0.0000	0.0665	0.0030	0.0655	0.0003	0.0167	0.5240	0.0005		0.0000		0.0000				0.0008		0.0000			0.0000	0.0223	0.0000	0.0017	0.0011
204	CVS2-70	0.1335	0.0008	0.0064		0.0000	0.0623	0.0008	0.0746	0.0008	0.0007	0.4460	0.0006		0.0008		0.0000				0.0010		0.0010			0.0000	0.0106	0.0000	0.0015	0.0000
205	CVS2-71																													
206	CVS2-72																													
207	CVS2-73																													
208	CVS2-74	0.0751	0.0070	0.0293		0.0000	0.0638	0.0027	0.0623	0.0081	0.0020	0.5165	0.0008		0.0000		0.0015				0.0104		0.0021			0.0000	0.0019	0.0025	0.0022	0.0049
209	CVS2-75																													
210	CVS2-76																													
211	CVS2-77																													
212	CVS2-78																													
213	CVS2-79	0.1565	0.0046	0.0999		0.0000	0.0115	0.0044	0.0475	0.0085	0.0015	0.5240	0.0048		0.0000		0.0015				0.0107		0.0021			0.0000	0.0019	0.0024	0.0023	0.0048
214	CVS2-80																													
215	CVS2-81																													
216	CVS2-82																													
217	CVS2-83																													
218	CVS2-84																													
219	CVS2-85																													
220	CVS2-86																													
221	CVS2-87																													
222	CVS2-88																													
223	CVS2-89																													
224	CVS2-90																													
225	CVS2-91	0.1545	0.0044	0.0036		0.0000	0.0091	0.0342	0.0999	0.0081	0.0020	0.4895	0.0050		0.0000		0.0015				0.0102		0.0021			0.0000	0.0019	0.0024	0.0022	0.0048
226	CVS2-92																													
227	CVS2-93																													
228	CVS2-94																													
229	CVS2-95	0.1055	0.0107	0.0833		0.0000	0.0407	0.0140	0.1600	0.0055	0.0006	0.4630	0.0036		0.0000		0.0006				0.0042		0.0008			0.0001	0.0007	0.0008	0.0008	0.0017
230	CVS2-96	0.1120	0.0247	0.0527		0.0000	0.0347	0.0317	0.0994	0.0036	0.0007	0.4460	0.0398		0.0000		0.0007				0.0047		0.0010			0.0000	0.0009	0.0011	0.0010	0.0022
231	CVS2-97	0.0994	0.0098	0.0590		0.0000	0.0328	0.0078	0.1140	0.0060	0.0015	0.4850	0.0367		0.0000		0.0023				0.0060		0.0002			0.0004	0.0011	0.0015	0.0020	0.0019
232	CVS2-98	0.1645	0.0008	0.0172		0.0000	0.0333	0.0000	0.1840	0.0008	0.0002	0.3840	0.0001		0.0000		0.0002				0.0011		0.0003			0.0000	0.0003	0.0003	0.0003	0.0005
233	CVS2-99																													
234	CVS2-100																													
235	CVS2-101	0.1055	0.0100	0.0850		0.0000	0.0415	0.0155	0.1650	0.0054		0.4610	0.0043								0.0001					0.0001				
236	CVS2-102																													
237	CVS2-103																													
238	CVS2-104																													
239	CVS2-105																													
240	CVS2-106																													
241	CVS2-107																													
242	CVS2-108																													
243	CVS2-109																													
244	CVS2-110																													
245	CVS2-111																													
246	CVS2-112																													

#	Glass ID	Ga2O3-a	Gd2O3-a	I-a	La2O3-a	MnO2-a	MnO-a	MoO-a	MoO3-a	Nb2O5-a	Nd2O3-a	NpO2-a	PbO-a	PdO2-a	PdO-a	Pr2O3-a	Pr6O11-a	PuO2-a	Rb2O-a	ReO-a	ReO2-a	Re2O7-a	Rh2O3-a	RhO2-a	RuO2-a	Sb2O3-a	Sb2O5-a	SeO2-a
165	CVS2-31				0.0010	0.0004			0.0005		0.0021				0.0001		0.0002		0.0001				0.0001		0.0002			
166	CVS2-32				0.0010	0.0002			0.0005		0.0018				0.0001		0.0002		0.0001				0.0001		0.0003			
167	CVS2-33				0.0101	0.0024			0.0044		0.0210				0.0009		0.0018		0.0009				0.0009		0.0008			
168	CVS2-34				0.0011	0.0003			0.0005		0.0020				0.0009		0.0002		0.0009				0.0009		0.0002			
169	CVS2-35				0.0009	0.0001			0.0005		0.0019				0.0001		0.0002		0.0001				0.0001		0.0002			
170	CVS2-36				0.0009	0.0002			0.0005		0.0020				0.0001		0.0002		0.0001				0.0001		0.0001			
171	CVS2-37				0.0009	0.0003			0.0005		0.0017				0.0001		0.0002		0.0001				0.0001		0.0002			
172	CVS2-38				0.0010	0.0003			0.0005		0.0019				0.0001		0.0002		0.0001				0.0001		0.0001			
173	CVS2-39				0.0008	0.0002			0.0005		0.0017				0.0001		0.0002		0.0001				0.0001		0.0002			
174	CVS2-40				0.0029	0.0007			0.0014		0.0063				0.0003		0.0005		0.0003				0.0003		0.0005			
175	CVS2-41				0.0033	0.0007			0.0015		0.0069				0.0003		0.0005		0.0003				0.0003		0.0005			
176	CVS2-42				0.0030	0.0007			0.0014		0.0060				0.0003		0.0005		0.0003				0.0003		0.0004			
177	CVS2-43				0.0028	0.0008			0.0014		0.0060				0.0003		0.0005		0.0003				0.0003		0.0006			
178	CVS2-44				0.0029	0.0007			0.0014		0.0061				0.0003		0.0005		0.0003				0.0003		0.0005			
179	CVS2-45				0.0071	0.0017			0.0035		0.0145				0.0006		0.0013		0.0006				0.0006		0.0014			
180	CVS2-46				0.0066	0.0018			0.0034		0.0135				0.0006		0.0012		0.0006				0.0006		0.0008			
181	CVS2-47				0.0069	0.0018			0.0035		0.0145				0.0006		0.0013		0.0006				0.0006		0.0010			
182	CVS2-48				0.0057	0.0015			0.0029		0.0110				0.0005		0.0010		0.0005				0.0005		0.0015			
183	CVS2-49				0.0031	0.0009			0.0015		0.0062				0.0003		0.0005		0.0003				0.0003		0.0006			
184	CVS2-50				0.0038	0.0010			0.0021		0.0081				0.0004		0.0007		0.0004				0.0004		0.0006			
185	CVS2-51				0.0205	0.0021			0.0028		0.0065				0.0000		0.0019		0.0000				0.0000		0.0013			
186	CVS2-52				0.0061	0.0016			0.0032		0.0130				0.0005		0.0011		0.0005				0.0005		0.0016			
187	CVS2-53				0.0081	0.0021			0.0042		0.0000				0.0010		0.0014		0.0007				0.0007		0.0015			
188	CVS2-54				0.0140	0.0016			0.0030		0.0000				0.0000		0.0019		0.0000				0.0000		0.0010			
189	CVS2-55				0.0000	0.0250			0.0000		0.0170				0.0000		0.0000		0.0000				0.0000		0.0000			
190	CVS2-56				0.0000	0.0385			0.0000		0.0000				0.0000		0.0000		0.0000				0.0000		0.0000			
191	CVS2-57				0.0000	0.0000			0.0000		0.0505				0.0000		0.0000		0.0000				0.0000		0.0000			
192	CVS2-58				0.0010	0.0003			0.0005		0.0020				0.0001		0.0018		0.0001				0.0001		0.0002			
193	CVS2-59		0.0000		0.0010	0.0004	0.0000		0.0006		0.0020		0.0000		0.0001		0.0002		0.0001				0.0001		0.0003	0.0000		0.0000
194	CVS2-60																											
195	CVS2-61																											
196	CVS2-62																											
197	CVS2-63																											
198	CVS2-64																											
199	CVS2-65																											
200	CVS2-66																											
201	CVS2-67																											
202	CVS2-68																											
203	CVS2-69		0.0000		0.0000	0.0142	0.0000		0.0000		0.0013		0.0020		0.0014		0.0000		0.0000				0.0006		0.0006	0.0000		0.0036
204	CVS2-70		0.0000		0.0004	0.0033	0.0000		0.0000		0.0004		0.0000		0.0014		0.0000		0.0000				0.0007		0.0006	0.0005		0.0035
205	CVS2-71																											
206	CVS2-72																											
207	CVS2-73																											
208	CVS2-74		0.0000		0.0084	0.0022	0.0000		0.0044		0.0170		0.0000		0.0008		0.0016		0.0008				0.0008		0.0017	0.0000		0.0000
209	CVS2-75																											
210	CVS2-76																											
211	CVS2-77																											
212	CVS2-78																											
213	CVS2-79		0.0000		0.0086	0.0024	0.0000		0.0045		0.0174		0.0000		0.0008		0.0016		0.0008				0.0008		0.0017	0.0000		0.0000
214	CVS2-80																											
215	CVS2-81																											
216	CVS2-82																											
217	CVS2-83																											
218	CVS2-84																											
219	CVS2-85																											
220	CVS2-86																											
221	CVS2-87																											
222	CVS2-88																											
223	CVS2-89																											
224	CVS2-90																											
225	CVS2-91		0.0000		0.0083	0.0022	0.0000		0.0043		0.0167		0.0000		0.0008		0.0016		0.0008				0.0008		0.0018	0.0000		0.0000
226	CVS2-92																											
227	CVS2-93																											
228	CVS2-94																											
229	CVS2-95		0.0000		0.0035	0.0125	0.0000		0.0017		0.0069		0.0000		0.0003		0.0006		0.0003				0.0003		0.0008	0.0000		0.0000
230	CVS2-96		0.0000		0.0039	0.0011	0.0000		0.0020		0.0077		0.0000		0.0004		0.0007		0.0004				0.0004		0.0011	0.0000		0.0000
231	CVS2-97		0.0000		0.0196	0.0023	0.0000		0.0029		0.0066		0.0000		0.0000		0.0019		0.0000				0.0000		0.0010	0.0000		0.0000
232	CVS2-98		0.0000		0.0007	0.0003	0.0000		0.0005		0.0015		0.0000		0.0001		0.0002		0.0001				0.0001		0.0003	0.0000		0.0000
233	CVS2-99																											
234	CVS2-100																											
235	CVS2-101				0.0038	0.0153	0.0000																					
236	CVS2-102																											
237	CVS2-103																											
238	CVS2-104																											
239	CVS2-105																											
240	CVS2-106																											
241	CVS2-107																											
242	CVS2-108																											
243	CVS2-109																											
244	CVS2-110																											
245	CVS2-111																											
246	CVS2-112																											

#	Glass ID	Sm2O3-a	SnO-a	SnO2-a	SO3-a	SrO-a	Tc2O7-a	TeO2-a	ThO2-a	TiO2-a	Tl2O-a	Tl2O3-a	U3O8-a	UO2-a	UO3-a	V2O5-a	WO3-a	Y2O3-a	ZnO-a	Sum-a	T_M (°C)	$T_{L,G}$ (°C)	$T_{L,U}$ (°C)	$T_{1\%}$ (°C)	Primary Phase	$C_{650°C}$	$C_{700°C}$	$C_{750°C}$
165	CVS2-31	0.0001			0.0005	0.0002				0.0002								0.0001		1.0078		945			SiO2			
166	CVS2-32	0.0001			0.0005	0.0002				0.0003								0.0001		1.0336		1089			Na-Zr silicate			
167	CVS2-33	0.0009			0.0049	0.0017				0.0001								0.0008		0.9887		>1038			spinel			
168	CVS2-34	0.0009			0.0005	0.0002				0.0001								0.0000		0.9839		736			nepheline			
169	CVS2-35	0.0001			0.0005	0.0002				0.0001								0.0001		1.0112		961			nepheline			
170	CVS2-36	0.0001			0.0005	0.0002				0.0002								0.0001		1.0327		887			orthopyroxene			
171	CVS2-37	0.0001			0.0005	0.0002				0.0001								0.0001		1.0025		803			nepheline			
172	CVS2-38	0.0001			0.0005	0.0002				0.0002								0.0001		1.0041		>1115			spinel			
173	CVS2-39	0.0001			0.0005	0.0002				0.0002								0.0001		0.9741		1029			zircon			
174	CVS2-40	0.0003			0.0015	0.0001				0.0001								0.0001		0.9827		862			clinopyroxene			
175	CVS2-41	0.0003			0.0015	0.0006				0.0001								0.0002		1.0080		887			clinopyroxene			
176	CVS2-42	0.0003			0.0015	0.0005				0.0001								0.0002		0.9673		1093			spinel			
177	CVS2-43	0.0003			0.0015	0.0005				0.0003								0.0003		0.9852		1090			zircon			
178	CVS2-44	0.0003			0.0015	0.0005				0.0002								0.0002		0.8991		884			clinopyroxene			
179	CVS2-45	0.0006			0.0035	0.0012				0.0001								0.0006		0.9217		>956			spinel			
180	CVS2-46	0.0006			0.0032	0.0011				0.0002								0.0006		0.9912		1004			spinel			
181	CVS2-47	0.0006			0.0035	0.0012				0.0002								0.0006		0.9764		935			clinopyroxene			
182	CVS2-48	0.0005			0.0027	0.0009				0.0001								0.0003		0.9760		868			clinopyroxene			
183	CVS2-49	0.0003			0.0015	0.0005				0.0001								0.0003		0.9961		957			spinel			
184	CVS2-50	0.0004			0.0020	0.0007				0.0002								0.0004		0.9716		1025			spinel			
185	CVS2-51	0.0000			0.0044	0.0000				0.0011								0.0000	0.0043	0.9147		899			spinel			
186	CVS2-52	0.0005			0.0029	0.0011				0.0002								0.0005	0.0000	1.0130		>1038			spinel			
187	CVS2-53	0.0007			0.0039	0.0014				0.0001								0.0007	0.0000	0.9537								
188	CVS2-54	0.0000			0.0040	0.0000				0.0002								0.0000	0.0045	0.9602								
189	CVS2-55	0.0000			0.0030	0.0000				0.0002								0.0000	0.0000	0.9988		>1118			spinel			
190	CVS2-56	0.0000			0.0030	0.0000				0.0002								0.0000	0.0000	0.9554		1117			spinel			
191	CVS2-57	0.0000			0.0000	0.0000				0.0002								0.0000	0.0000	0.9496		1036			Cr2O3			
192	CVS2-58	0.0000			0.0005	0.0000				0.0001								0.0001	0.0000	0.9882		921			olivine			
193	CVS2-59	0.0001			0.0005	0.0002		0.0000	0.0000	0.0002				0.0000		0.0000		0.0001	0.0000	0.9154		715			SiO2			
194	CVS2-60																			0.0000		788			SiO2			
195	CVS2-61																			0.0000		792			SiO2			
196	CVS2-62																			0.0000								
197	CVS2-63																			0.0000		927			nepheline			
198	CVS2-64																			0.0000		983			spinel			
199	CVS2-65																			0.0000		1168			zircon			
200	CVS2-66																			0.0000		>1114			spinel			
201	CVS2-67																			0.0000		1022			Cr2O3			
202	CVS2-68																			0.0000		>1114			Cr2O3			
203	CVS2-69	0.0000			0.0069	0.0000		0.0000	0.0000	0.0003				0.0000		0.0000		0.0000	0.0000	0.9238		>1114			spinel			
204	CVS2-70	0.0000			0.0003	0.0000		0.0006	0.0000	0.0001				0.0000		0.0000		0.0000	0.0000	0.9199		>1114			Cr2O3			
205	CVS2-71																			0.0000		1004			spinel			
206	CVS2-72																			0.0000		>868			spinel			
207	CVS2-73																			0.0000		840			Li-Al silicate			
208	CVS2-74	0.0008			0.0045	0.0015		0.0000	0.0000	0.0002				0.0000		0.0000		0.0007	0.0000	0.9121		1066			spinel			
209	CVS2-75																			0.0000		826			Li-Al silicate			
210	CVS2-76																			0.0000		761			clinopyroxene			
211	CVS2-77																			0.0000		1090			Na-Zr silicate			
212	CVS2-78																			0.0000		1129			zircon			
213	CVS2-79	0.0008			0.0044	0.0015		0.0000	0.0000	0.0002				0.0000		0.0000		0.0007	0.0000	0.9550		>1154			spinel			
214	CVS2-80																			0.0000		1154			zircon			
215	CVS2-81																			0.0000		>1154			Li2SiO3			
216	CVS2-82																			0.0000		745			Li2SiO3			
217	CVS2-83																			0.0000		741			Li2SiO3			
218	CVS2-84																			0.0000		983			Na-Zr silicate			
219	CVS2-85																			0.0000		>1150			Li2SiO3			
220	CVS2-86																			0.0000		1015			nepheline			
221	CVS2-87																			0.0000								
222	CVS2-88																			0.0000		982			ZrO2			
223	CVS2-89																			0.0000		838			clinopyroxene			
224	CVS2-90																			0.0000		897			orthopyroxene			
225	CVS2-91	0.0008			0.0044	0.0014		0.0000	0.0000	0.0002				0.0000		0.0000		0.0007	0.0000	0.8986		>967			spinel			
226	CVS2-92																			0.0000		897			zircon			
227	CVS2-93																			0.0000		>983			spinel			
228	CVS2-94																			0.0000		663			Ca asilicate			
229	CVS2-95	0.0003			0.0015	0.0006		0.0000	0.0000	0.0065				0.0000		0.0000		0.0003	0.0000	0.9661		804			clinopyroxene			
230	CVS2-96	0.0004			0.0020	0.0007		0.0000	0.0000	0.0003				0.0000		0.0000		0.0003	0.0000	0.9378		1010			spinel			
231	CVS2-97	0.0000			0.0044	0.0000		0.0000	0.0000	0.0012				0.0000		0.0000		0.0000	0.0048	0.9406		887			spinel			
232	CVS2-98	0.0001			0.0005	0.0001		0.0000	0.0000	0.0001				0.0000		0.0000		0.0001	0.0000	0.9200		740			nepheline			
233	CVS2-99																			0.0000		988			spinel			
234	CVS2-100																			0.0000		1030			spinel			
235	CVS2-101									0.0064									0.0002	0.9531								
236	CVS2-102																			0.0000								
237	CVS2-103																			0.0000								
238	CVS2-104																			0.0000								
239	CVS2-105																			0.0000								
240	CVS2-106																			0.0000								
241	CVS2-107																			0.0000								
242	CVS2-108																			0.0000								
243	CVS2-109																			0.0000								
244	CVS2-110																			0.0000								
245	CVS2-111																			0.0000								
246	CVS2-112																			0.0000								

#	Glass ID	$C_{800°C}$	$C_{850°C}$	$C_{900°C}$	$C_{950°C}$	$C_{1000°C}$	$C_{1050°C}$	$C_{1100°C}$	$C_{1150°C}$	$C_{1200°C}$	Quenched Visual/OM	Quenched XRD	CCC XRD	ρ (g/cm³)	Fulc Visc A	Fulc Visc B	Fulc Visc To	Arrh Visc E	Arrh Visc F	T1 (°C)	V1 (Pa·s)
165	CVS2-31												none	2.495	-3.940	4316.8	462.0	-12.436	21051.0	1245.0	4.840
166	CVS2-32												none	2.721	-7.670	9122.3	214.8	-13.694	22476.2	1243.0	3.350
167	CVS2-33												15 vol% nepheline (NaAlSiO4), 2	2.698	-6.660	7114.0	191.8	-10.862	16559.9	1247.0	1.080
168	CVS2-34												none	2.519	-1.870	1173.6	671.7	-9.532	14492.6	1244.0	1.070
169	CVS2-35												10 vol% nepheline (NaAlSiO4), 7	2.638	-5.490	5647.3	284.0	-10.535	16480.3	1244.0	1.510
170	CVS2-36												5 vol% clinopyroxene, 2 vol% Li2	2.734	-5.930	5863.7	258.7	-10.605	16025.4	1246.0	1.010
171	CVS2-37												none	2.481	-4.800	6610.0	246.4	-9.785	17516.1	1244.0	6.200
172	CVS2-38												7 vol% spinel, 2 vol% krinovite (N	2.635	-5.260	6086.9	364.6	-12.266	21022.0	1247.0	5.140
173	CVS2-39												7 vol% Li2SiO3, 3 vol% Li2MgSi(	2.718	-7.060	6961.6	250.2	-12.658	18972.9	1196.0	1.330
174	CVS2-40												none	2.601	-5.750	6742.4	271.6	-11.406	18994.7	1247.0	3.240
175	CVS2-41												none	2.604	-5.400	6099.5	305.7	-11.340	18754.6	1246.0	2.970
176	CVS2-42												20 vol% clinopyroxene, 10-15 vol	2.689	-5.740	6416.9	288.4	-11.526	18851.2	1247.0	2.580
177	CVS2-43												none	2.626	-4.860	4564.4	430.5	-12.595	20073.0	1247.0	2.080
178	CVS2-44												none	2.569	-5.650	6415.6	290.0	-11.482	18930.0	1246.0	2.880
179	CVS2-45												9 vol% clinopyroxene	2.633	-5.460	5949.0	330.7	-11.907	19526.7	1248.0	2.750
180	CVS2-46												none	2.596	-4.810	4922.3	375.7	-11.304	18317.5	1248.0	2.250
181	CVS2-47												none	2.721	-5.900	6497.3	316.3	-12.505	20515.3	1248.0	2.900
182	CVS2-48												none	2.634	-5.060	4906.7	387.2	-11.875	18879.0	1248.0	1.900
183	CVS2-49												none	2.589	-4.990	5515.2	345.3	-11.360	18847.3	1247.0	3.090
184	CVS2-50												12 vol% clinopyroxene	2.681	-6.130	6769.1	289.7	-12.261	19948.8	1247.0	2.570
185	CVS2-51												none	2.701	-4.930	5280.8	383.5	-12.148	20101.8	1248.0	3.260
186	CVS2-52												none	2.639	-4.430	5054.4	390.3	-11.534	19605.5	1249.0	4.260
187	CVS2-53																				
188	CVS2-54																				
189	CVS2-55												none	2.680	-5.480	6007.6	329.2	-11.972	19671.7	1247.0	2.890
190	CVS2-56												none	2.673	-5.220	5672.7	343.3	-11.741	19312.1	1247.0	2.890
191	CVS2-57												none	2.700	-5.510	6014.2	338.9	-12.298	20241.1	1247.0	3.040
192	CVS2-58												none	2.539	-6.530	6403.6	253.6	-11.522	17290.4	1245.0	0.940
193	CVS2-59													2.535	-5.350	4588.7	313.5	-9.974	14406.5	1246.0	0.620
194	CVS2-60												none	2.523	-5.680	6413.8	184.2	-9.354	14688.7	1246.0	1.450
195	CVS2-61												none	2.491	-5.390	7522.9	203.8	-10.084	18004.5	1246.0	6.210
196	CVS2-62													2.493	-4.290	4595.1	452.5	-12.949	21732.8	1245.0	4.540
197	CVS2-63												15 vol% nepheline (NaAlSiO4)	2.576	-5.020	4410.8	400.5	-11.542	17687.4	1246.0	1.250
198	CVS2-64												unidentified	2.700	-7.140	9409.8	140.4	-11.541	19547.1	1249.0	3.870
199	CVS2-65												none	2.672	-7.470	8445.5	268.3	-14.489	23637.6	1246.0	3.210
200	CVS2-66												5 vol% spinel	2.526	-5.340	6683.9	253.2	-10.489	17948.2	1250.0	3.900
201	CVS2-67												none	2.424	-5.230	6894.5	221.2	-9.892	17214.0	1244.0	4.510
202	CVS2-68												8 vol% Li, Al silicate, 2 vol% eskc	2.445	-5.990	9991.5	18.1			(1250)	(8.54)
203	CVS2-69												3 vol% eskolaite (Cr2O3), 2 vol%	2.491	-6.070	8377.9	235.6			(1251)	(8.63)
204	CVS2-70												10 vol% Li, Al silicate, <1 vol% es	2.457	-6.890	10305.9	37.9	-9.807	17352.4	1253.0	4.870
205	CVS2-71												<3 vol% clinopyroxene(?), <1 vol	2.683	-7.340	9636.1	133.9	-11.709	19722.3	1250.0	3.560
206	CVS2-72													2.551	-5.860	7570.7	193.7	-10.349	17670.1	1249.0	3.690
207	CVS2-73													2.460	-5.880	7844.4	174.3	-10.158	17544.2	1248.0	4.120
208	CVS2-74												<5 vol% spinel	2.588	-5.110	6427.6	277.2	-10.586	18298.2	1251.0	4.420
209	CVS2-75													2.460	-5.340	6897.0	229.7	-10.126	17499.1	1249.0	4.130
210	CVS2-76												5 vol% Li2SiO3	2.669	-5.330	4925.2	254.6	-9.164	13296.0	1248.0	0.690
211	CVS2-77												<2 vol% cristobalite (SiO2), unide	2.790	-6.280	5333.9	356.4	-12.748	18792.4	1247.0	0.750
212	CVS2-78												22 vol% cristobalite (SiO2), 3 vol'	2.526	-7.050	10022.8	184.8	-12.385	22393.9	1250.0	10.910
213	CVS2-79												20 vol% cristobalite (SiO2), 5 vol'	2.548	-3.370	5588.2	418.2	-11.634	22619.4	(1252)	(14.46)
214	CVS2-80												15 vol% cristobalite (SiO2), 9 vol'	2.569	-3.970	4099.0	637.8	(-18.56)	(32185.898)	(1252)	(17.32)
215	CVS2-81												5 vol% spinel, 4 vol% Li2SiO3	2.742	-3.820	1666.9	667.5	-13.944	19495.3	1248.0	0.350
216	CVS2-82												4 vol% Li2SiO3	2.541	-2.990	2066.4	550.6	-10.280	15194.6	(1246)	(1.02)
217	CVS2-83												none	2.657	-5.510	3926.4	395.3	-11.175	15493.5	1246.0	0.390
218	CVS2-84												5 vol% Li2SiO3	2.755	-6.130	5274.8	313.3	-11.384	16472.1	1250.0	0.610
219	CVS2-85												33 vol% nepheline, 30 vol% Li2S	2.556	-6.990	8887.6	90.2	-10.291	16635.3	1247.0	1.990
220	CVS2-86												5 vol% nepheline	2.492	-5.330	7632.3	275.1	-11.328	20971.0	1249.0	12.140
221	CVS2-87													2.580	-6.860	9243.3	202.0	-12.563	22009.1	1248.0	7.260
222	CVS2-88													2.656	6.280	6455.0	295.6	-12.241	19255.7	1250.0	1.630
223	CVS2-89													2.754	-5.750	5167.8	387.3	-12.922	19876.7	1248.0	1.290
224	CVS2-90												5 vol% cristobalite (SiO2), <1 vol	2.572	-4.950	5090.7	334.6	-10.554	16883.6	1248.0	1.860
225	CVS2-91												<2 vol% unidentified, <1 vol% cris	2.527	-4.200	4818.3	447.8	-12.976	22294.8	1250.0	6.090
226	CVS2-92												<2 vol% unidentified	2.721	-6.340	5237.8	323.8	-11.846	16872.3	1247.0	0.510
227	CVS2-93												<4 vol% spinel	2.752	-6.170	5113.2	255.8	-10.162	13835.4	1247.0	0.360
228	CVS2-94												none	2.588	-4.780	3417.0	401.2	-9.278	12906.3	1197.0	0.610
229	CVS2-95												none	2.649	-4.210	3305.0	443.2	-10.066	15022.5	1251.0	0.890
230	CVS2-96												15 vol% clinopyroxene	2.667	-5.390	5539.1	370.7	-12.531	20302.5	1250.0	2.510
231	CVS2-97												none		-5.720	6451.3	312.1	-12.122	20096.6	1250.0	3.160
232	CVS2-98												none	2.513	-4.750	4415.1	330.9	-9.549	14519.7	1246.0	1.080
233	CVS2-99													2.632	-5.400	6369.7	305.3	-11.593	19571.6	1247.0	3.930
234	CVS2-100												3 vol% orthopyroxene, 2 vol% sp	2.714	-5.330	5934.9	332.1	-11.813	19573.0	1247.0	3.190
235	CVS2-101													2.660	-5.260	4730.5	315.6	-10.009	14846.3	1251.0	0.810
236	CVS2-102													2.675							
237	CVS2-103													2.778							
238	CVS2-104													2.752							
239	CVS2-105													2.725							
240	CVS2-106													2.588							
241	CVS2-107													2.699							
242	CVS2-108													2.661							
243	CVS2-109													2.630							
244	CVS2-110													2.618							
245	CVS2-111													2.703							
246	CVS2-112													2.713							

#	Glass ID	T2 (°C)	V2 (Pa·s)	T3 (°C)	V3 (Pa·s)	T4 (°C)	V4 (Pa·s)	T5 (°C)	V5 (Pa·s)	T6 (°C)	V6 (Pa·s)	T7 (°C)	V7 (Pa·s)	T8 (°C)	V8 (Pa·s)	T9 (°C)	V9 (Pa·s)	T10 (°C)	V10 (Pa·s)	TCLP Ag	TCLP As	TCLP Ba	TCLP Cd	TCLP Cr	TCLP Ni	TCLP Pb
165	CVS2-31	1195	6.820	1146	10.5	1146.0	10.8	1146.0	11.1	1096.0	17.6	1096.0	17.8	1047.0	30.0	996.0	64.2	947.0	141.9							
166	CVS2-32	1193	5.270	1142	8.6	1143.0	8.7	1143.0	8.8	1093.0	15.1	1092.0	15.7	1043.0	28.2	994.0	57.5	943.0	128.6							
167	CVS2-33	1198	1.520	1148	2.1	1149.0	2.2	1148.0	2.2	1099.0	3.2	1098.0	3.3	1048.0	5.2	999.0	8.7	948.0	15.5							
168	CVS2-34	1195	1.440	1146	2.0	1145.0	2.0	1145.0	2.0	1097.0	2.8	1095.0	2.8	1046.0	4.1	996.0	6.6	945.0	11.3							
169	CVS2-35	1193	2.040	1144	2.9	1144.0	3.0	1143.0	3.0	1094.0	4.4	1093.0	4.5	1043.0	7.1	993.0	12.1	943.0	21.7							
170	CVS2-36	1196	1.380	1145	2.0	1146.0	2.0	1145.0	2.0	1096.0	2.9	1095.0	2.9	1045.0	4.7	995.0	7.5	945.0	13.7							
171	CVS2-37	1195	8.700	1146	12.4	1146.0	12.7	1146.0	13.1	1097.0	19.5	1095.0	20.1	1046.0	31.8	997.0	54.7	947.0	103.0							
172	CVS2-38	1197	7.750	1147	12.2	1147.0	12.4	1147.0	12.4	1096.0	21.2	1097.0	21.3	1047.0	38.8	998.0	77.1	1097.0	21.3							
173	CVS2-39	1147	2.020	1143	2.1	1145.0	2.1	1097.0	3.2	1095.0	3.3	1047.0	5.5	994.0	9.6	944.0	20.0									
174	CVS2-40	1197	4.720	1148	6.8	1147.0	6.8	1147.0	7.2	1098.0	11.2	1097.0	11.4	1048.0	18.8	998.0	35.1	947.0	68.1							
175	CVS2-41	1197	4.160	1147	6.3	1147.0	6.4	1147.0	6.5	1098.0	10.0	1097.0	10.2	1047.0	16.8	998.0	29.6	947.0	61.7							
176	CVS2-42	1197	3.680	1147	5.7	1148.0	5.7	1147.0	5.8	1098.0	8.9	1096.0	9.1	1047.0	15.0	998.0	26.7	948.0	54.5							
177	CVS2-43	1197	2.940	1147	4.6	1148.0	4.6	1147.0	4.7	1097.0	7.2	1097.0	7.3	1047.0	12.4	997.0	25.2	947.0	53.3							
178	CVS2-44	1197	4.120	1147	6.2	1148.0	6.2	1147.0	6.3	1098.0	9.8	1097.0	10.0	1047.0	16.6	998.0	30.4	948.0	60.0							
179	CVS2-45	1198	4.090	1148	6.1	1149.0	6.1	1149.0	6.3	1100.0	9.6	1098.0	9.7	1049.0	16.4	998.0	32.6	948.0	64.2							
180	CVS2-46	1199	3.270	1148	4.8	1150.0	4.8	1148.0	4.9	1100.0	7.2	1097.0	7.3	1048.0	12.3	998.0	22.4	948.0	44.4							
181	CVS2-47	1198	4.320	1148	6.6	1148.0	6.8	1149.0	7.1	1098.0	11.0	1100.0	11.0	1048.0	19.3	999.0	37.3	948.0	80.6							
182	CVS2-48	1198	2.690	1148	3.9	1149.0	4.0	1148.0	4.1	1099.0	6.2	1098.0	6.3	1048.0	10.5	999.0	19.6	948.0	39.7							
183	CVS2-49	1198	4.350	1147	6.6	1147.0	6.7	1147.0	6.7	1098.0	10.3	1098.0	10.5	1048.0	17.6	998.0	31.3	948.0	64.9							
184	CVS2-50	1197	3.780	1147	5.9	1147.0	5.9	1147.0	6.0	1098.0	9.5	1096.0	9.6	1047.0	16.5	998.0	31.3	948.0	63.5							
185	CVS2-51	1198	4.750	1149	7.0	1149.0	7.0	1148.0	7.3	1099.0	11.6	1099.0	11.7	1048.0	20.0	999.0	39.6	948.0	82.2							
186	CVS2-52	1198	6.230	1148	9.2	1149.0	9.4	1149.0	9.6	1099.0	14.7	1098.0	14.8	1048.0	25.9	999.0	48.6	949.0	100.7							
187	CVS2-53																									
188	CVS2-54																									
189	CVS2-55	1197	4.180	1147	6.4	1147.0	6.5	1147.0	6.5	1097.0	10.4	1096.0	10.6	1046.0	17.8	997.0	33.9	946.0	70.3							
190	CVS2-56	1197	4.120	1146	6.2	1147.0	6.3	1147.0	6.4	1097.0	10.1	1096.0	10.1	1047.0	17.1	996.0	32.5	946.0	65.9							
191	CVS2-57	1197	4.490	1147	6.9	1147.0	7.0	1147.0	7.0	1097.0	11.3	1096.0	11.4	1046.0	19.9	996.0	38.6	945.0	82.6							
192	CVS2-58	1195	1.310	1146	1.9	1146.0	1.9	1146.0	1.9	1097.0	2.9	1096.0	3.0	1046.0	4.8	997.0	8.1	946.0	15.3							
193	CVS2-59	1196	0.890	1147	1.2	1147.0	1.2	1147.0	1.2	1098.0	1.6	1097.0	1.7	1048.0	2.4	998.0	3.8	947.0	6.8							
194	CVS2-60	1196	1.920	1147	2.6	1147.0	2.6	1147.0	2.7	1098.0	3.8	1098.0	3.9	1048.0	5.7	998.0	9.1	947.0	15.2							
195	CVS2-61	1197	8.780	1148	13.1	1147.0	13.1	1147.0	13.6	1098.0	20.4	1097.0	20.6	1047.0	33.6	998.0	60.1	948.0	111.0							
196	CVS2-62	1195	6.700	1147	9.8	1147.0	10.4	1146.0	10.6	1097.0	17.0	1097.0	17.1	1047.0	30.7	997.0	65.3	946.0	149.7							
197	CVS2-63	1197	1.650	1147	2.4	1147.0	2.4	1147.0	2.5	1098.0	3.7	1097.0	3.8	1047.0	6.1	998.0	10.9	947.0	20.9							
198	CVS2-64	1199	5.790	1149	8.9	1149.0	8.9	1149.0	9.0	1100.0	14.6	1099.0	14.8	1049.0	24.8	999.0	45.7	948.0	91.6							
199	CVS2-65	1196	5.060	1146	8.5	1146.0	8.6	1146.0	8.7	1096.0	15.1	1096.0	15.3	1046.0	29.6	996.0	62.6	945.0	149.1							
200	CVS2-66	1200	5.550	1150	8.1	1150.0	8.3	1150.0	8.4	1100.0	12.7	1100.0	12.9	1050.0	20.7	1000.0	37.3	949.0	70.7							
201	CVS2-67	1195	6.370	1146	9.2	1146.0	9.3	1146.0	9.4	1096.0	14.2	1096.0	14.3	1046.0	22.4	996.0	39.4	946.0	72.6							
202	CVS2-68	(1201)	(11.39)	(1151)	(16.13)	(1150)	(17.68)	(1151)	(17.83)	(1101)	(23.9)	(1101)	(24.29)	(1051)	(39.77)	(1000)	(74.27)	(950)	(106.71)							
203	CVS2-69	(1201)	(13.6)	(1151)	(19.77)	(1150)	(21.97)	(1151)	(22.56)	(1101)	(36.91)	(1101)	(36.91)	(1051)	(66.83)	(1000)	(105.67)									
204	CVS2-70	1204	7.390	1154	10.0	1153.0	10.3	1154.0	10.5	1105.0	16.0	1104.0	16.2	1053.0	27.2	1003.0	43.5	953.0	79.6							
205	CVS2-71	1200	5.490	1150	8.3	1150.0	8.6	1150.0	8.8	1100.0	13.9	1100.0	13.9	1050.0	23.4	1000.0	43.3	950.0	88.0							
206	CVS2-72	1200	5.280	1150	7.7	1150.0	7.8	1150.0	8.0	1101.0	11.9	1100.0	12.2	1050.0	19.3	1000.0	34.4	950.0	63.4							
207	CVS2-73	1199	5.980	1149	8.7	1149.0	8.8	1149.0	8.8	1100.0	13.4	1098.0	13.6	1049.0	21.5	999.0	38.4	949.0	69.7							
208	CVS2-74	1201	6.390	1151	9.3	1151.0	9.5	1151.0	9.7	1102.0	14.7	1101.0	14.7	1050.0	24.3	1001.0	44.2	950.0	85.0							
209	CVS2-75	1200	5.930	1150	8.5	1150.0	8.7	1150.0	8.9	1100.0	13.2	1100.0	13.4	1050.0	21.3	1000.0	37.2	950.0	69.7							
210	CVS2-76	1198	0.880	1148	1.2	1148.0	1.2	1148.0	1.2	1098.0	1.7	1098.0	1.7	1048.0	2.5	999.0	3.4	947.0	6.1							
211	CVS2-77	1199	1.040	1150	1.5	1148.0	1.6	1149.0	1.6	1099.0	2.4	1100.0	2.5	1049.0	4.1	999.0	7.7	948.0	15.3							
212	CVS2-78	1200	16.790	1149	26.9	1149.0	27.3	1150.0	28.3	1099.0	47.6	1100.0	54.9	1050.0	97.6	999.0	187.6									
213	CVS2-79	(1152)	(32.87)	(1203)	(34.75)	1151.0	69.7	1151.0	71.6	1101.0	121.3	1102.0	124.2	(1002)	(199.92)	1051.0	235.8									
214	CVS2-80	1200	27.620	1150	54.8	1150.0	57.9	(1149)	(110.88)	1101.0	128.2	1100.0	136.9													
215	CVS2-81	1198	0.540	1150	0.7	1149.0	0.7	1149.0	0.8	(1099)	(0.99)	(1099)	(1)	(1050)	(1.4)	1000.0	3.9	949.0	7.9							
216	CVS2-82	(1196)	(1.26)	1146	1.5	1146.0	1.5	1147.0	1.6	1098.0	2.2	1097.0	2.3	1047.0	3.3	997.0	5.3	946.0	9.2							
217	CVS2-83	1196	0.560	1147	0.8	1148.0	0.8	1148.0	0.8	1097.0	1.1	1098.0	1.1	1048.0	1.6	999.0	2.8	948.0	5.0							
218	CVS2-84	1201	0.820	1152	1.2	1152.0	1.2	1152.0	1.2	1101.0	1.8	1102.0	1.8	1051.0	2.7	1002.0	4.6	951.0	8.6							
219	CVS2-85	1198	2.790	1148	4.1	1148.0	4.1	1148.0	4.2	1099.0	6.2	1098.0	6.2	1049.0	9.7	999.0	16.2	948.0	29.1							
220	CVS2-86	1199	18.490	1150	29.8	1150.0	30.2	1149.0	30.8	1100.0	49.9	1100.0	50.2	1049.0	90.3	999.0	185.8									
221	CVS2-87	1198	11.130	1149	17.9	1150.0	18.0	1150.0	18.1	1100.0	30.9	1100.0	31.4	1050.0	56.6	999.0	114.0	949.0	247.7							
222	CVS2-88	1200	2.320	1152	3.5	1151.0	3.5	1150.0	3.6	1102.0	5.6	1102.0	5.6	1052.0	9.5	1001.0	17.7	951.0	35.3							
223	CVS2-89	1199	1.850	1149	2.8	1149.0	2.8	1149.0	2.8	1099.0	4.5	1100.0	4.5	1049.0	7.9	999.0	14.7	949.0	31.5							
224	CVS2-90	1199	2.580	1149	3.6	1149.0	3.7	1149.0	3.7	1099.0	5.5	1100.0	5.5	1049.0	8.8	999.0	15.1	948.0	28.5							
225	CVS2-91	1200	9.140	1150	13.9	1150.0	14.3	1150.0	14.8	1100.0	23.9	1100.0	23.9	1049.0	44.3	1000.0	97.2	949.0	219.9							
226	CVS2-92	1197	0.700	1149	1.0	1148.0	1.0	1148.0	1.0	1099.0	1.5	1099.0	1.5	1049.0	2.4	999.0	4.1	949.0	7.7							
227	CVS2-93	1198	0.480	1148	0.6	1148.0	0.6	1148.0	0.7	1099.0	0.9	1099.0	0.9	1049.0	1.3	999.0	2.0	949.0	3.4							
228	CVS2-94	1148	0.810	1148	0.8	1099.0	1.1	1098.0	1.2	1048.0	1.6															
229	CVS2-95	1202	1.180	1152	1.6	1152.0	1.6	1152.0	1.6	1102.0	2.3	1102.0	2.3	1051.0	3.4	1002.0	5.6	951.0	10.0							
230	CVS2-96	1199	3.600	1150	5.5	1149.0	5.6	1149.0	5.6	1099.0	9.1	1100.0	9.2	1049.0	15.9	999.0	31.2	948.0	66.2							
231	CVS2-97	1200	4.720	1151	7.1	1151.0	7.2	1150.0	7.5	1101.0	11.5	1100.0	11.7	1051.0	20.0	1001.0	39.3	950.0	80.5							
232	CVS2-98	1196	1.430	1146	1.9	1147.0	2.0	1147.0	2.0	1098.0	2.7	1096.0	2.8	1047.0	4.2	997.0	6.5	947.0	11.2							
233	CVS2-99	1198	5.670	1148	8.7	1146.0	8.8	1146.0	8.8	1098.0	14.1	1096.0	14.3	1045.0	24.5	997.0	45.7	946.0	93.9							
234	CVS2-100	1197	4.610	1147	6.9	1148.0	7.0	1145.0	7.3	1098.0	11.2	1097.0	11.3	1047.0	19.1	998.0	36.9	947.0	74.4							
235	CVS2-101	1202	1.090	1153	1.5	1152.0	1.5	1152.0	1.5	1103.0	2.1	1103.0	2.1	1053.0	3.2	1002.0	5.1	952.0	8.8							
236	CVS2-102																									
237	CVS2-103																									
238	CVS2-104																									
239	CVS2-105																									
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241	CVS2-107																									
242	CVS2-108																									
243	CVS2-109																									
244	CVS2-110																									
245	CVS2-111																									
246	CVS2-112																									

#	Glass ID	TCLP Se	TCLP Zn	TCLP Al	TCLP B	TCLP Sb	TCLP Tl	TCLP V	Q PCT B (g/m²)	Q PCT Li (g/m²)	Q PCT Na (g/m²)	Q PCT Si (g/m²)	Q PCT pH	CCC PCT B (g/m²)	CCC PCT Li (g/m²)	CCC PCT Na (g/m²)	CCC PCT Si (g/m²)	CCC PCT pH	T1 (°C)
165	CVS2-31								0.411	0.460	0.318	0.121	9.540	0.584	0.682	0.539	0.172	9.600	
166	CVS2-32								9.646	5.527	5.896	2.747	12.310	7.588	6.231	5.660	2.924	12.160	
167	CVS2-33								1.723	1.438	1.608	0.516	11.940	11.526	5.908	7.412	1.526	12.500	
168	CVS2-34								4.340	3.468	2.700	0.265	11.550	4.520	3.497	2.594	0.280	11.420	
169	CVS2-35								0.320	0.580	0.910	0.204	11.900	25.048	9.283	11.742	2.160	12.600	
170	CVS2-36								0.480	0.630	0.654	0.276	11.340	0.354	0.568	0.431	0.223	11.400	
171	CVS2-37								0.246	0.300	0.177	0.206	10.450	0.230	0.320	0.177	0.236	10.350	
172	CVS2-38								1.119	0.726	0.807	0.280	9.560	0.725	0.602	0.574	0.270	9.840	
173	CVS2-39								12.701	6.528	7.668	1.612	12.500	15.386	5.046	8.312	1.634	12.360	
174	CVS2-40								0.337	0.328	0.399	0.172	11.130	0.317	0.347	0.364	0.171	11.120	
175	CVS2-41								0.177	0.260	0.188	0.104	10.890	0.199	0.307	0.199	0.124	10.910	
176	CVS2-42								1.694	1.220	1.337	0.574	11.190	6.109	4.301	3.763	2.259	11.450	
177	CVS2-43								0.767	0.697	0.451	0.196	9.970	0.697	0.593	0.445	0.198	9.880	
178	CVS2-44								0.255	0.294	0.194	0.128	10.310	0.388	0.323	0.310	0.174	10.400	
179	CVS2-45								0.500	0.478	0.374	0.186	10.050	0.397	0.439	0.240	0.169	9.970	
180	CVS2-46								0.317	0.346	0.188	0.148	10.190	0.294	0.307	0.199	0.146	10.090	
181	CVS2-47								1.159	1.124	1.055	0.434	11.390	1.286	0.902	0.945	0.478	11.400	
182	CVS2-48								0.307	0.318	0.284	0.102	10.090	0.229	0.309	0.258	0.114	10.090	
183	CVS2-49								0.303	0.334	0.217	0.136	9.970	0.206	0.279	0.204	0.141	9.910	
184	CVS2-50								0.442	0.426	0.368	0.150	10.230	0.563	0.486	0.376	0.158	10.270	
185	CVS2-51								1.764	1.496	1.283	0.411	10.300	1.442	1.067	0.997	0.359	10.230	
186	CVS2-52								0.557	0.554	0.260	0.294	10.160	0.551	0.478	0.270	0.285	10.080	
187	CVS2-53								0.304	0.305	0.202	0.176	10.020						
188	CVS2-54								2.761	1.715	1.612	0.571	10.230						
189	CVS2-55								1.342	1.127	0.880	0.352	10.190	0.930	0.894	0.728	0.373	10.080	
190	CVS2-56								1.419	1.218	0.946	0.368	10.200	1.212	1.193	1.027	0.461	10.210	
191	CVS2-57								1.164	1.081	0.842	0.346	10.260	0.828	0.778	0.657	0.281	9.910	
192	CVS2-58								0.778	0.636	0.620	0.138	9.870	0.820	0.829	0.768	0.156	9.810	
193	CVS2-59								1.591	1.287	1.222	0.268	11.470	1.591	1.390	1.116	0.268	11.520	
194	CVS2-60								1.624	1.158	1.523	0.415	11.960	1.542	1.621	1.457	0.577	11.990	
195	CVS2-61								0.222	0.280	0.230	0.195	10.890	0.232	0.354	0.225	0.223	10.830	
196	CVS2-62								1.002	0.862	0.928	0.268	9.560	1.093	1.034	0.958	0.287	9.540	
197	CVS2-63								0.332	0.222	0.390	0.079	10.590	3.652	3.584	2.163	0.102	10.290	
198	CVS2-64								0.379	0.376	0.342	0.234	10.620	0.354	0.419	0.297	0.242	10.790	
199	CVS2-65								0.335	0.355	0.200	0.148	10.620	0.356	0.417	0.204	0.156	10.720	
200	CVS2-66								0.210	0.247	0.223	0.164	10.540	0.210	0.267	0.195	0.019	10.390	
201	CVS2-67								0.512	0.480	0.214	0.230	9.730	0.446	0.480	0.205	0.232	9.630	
202	CVS2-68								0.308	0.340	0.127	0.254	9.840	11.320	7.153	2.934	0.663	9.940	
203	CVS2-69								0.226	0.302	0.112	0.186	10.180	0.391	0.317	0.406	0.223	10.170	
204	CVS2-70								0.312	0.381	0.128	0.286	9.890	13.152	8.138	3.643	0.500	9.860	
205	CVS2-71								0.411	0.427	0.350	0.244	10.780	0.370	0.444	0.318	0.223	10.800	
206	CVS2-72								0.210	0.226	0.228	0.153	10.480	0.193	0.278	0.218	0.171	10.540	
207	CVS2-73								0.244	0.301	0.074	0.179	9.960	2.658	1.869	0.680	0.293	10.100	
208	CVS2-74								0.226	0.279	0.147	0.163	10.410	0.247	0.302	0.152	0.194	10.300	
209	CVS2-75								0.278	0.334	0.100	0.220	9.880	2.426	1.619	0.704	0.274	9.960	
210	CVS2-76								14.871	7.571	12.541	4.045	12.460	13.130	6.550	9.546	4.024	12.270	
211	CVS2-77								9.512	6.221	6.552	2.290	12.260	8.039	41.475	4.155	1.785	12.210	
212	CVS2-78								0.934	0.698	0.593	0.191	9.210	19.092	22.013	14.825	0.248	9.290	
213	CVS2-79								0.744	0.684	0.660	0.190	8.960	40.193	43.544	38.275	1.638	8.840	
214	CVS2-80								0.764	0.672	0.600	0.195	9.150	25.774	29.631	21.159	0.349	9.280	
215	CVS2-81								16.613	8.064	12.824	3.036	12.510	20.351	4.270	15.136	2.160	12.580	
216	CVS2-82								44.000	19.969	35.377	16.884	12.180	50.093	20.123	37.436	21.558	12.090	
217	CVS2-83								34.656	19.228	27.890	11.447	12.330	29.247	18.613	21.751	7.566	12.430	
218	CVS2-84								12.460	6.682	8.236	0.493	12.420	20.364	8.848	12.728	3.287	12.480	
219	CVS2-85								0.456	0.422	0.749	0.291	11.680	45.552	6.605	18.344	0.364	12.360	
220	CVS2-86								0.115	0.091	0.254	0.082	10.980	0.268	0.269	0.299	0.105	11.040	
221	CVS2-87								0.178	0.131	0.286	0.114	10.900	0.161	0.185	0.261	0.142	10.770	
222	CVS2-88								0.308	0.376	0.473	0.162	11.520	0.340	0.484	0.463	0.173	11.660	
223	CVS2-89								1.716	1.236	1.348	0.364	11.040	1.194	0.978	1.048	0.267	10.250	
224	CVS2-90								5.577	3.764	3.481	0.716	9.980	6.129	4.670	3.916	0.763	9.960	
225	CVS2-91								8.642	6.774	6.738	0.468	9.380	8.240	6.667	6.418	0.515	9.730	
226	CVS2-92								18.590	12.442	11.792	1.214	11.120	16.077	12.750	10.377	1.870	11.080	
227	CVS2-93								13.227	7.757	10.010	1.967	11.760	14.430	9.524	12.118	1.020	11.800	
228	CVS2-94								4.070	3.066	3.350	0.935	11.840	3.195	3.700	3.594	1.020	11.890	
229	CVS2-95								9.976	4.271	7.259	2.008	11.810	8.718	5.168	7.727	2.236	11.830	
230	CVS2-96								0.493	0.429	0.410	0.159	10.240	0.662	0.486	0.349	0.145	10.110	
231	CVS2-97								1.434	1.052	1.134	0.391	10.250	1.105	1.182	1.158	0.401	10.290	
232	CVS2-98								4.520	3.497	2.796	0.267	11.580	2.970	3.730	2.763	0.282	11.620	
233	CVS2-99								0.232	0.246	0.199	0.131	10.100	0.183	0.254	0.199	0.117	9.730	
234	CVS2-100								0.326	0.343	0.226	0.170	10.340	0.326	0.386	0.269	0.206	10.410	
235	CVS2-101								8.644	3.831	6.586	1.819	11.920	9.590	5.049	8.144	2.333	11.840	
236	CVS2-102								2.672	1.921	1.677	0.559	10.275	2.638	1.880	1.722	0.536	10.300	
237	CVS2-103								6.073	4.066	4.082	0.691	11.610	5.901	4.397	4.250	0.780	11.490	
238	CVS2-104								5.548	3.633	3.668	0.712	11.290	6.435	4.523	4.141	0.805	11.200	
239	CVS2-105								4.590	3.132	2.974	0.687	10.815	3.539	3.020	2.743	0.656	10.665	
240	CVS2-106								1.651	1.348	1.165	0.447	10.175	1.330	1.102	0.936	0.393	10.025	
241	CVS2-107								0.788	0.662	0.620	0.348	10.680	0.660	0.484	0.449	0.260	10.500	
242	CVS2-108								2.144	1.646	1.387	0.357	9.790	2.190	1.783	1.485	0.370	9.800	
243	CVS2-109								5.707	4.494	3.584	0.313	9.535	4.331	3.868	3.032	0.331	9.400	
244	CVS2-110								0.314	0.402	0.118	0.160	9.610	2.635	2.239	1.557	0.236	9.800	
245	CVS2-111								6.135	3.894	4.043	1.199	11.345	4.638	4.570	4.648	1.329	11.200	
246	CVS2-112								14.400	7.794	9.603	0.454	12.035	15.325	7.945	9.908	0.454	12.050	

#	Glass ID	EC1 (S/cm)	T2 (°C)	EC2 (S/cm)	T3 (°C)	EC3 (S/cm)	T4 (°C)	EC4 (S/cm)	T5 (°C)	EC5 (S/cm)	T6 (°C)	EC6 (S/cm)	A	B	To
165	CVS2-31														
166	CVS2-32														
167	CVS2-33														
168	CVS2-34														
169	CVS2-35														
170	CVS2-36														
171	CVS2-37														
172	CVS2-38														
173	CVS2-39														
174	CVS2-40														
175	CVS2-41														
176	CVS2-42														
177	CVS2-43														
178	CVS2-44														
179	CVS2-45														
180	CVS2-46														
181	CVS2-47														
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184	CVS2-50														
185	CVS2-51														
186	CVS2-52														
187	CVS2-53														
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191	CVS2-57														
192	CVS2-58														
193	CVS2-59														
194	CVS2-60														
195	CVS2-61														
196	CVS2-62														
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201	CVS2-67														
202	CVS2-68														
203	CVS2-69														
204	CVS2-70														
205	CVS2-71														
206	CVS2-72														
207	CVS2-73														
208	CVS2-74														
209	CVS2-75														
210	CVS2-76														
211	CVS2-77														
212	CVS2-78														
213	CVS2-79														
214	CVS2-80														
215	CVS2-81														
216	CVS2-82														
217	CVS2-83														
218	CVS2-84														
219	CVS2-85														
220	CVS2-86														
221	CVS2-87														
222	CVS2-88														
223	CVS2-89														
224	CVS2-90														
225	CVS2-91														
226	CVS2-92														
227	CVS2-93														
228	CVS2-94														
229	CVS2-95														
230	CVS2-96														
231	CVS2-97														
232	CVS2-98														
233	CVS2-99														
234	CVS2-100														
235	CVS2-101														
236	CVS2-102														
237	CVS2-103														
238	CVS2-104														
239	CVS2-105														
240	CVS2-106														
241	CVS2-107														
242	CVS2-108														
243	CVS2-109														
244	CVS2-110														
245	CVS2-111														
246	CVS2-112														

#	Glass ID	Study	Reference	Al2O3-t	B2O3-t	CaO-t	Fe2O3-t	FeO-t	K2O-t	Li2O-t	MgO-t	Na2O-t	NiO-t	P2O5-t	SiO2-t	ZrO2-t	Ag2O-t	As2O3-t	As2O5-t	BaO-t	BeO-t	Bi2O3-t	Br-t	CdO-t	Ce2O3-t	CeO2-t	Cl-t
247	CVS2-113	Hanford CVS 2	Hrma et al. 1994	0.0238	0.1083	0.0085	0.0740		0.0000	0.0100	0.0086	0.1157	0.0063	0.0011	0.5506	0.0396	0.0000	0.0000		0.0011		0.0000		0.0082		0.0016	
248	CVS2-114	Hanford CVS 2	Hrma et al. 1994	0.0226	0.1028	0.0081	0.0702		0.0000	0.0600	0.0082	0.1099	0.0060	0.0010	0.5228	0.0376	0.0000	0.0000		0.0010		0.0000		0.0078		0.0016	
249	CVS2-115	Hanford CVS 2	Hrma et al. 1994	0.0223	0.1017	0.0080	0.0695		0.0000	0.0700	0.0081	0.1087	0.0059	0.0010	0.5172	0.0372	0.0000	0.0000		0.0010		0.0000		0.0077		0.0015	
250	CVS2-116	Hanford CVS 2	Hrma et al. 1994	0.0228	0.1041	0.0200	0.0711		0.0000	0.0371	0.0083	0.1112	0.0060	0.0010	0.5290	0.0381	0.0000	0.0000		0.0010		0.0000		0.0079		0.0016	
251	CVS2-117	Hanford CVS 2	Hrma et al. 1994	0.0233	0.1062	0.0084	0.0725		0.0000	0.0378	0.0000	0.1135	0.0061	0.0011	0.5398	0.0388	0.0000	0.0000		0.0011		0.0000		0.0080		0.0016	
252	CVS2-118	Hanford CVS 2	Hrma et al. 1994	0.0228	0.1041	0.0082	0.0711		0.0000	0.0371	0.0200	0.1112	0.0060	0.0010	0.5290	0.0381	0.0000	0.0000		0.0010		0.0000		0.0079		0.0016	
253	CVS2-119	Hanford CVS 2	Hrma et al. 1994	0.0000	0.1078	0.0085	0.0736		0.0000	0.0384	0.0086	0.1152	0.0062	0.0011	0.5480	0.0394	0.0000	0.0000		0.0011		0.0000		0.0081		0.0016	
254	CVS2-120	Hanford CVS 2	Hrma et al. 1994	0.0500	0.1024	0.0081	0.0699		0.0000	0.0365	0.0082	0.1094	0.0059	0.0010	0.5206	0.0374	0.0000	0.0000		0.0010		0.0000		0.0077		0.0015	
255	CVS2-121	Hanford CVS 2	Hrma et al. 1994	0.1000	0.0970	0.0077	0.0662		0.0000	0.0346	0.0077	0.1036	0.0056	0.0010	0.4932	0.0355	0.0000	0.0000		0.0010		0.0000		0.0073		0.0015	
256	CVS2-122	Hanford CVS 2	Hrma et al. 1994	0.1500	0.0916	0.0072	0.0626		0.0000	0.0326	0.0073	0.0979	0.0053	0.0009	0.4658	0.0335	0.0000	0.0000		0.0009		0.0000		0.0069		0.0014	
257	CVS2-123	Hanford CVS 2	Hrma et al. 1994	0.0235	0.1048	0.0082	0.0733		0.0000	0.0373	0.0084	0.1129	0.0060	0.0010	0.5328	0.0392	0.0000	0.0000		0.0010		0.0000		0.0065		0.0002	
258	CVS3-1	Hanford CVS 3	Vienna et al. 1996	0.0487	0.0005	0.0126	0.0680		0.0013	0.0286	0.0005	0.1234	0.0140	0.0079	0.5333	0.0438	0.0000	0.0000		0.0000		0.0137		0.0006		0.0169	
259	CVS3-2	Hanford CVS 3	Vienna et al. 1996	0.0417	0.0004	0.0108	0.0583		0.0011	0.0245	0.0004	0.1057	0.0120	0.0068	0.6000	0.0375	0.0000	0.0000		0.0000		0.0118		0.0005		0.0145	
260	CVS3-3	Hanford CVS 3	Vienna et al. 1996	0.0574	0.0005	0.0148	0.0801		0.0015	0.0337	0.0006	0.1454	0.0165	0.0094	0.4500	0.0516	0.0000	0.0000		0.0000		0.0162		0.0007		0.0199	
261	CVS3-4	Hanford CVS 3	Vienna et al. 1996	0.0626	0.0006	0.0162	0.0874		0.0017	0.0367	0.0006	0.1586	0.0180	0.0102	0.4000	0.0563	0.0000	0.0000		0.0000		0.0176		0.0007		0.0217	
262	CVS3-5	Hanford CVS 3	Vienna et al. 1996	0.0657	0.0006	0.0170	0.0918		0.0018	0.0386	0.0006	0.1665	0.0189	0.0107	0.3700	0.0591	0.0000	0.0000		0.0000		0.0185		0.0008		0.0228	
263	CVS3-6	Hanford CVS 3	Vienna et al. 1996	0.0446	0.0837	0.0116	0.0623		0.0012	0.0262	0.0004	0.1131	0.0129	0.0073	0.4889	0.0401	0.0000	0.0000		0.0000		0.0126		0.0005		0.0155	
264	CVS3-7	Hanford CVS 3	Vienna et al. 1996	0.0468	0.0400	0.0121	0.0653		0.0013	0.0274	0.0005	0.1185	0.0135	0.0076	0.5122	0.0420	0.0000	0.0000		0.0000		0.0132		0.0005		0.0162	
265	CVS3-8	Hanford CVS 3	Vienna et al. 1996	0.0430	0.0004	0.0111	0.0600		0.0012	0.0252	0.0004	0.2258	0.0124	0.0070	0.4710	0.0387	0.0000	0.0000		0.0000		0.0121		0.0005		0.0149	
266	CVS3-9	Hanford CVS 3	Vienna et al. 1996	0.0527	0.0005	0.0137	0.0737		0.0014	0.0309	0.0005	0.0500	0.0152	0.0086	0.5779	0.0474	0.0000	0.0000		0.0000		0.0149		0.0006		0.0183	
267	CVS3-10	Hanford CVS 3	Vienna et al. 1996	0.0465	0.0004	0.0120	0.0650		0.0013	0.0716	0.0005	0.1179	0.0134	0.0076	0.5097	0.0418	0.0000	0.0000		0.0000		0.0131		0.0005		0.0161	
268	CVS3-11	Hanford CVS 3	Vienna et al. 1996	0.0476	0.0005	0.0123	0.0665		0.0013	0.0500	0.0005	0.1206	0.0137	0.0078	0.5215	0.0428	0.0000	0.0000		0.0000		0.0134		0.0005		0.0165	
269	CVS3-12	Hanford CVS 3	Vienna et al. 1996	0.0501	0.0005	0.0130	0.0700		0.0014	0.0000	0.0005	0.1270	0.0144	0.0082	0.5490	0.0451	0.0000	0.0000		0.0000		0.0141		0.0006		0.0174	
270	CVS3-13	Hanford CVS 3	Vienna et al. 1996	0.0444	0.0004	0.0115	0.1500		0.0012	0.0260	0.0004	0.1125	0.0128	0.0072	0.4864	0.0399	0.0000	0.0000		0.0000		0.0125		0.0005		0.0154	
271	CVS3-14	Hanford CVS 3	Vienna et al. 1996	0.0465	0.0004	0.0120	0.1100		0.0013	0.0273	0.0005	0.1178	0.0134	0.0076	0.5093	0.0418	0.0000	0.0000		0.0000		0.0131		0.0005		0.0161	
272	CVS3-15	Hanford CVS 3	Vienna et al. 1996	0.0522	0.0005	0.0135	0.0000		0.0014	0.0306	0.0005	0.1324	0.0151	0.0085	0.5722	0.0470	0.0000	0.0000		0.0000		0.0147		0.0006		0.0181	
273	CVS3-16	Hanford CVS 3	Vienna et al. 1996	0.2500	0.0004	0.0099	0.0536		0.0010	0.0225	0.0004	0.0972	0.0111	0.0063	0.4204	0.0345	0.0000	0.0000		0.0000		0.0108		0.0004		0.0133	
274	CVS3-17	Hanford CVS 3	Vienna et al. 1996	0.1800	0.0004	0.0109	0.0586		0.0011	0.0246	0.0004	0.1063	0.0121	0.0068	0.4597	0.0377	0.0000	0.0000		0.0000		0.0118		0.0005		0.0146	
275	CVS3-18	Hanford CVS 3	Vienna et al. 1996	0.1300	0.0004	0.0115	0.0622		0.0012	0.0261	0.0004	0.1128	0.0128	0.0073	0.4877	0.0400	0.0000	0.0000		0.0000		0.0126		0.0005		0.0154	
276	CVS3-19	Hanford CVS 3	Vienna et al. 1996	0.0000	0.0005	0.0132	0.0715		0.0014	0.0300	0.0005	0.1297	0.0148	0.0084	0.5606	0.0460	0.0000	0.0000		0.0000		0.0144		0.0006		0.0178	
277	CVS3-20	Hanford CVS 3	Vienna et al. 1996	0.0428	0.0004	0.0111	0.0597		0.0012	0.0251	0.0004	0.1084	0.0123	0.0070	0.4685	0.1600	0.0000	0.0000		0.0000		0.0121		0.0005		0.0148	
278	CVS3-21	Hanford CVS 3	Vienna et al. 1996	0.0448	0.0004	0.0116	0.0626		0.0012	0.0263	0.0004	0.1135	0.0129	0.0073	0.4908	0.1200	0.0000	0.0000		0.0000		0.0126		0.0005		0.0155	
279	CVS3-22	Hanford CVS 3	Vienna et al. 1996	0.0468	0.0004	0.0121	0.0654		0.0013	0.0275	0.0005	0.1187	0.0135	0.0076	0.5131	0.0800	0.0000	0.0000		0.0000		0.0132		0.0005		0.0163	
280	CVS3-23	Hanford CVS 3	Vienna et al. 1996	0.0509	0.0005	0.0132	0.0711		0.0014	0.0299	0.0005	0.1290	0.0147	0.0083	0.5577	0.0000	0.0000	0.0000		0.0000		0.0144		0.0006		0.0177	
281	CVS3-24	Hanford CVS 3	Vienna et al. 1996	0.0453	0.0004	0.0117	0.0633		0.0019	0.0266	0.0004	0.1149	0.0199	0.0113	0.4966	0.0408	0.0000	0.0000		0.0000		0.0195		0.0008		0.0240	
282	CVS3-25	Hanford CVS 3	Vienna et al. 1996	0.0524	0.0005	0.0136	0.0732		0.0007	0.0307	0.0005	0.1328	0.0075	0.0042	0.5742	0.0471	0.0000	0.0000		0.0000		0.0073		0.0003		0.0090	
283	CVS3-26	Hanford CVS 3	Vienna et al. 1996	0.0235	0.1048	0.0082	0.0733		0.0000	0.0373	0.0084	0.1129	0.0060	0.0010	0.5328	0.0392	0.0000	0.0000		0.0010		0.0000		0.0065		0.0002	
284	CVS3-27	Hanford CVS 3	Vienna et al. 1996	0.0444	0.0004	0.0115	0.1500		0.0012	0.0260	0.0004	0.1125	0.0128	0.0072	0.4864	0.0399	0.0000	0.0000		0.0000		0.0125		0.0005		0.0154	
285	CVS3-28	Hanford CVS 3	Vienna et al. 1996	0.0472	0.0005	0.0122	0.0659		0.0013	0.0277	0.0005	0.1196	0.0136	0.0077	0.5170	0.0424	0.0000	0.0000		0.0000		0.0437		0.0005		0.0164	
286	CVS3-29	Hanford CVS 3	Vienna et al. 1996	0.0462	0.0005	0.0120	0.0645		0.0012	0.0271	0.0005	0.1171	0.0133	0.0075	0.5062	0.0416	0.0000	0.0000		0.0000		0.0637		0.0005		0.0160	
287	CVS3-30	Hanford CVS 3	Vienna et al. 1996	0.0437	0.0005	0.0113	0.0611		0.0012	0.0257	0.0004	0.1109	0.0126	0.0071	0.4792	0.0393	0.0000	0.0000		0.0000		0.1137		0.0005		0.0152	
288	CVS3-31	Hanford CVS 3	Vienna et al. 1996	0.0413	0.0004	0.0107	0.0576		0.0011	0.0242	0.0004	0.1046	0.0119	0.0067	0.4522	0.0371	0.0000	0.0000		0.0000		0.1637		0.0005		0.0143	
289	CVS3-32	Hanford CVS 3	Vienna et al. 1996	0.0452	0.0004	0.0117	0.0631		0.0012	0.0287	0.0004	0.1146	0.0130	0.0074	0.5306	0.0407	0.0000	0.0000		0.0000		0.0127		0.0005		0.0156	
290	CVS3-33	Hanford CVS 3	Vienna et al. 1996	0.0481	0.0005	0.0124	0.0672		0.0013	0.0305	0.0005	0.1219	0.0138	0.0078	0.5644	0.0432	0.0000	0.0000		0.0000		0.0135		0.0006		0.0166	
291	CVS3-34	Hanford CVS 3	Vienna et al. 1996	0.0467	0.0004	0.0121	0.0652		0.0013	0.0296	0.0005	0.1182	0.0134	0.0076	0.5475	0.0420	0.0000	0.0000		0.0000		0.0131		0.0005		0.0161	
292	CVS3-35	Hanford CVS 3	Vienna et al. 1996	0.0438	0.0004	0.0113	0.0611		0.0012	0.0277	0.0004	0.1109	0.0126	0.0071	0.5136	0.0394	0.0000	0.0000		0.0000		0.0123		0.0005		0.0152	
293	CVS3-36	Hanford CVS 3	Vienna et al. 1996	0.0423	0.0004	0.0110	0.0591		0.0011	0.0268	0.0004	0.1072	0.0122	0.0069	0.4966	0.0381	0.0000	0.0000		0.0000		0.0119		0.0005		0.0147	
294	CVS3-37	Hanford CVS 3	Vienna et al. 1996	0.0476	0.0005	0.0123	0.0665		0.0013	0.0279	0.0005	0.1206	0.0137	0.0300	0.5214	0.0428	0.0000	0.0000		0.0000		0.0134		0.0005		0.0165	
295	CVS3-38	Hanford CVS 3	Vienna et al. 1996	0.0466	0.0005	0.0121	0.0651		0.0013	0.0274	0.0005	0.1181	0.0134	0.0500	0.5107	0.0419	0.0000	0.0000		0.0000		0.0131		0.0005		0.0162	
296	CVS3-39	Hanford CVS 3	Vienna et al. 1996	0.0456	0.0005	0.0118	0.0637		0.0012	0.0268	0.0004	0.1156	0.0132	0.0700	0.4999	0.0410	0.0000	0.0000		0.0000		0.0129		0.0005		0.0158	
297	CVS3-40	Hanford CVS 3	Vienna et al. 1996	0.0447	0.0005	0.0116	0.0624		0.0012	0.0262	0.0004	0.1132	0.0129	0.0900	0.4892	0.0402	0.0000	0.0000		0.0000		0.0126		0.0005		0.0155	
298	TRU-BL-1	TRU Study	Crum et al. 1997	0.0230	0.0815	0.0098	0.0435		0.0027	0.0458	0.0026	0.1139	0.0007	0.0087	0.4676	0.1070	0.0002			0.0004		0.0542				0.0000	
299	TRU-AZ-1	TRU Study	Crum et al. 1997	0.0300	0.0803	0.0096	0.0429		0.0027	0.0452	0.0026	0.1122	0.0007	0.0086	0.4606	0.1130	0.0002			0.0004		0.0533				0.0000	
300	TRU-NL-1	TRU Study	Crum et al. 1997	0.0235	0.0834	0.0100	0.0446		0.0028	0.0100	0.0027	0.1300	0.0007	0.0089	0.4786	0.1095	0.0002			0.0005		0.0554				0.0000	
301	TRU-AB-1	TRU Study	Crum et al. 1997	0.0400	0.1200	0.0092	0.0408		0.0025	0.0430	0.0025	0.1069	0.0006	0.0082	0.4386	0.1003	0.0002			0.0004		0.0508				0.0000	
302	TRU-NB-1	TRU Study	Crum et al. 1997	0.0234	0.1000	0.0099	0.0444		0.0028	0.0467	0.0027	0.0800	0.0007	0.0089	0.4766	0.1090	0.0002			0.0004		0.0552				0.0000	
303	TRU-ZN-1	TRU Study	Crum et al. 1997	0.0221	0.0785	0.0094	0.0419		0.0026	0.0441	0.0025	0.1300	0.0007	0.0084	0.4501	0.1200	0.0002			0.0004		0.0521				0.0000	
304	TRU-ZB-1	TRU Study	Crum et al. 1997	0.0215	0.1200	0.0091	0.0408		0.0025	0.0429	0.0025	0.1067	0.0006	0.0082	0.4379	0.1200	0.0002			0.0004		0.0507				0.0000	
305	TRU-ANZ-1	TRU Study	Crum et al. 1997	0.0400	0.0744	0.0089	0.0397		0.0025	0.0418	0.0024	0.1500	0.0006	0.0080	0.4267	0.1200	0.0002			0.0004		0.0494				0.0000	
306	TRU-ABZ-1	TRU Study	Crum et al. 1997	0.0400	0.1000	0.0092	0.0409		0.0025	0.0430	0.0025	0.1069	0.0006	0.0082	0.4388	0.1200	0.0002			0.0004		0.0508				0.0000	
307	TRU-NBZ-1	TRU Study	Crum et al. 1997	0.0227	0.0600	0.0097	0.0431		0.0027	0.0453	0.0026	0.1300	0.0007	0.0086	0.4625	0.1200	0.0002			0.0004		0.0536				0.0000	
308	TRU-Al-1	TRU Study	Crum et al. 1997	0.0600	0.0784	0.0094	0.0419		0.0026	0.0441	0.0025	0.1096	0.0007	0.0084	0.4499	0.1029	0.0002			0.0004		0.0521				0.0000	
309	TRU-Al-6	TRU Study	Crum et al. 1997	0.0400	0.0801	0.0096	0.0428		0.0027	0.0450	0.0026	0.1119	0.0007	0.0086	0.4595	0.1051	0.0002			0.0004		0.0532				0.0000	
310	TRU-B-1	TRU Study	Crum et al. 1997	0.0250	0.0000	0.0106	0.0474		0.0029	0.0499	0.0029	0.1240	0.0007	0.0095	0.5091	0.1165	0.0002			0.0005		0.0590				0.0000	
311	TRU-B-2	TRU Study	Crum et al. 1997	0.0245	0.0200	0.0104	0.0465		0.0029	0.0489	0.0028	0.1216	0.0007	0.0093	0.4989	0.1141	0.0002			0.0005		0.0578				0.0000	
312	TRU-B-3	TRU Study	Crum et al. 1997	0.0238	0.0500	0.0101	0.0450		0.0028	0.0474	0.0027	0.1178	0.0007	0.0090	0.4836	0.1106	0.0002			0.0005		0.0560				0.0000	
313	TRU-B-4	TRU Study	Crum et al. 1997	0.0220	0.1200	0.0094	0.0417		0.0026	0.0439	0.0025	0.1091	0.0007	0.0083	0.4480	0.1025	0.0002			0.0004		0.0519				0.0000	
314	TRU-B-5	TRU Study	Crum et al. 1997	0.0248	0.0100	0.0105	0.0469		0.0029	0.0494	0.0028	0.1228	0.0007	0.0094	0.5040	0.1153	0.0002			0.0005		0.0584				0.0000	
315	TRU-Bi-1	TRU Study	Crum et al. 1997	0.0243	0.0862	0.0103	0.0460		0.0029	0.0485	0.0028	0.1204	0.0007	0.0092	0.4944	0.1131	0.0002			0.0005		0.0000				0.0000	
316	TRU-Bi-2	TRU Study	Crum et al. 1997	0.0237	0.0840	0.0101	0.0449		0.0028	0.0473	0.0027	0.1174	0.0007	0.0090	0.4820	0.1103	0.0002			0.0005		0.0250				0.0000	
317	TRU-Bi-3	TRU Study	Crum et al. 1997	0.0225	0.0797	0.0096	0.0426		0.0026	0.0448	0.0026	0.1114	0.0007	0.0085	0.4573	0.1046	0.0002			0.0004		0.0750				0.0000	
318	TRU-Bi-4	TRU Study	Crum et al. 1997	0.0219	0.0776	0.0093	0.0414		0.0026	0.0436	0.0025	0.1084	0.0006	0.0083	0.4449	0.1018	0.0002			0.0004		0.1000				0.0000	
319	TRU-Ce-1	TRU Study	Crum et al. 1997	0.0226	0.0803	0.0096	0.0429		0.0027	0.0452	0.0026	0.1122	0.0007	0.0086	0.4606	0.1054	0.0002			0.0004		0.0533				0.0150	
320	TRU-Ce-2	TRU Study	Crum et al. 1997	0.0223	0.0791	0.0095	0.0422		0.0026	0.0445	0.0026	0.1105	0.0007	0.0085	0.4536	0.1038	0.0002			0.0004		0.0525				0.0300	
321	TRU-Ce-3	TRU Study	Crum et al. 1997	0.0219	0.0778	0.0093	0.0416		0.0026	0.0438	0.0025	0.1088	0.0006	0.0083	0.4466	0.1022	0.0002			0.0004		0.0517				0.0450	
322	TRU-Li-1	TRU Study	Crum et al. 1997	0.0241	0.0854	0.0102	0.0456		0.0028	0.0000	0.0028	0.1194	0.0007	0.0091	0.4901	0.1121	0.0002			0.0005		0.0568				0.0000	
323	TRU-Li-2	TRU Study	Crum et al. 1997	0.0237	0.0841	0.0101	0.0450		0.0028	0.0150	0.0027	0.1176	0.0007	0.0090	0.4827	0.1104	0.0002			0.0005		0.0559				0.0000	
324	TRU-Li-3	TRU Study	Crum et al. 1997	0.0234	0.0829	0.0099	0.0443		0.0027	0.0300	0.0027	0.1158	0.0007	0.0089	0.4754	0.1087	0.0002			0.0004		0.0551				0.0000	
325	TRU-Li-4	TRU Study	Crum et al. 1997	0.0226	0.0803	0.0096	0.0429		0.0027	0.0600	0.0026	0.1122	0.0007	0.0086	0.4607	0.1054	0.0002			0.0004		0.0534				0.0000	
326	TRU-Na-1	TRU Study	Crum et al. 1997	0.0248	0.0878	0.0105	0.0469		0.0029	0.0494	0.0028	0.0450	0.0007	0.0094	0.5040	0.1153	0.0002			0.0005		0.0584				0.0000	
327	TRU-Na-2	TRU Study	Crum et al. 1997	0.0241	0.0855	0.0102	0.0457		0.0028	0.0481	0.0028	0.0700	0.0007	0.0091	0.4908	0.1123	0.0002			0.0005		0.0568				0.0000	
328	TRU-Na-3	TRU Study	Crum et al. 1997	0.0235	0.0832	0.0100	0.0445		0.0028	0.0468	0.0027	0.0950	0.0007	0.0089	0.4776	0.1093	0.0002			0.0004		0.0553				0.0000	

#	Glass ID	CoO-t	Co2O3-t	Cr2O3-t	Cs2O-t	CuO-t	Dy2O3-t	Eu2O3-t	F-t	Ga2O3-t	Gd2O3-t	HfO2-t	HgO-t	I-t	La2O3-t	MnO2-t	MnO-t	MoO-t	MoO2-t	MoO3-t	Nb2O5-t	Nd2O3-t	NpO2-t	PbO-t	PdO2-t	PdO-t	Pr2O3-t	Pr6O11-t	Rb2O-t	ReO-t
247	CVS2-113		0.0000	0.0014	0.0016	0.0016			0.0033						0.0068	0.0016				0.0033		0.0135		0.0000		0.0005		0.0011	0.0005	
248	CVS2-114		0.0000	0.0013	0.0016	0.0016			0.0031						0.0065	0.0016				0.0031		0.0128		0.0000		0.0005		0.0010	0.0005	
249	CVS2-115		0.0000	0.0013	0.0015	0.0015			0.0031						0.0064	0.0015				0.0031		0.0126		0.0000		0.0005		0.0010	0.0005	
250	CVS2-116		0.0000	0.0013	0.0016	0.0016			0.0031						0.0065	0.0016				0.0031		0.0129		0.0000		0.0005		0.0010	0.0005	
251	CVS2-117		0.0000	0.0013	0.0016	0.0016			0.0032						0.0067	0.0016				0.0032		0.0132		0.0000		0.0005		0.0011	0.0005	
252	CVS2-118		0.0000	0.0013	0.0016	0.0016			0.0031						0.0065	0.0016				0.0031		0.0129		0.0000		0.0005		0.0010	0.0005	
253	CVS2-119		0.0000	0.0014	0.0016	0.0016			0.0033						0.0068	0.0016				0.0033		0.0134		0.0000		0.0005		0.0011	0.0005	
254	CVS2-120		0.0000	0.0013	0.0015	0.0015			0.0031						0.0064	0.0015				0.0031		0.0127		0.0000		0.0005		0.0010	0.0005	
255	CVS2-121		0.0000	0.0012	0.0015	0.0015			0.0029						0.0061	0.0015				0.0029		0.0120		0.0000		0.0005		0.0010	0.0005	
256	CVS2-122		0.0000	0.0012	0.0014	0.0014			0.0028						0.0058	0.0014				0.0028		0.0114		0.0000		0.0005		0.0009	0.0005	
257	CVS2-123		0.0000	0.0013	0.0015	0.0016			0.0019						0.0155	0.0016				0.0031		0.0057		0.0000		0.0000		0.0019	0.0000	
258	CVS3-1		0.0000	0.0053	0.0000	0.0000			0.0034						0.0026	0.0112				0.0005		0.0602		0.0000		0.0000		0.0000	0.0000	
259	CVS3-2		0.0000	0.0045	0.0000	0.0000			0.0029						0.0023	0.0096				0.0004		0.0516		0.0000		0.0000		0.0000	0.0000	
260	CVS3-3		0.0000	0.0062	0.0000	0.0000			0.0040						0.0031	0.0132				0.0005		0.0710		0.0000		0.0000		0.0000	0.0000	
261	CVS3-4		0.0000	0.0068	0.0000	0.0000			0.0044						0.0034	0.0144				0.0006		0.0774		0.0000		0.0000		0.0000	0.0000	
262	CVS3-5		0.0000	0.0071	0.0000	0.0000			0.0046						0.0036	0.0152				0.0006		0.0813		0.0000		0.0000		0.0000	0.0000	
263	CVS3-6		0.0000	0.0049	0.0000	0.0000			0.0031						0.0024	0.0103				0.0004		0.0552		0.0000		0.0000		0.0000	0.0000	
264	CVS3-7		0.0000	0.0051	0.0000	0.0000			0.0033						0.0025	0.0108				0.0004		0.0578		0.0000		0.0000		0.0000	0.0000	
265	CVS3-8		0.0000	0.0047	0.0000	0.0000			0.0030						0.0023	0.0099				0.0004		0.0532		0.0000		0.0000		0.0000	0.0000	
266	CVS3-9		0.0000	0.0057	0.0000	0.0000			0.0037						0.0029	0.0122				0.0005		0.0652		0.0000		0.0000		0.0000	0.0000	
267	CVS3-10		0.0000	0.0051	0.0000	0.0000			0.0032						0.0025	0.0107				0.0004		0.0575		0.0000		0.0000		0.0000	0.0000	
268	CVS3-11		0.0000	0.0052	0.0000	0.0000			0.0033						0.0026	0.0110				0.0004		0.0589		0.0000		0.0000		0.0000	0.0000	
269	CVS3-12		0.0000	0.0054	0.0000	0.0000			0.0035						0.0027	0.0116				0.0005		0.0620		0.0000		0.0000		0.0000	0.0000	
270	CVS3-13		0.0000	0.0048	0.0000	0.0000			0.0031						0.0024	0.0102				0.0004		0.0549		0.0000		0.0000		0.0000	0.0000	
271	CVS3-14		0.0000	0.0051	0.0000	0.0000			0.0032						0.0025	0.0107				0.0004		0.0575		0.0000		0.0000		0.0000	0.0000	
272	CVS3-15		0.0000	0.0057	0.0000	0.0000			0.0036						0.0028	0.0120				0.0005		0.0646		0.0000		0.0000		0.0000	0.0000	
273	CVS3-16		0.0000	0.0042	0.0000	0.0000			0.0027						0.0021	0.0089				0.0004		0.0475		0.0000		0.0000		0.0000	0.0000	
274	CVS3-17		0.0000	0.0046	0.0000	0.0000			0.0029						0.0023	0.0097				0.0004		0.0519		0.0000		0.0000		0.0000	0.0000	
275	CVS3-18		0.0000	0.0048	0.0000	0.0000			0.0031						0.0024	0.0103				0.0004		0.0551		0.0000		0.0000		0.0000	0.0000	
276	CVS3-19		0.0000	0.0056	0.0000	0.0000			0.0036						0.0028	0.0118				0.0005		0.0633		0.0000		0.0000		0.0000	0.0000	
277	CVS3-20		0.0000	0.0047	0.0000	0.0000			0.0030						0.0023	0.0099				0.0004		0.0529		0.0000		0.0000		0.0000	0.0000	
278	CVS3-21		0.0000	0.0049	0.0000	0.0000			0.0031						0.0024	0.0103				0.0004		0.0554		0.0000		0.0000		0.0000	0.0000	
279	CVS3-22		0.0000	0.0051	0.0000	0.0000			0.0033						0.0025	0.0108				0.0004		0.0579		0.0000		0.0000		0.0000	0.0000	
280	CVS3-23		0.0000	0.0055	0.0000	0.0000			0.0036						0.0028	0.0117				0.0005		0.0630		0.0000		0.0000		0.0000	0.0000	
281	CVS3-24		0.0000	0.0075	0.0000	0.0000			0.0048						0.0038	0.0159				0.0006		0.0855		0.0000		0.0000		0.0000	0.0000	
282	CVS3-25		0.0000	0.0028	0.0000	0.0000			0.0018						0.0014	0.0060				0.0002		0.0321		0.0000		0.0000		0.0000	0.0000	
283	CVS3-26		0.0000	0.0013	0.0015	0.0016			0.0019						0.0155	0.0016				0.0031		0.0057		0.0000		0.0000		0.0019	0.0000	
284	CVS3-27		0.0000	0.0048	0.0000	0.0000			0.0031						0.0024	0.0102				0.0004		0.0549		0.0000		0.0000		0.0000	0.0000	
285	CVS3-28		0.0000	0.0051	0.0000	0.0000			0.0033						0.0026	0.0109				0.0004		0.0584		0.0000		0.0000		0.0000	0.0000	
286	CVS3-29		0.0000	0.0050	0.0000	0.0000			0.0032						0.0025	0.0107				0.0004		0.0572		0.0000		0.0000		0.0000	0.0000	
287	CVS3-30		0.0000	0.0048	0.0000	0.0000			0.0031						0.0024	0.0101				0.0004		0.0541		0.0000		0.0000		0.0000	0.0000	
288	CVS3-31		0.0000	0.0045	0.0000	0.0000			0.0029						0.0022	0.0095				0.0004		0.0511		0.0000		0.0000		0.0000	0.0000	
289	CVS3-32		0.0000	0.0049	0.0000	0.0000			0.0031						0.0024	0.0104				0.0004		0.0000		0.0000		0.0000		0.0000	0.0000	
290	CVS3-33		0.0000	0.0052	0.0000	0.0000			0.0033						0.0026	0.0111				0.0004		0.0000		0.0000		0.0000		0.0000	0.0000	
291	CVS3-34		0.0000	0.0051	0.0000	0.0000			0.0032						0.0025	0.0107				0.0004		0.0000		0.0000		0.0000		0.0000	0.0000	
292	CVS3-35		0.0000	0.0048	0.0000	0.0000			0.0030						0.0024	0.0101				0.0004		0.0000		0.0000		0.0000		0.0000	0.0000	
293	CVS3-36		0.0000	0.0046	0.0000	0.0000			0.0030						0.0023	0.0098				0.0004		0.0000		0.0000		0.0000		0.0000	0.0000	
294	CVS3-37		0.0000	0.0052	0.0000	0.0000			0.0033						0.0026	0.0110				0.0004		0.0589		0.0000		0.0000		0.0000	0.0000	
295	CVS3-38		0.0000	0.0051	0.0000	0.0000			0.0033						0.0025	0.0107				0.0004		0.0577		0.0000		0.0000		0.0000	0.0000	
296	CVS3-39		0.0000	0.0050	0.0000	0.0000			0.0032						0.0025	0.0105				0.0004		0.0564		0.0000		0.0000		0.0000	0.0000	
297	CVS3-40		0.0000	0.0049	0.0000	0.0000			0.0031						0.0024	0.0103				0.0004		0.0552		0.0000		0.0000		0.0000	0.0000	
298	TRU-BL-1		0.0000	0.0036		0.0002			0.0042						0.0108		0.0173							0.0012						
299	TRU-AZ-1		0.0000	0.0035		0.0002			0.0041						0.0106		0.0170							0.0011						
300	TRU-NL-1		0.0000	0.0037		0.0002			0.0043						0.0111		0.0177							0.0012						
301	TRU-AB-1		0.0000	0.0034		0.0002			0.0039						0.0101		0.0162							0.0011						
302	TRU-NB-1		0.0000	0.0037		0.0002			0.0043						0.0110		0.0176							0.0012						
303	TRU-ZN-1		0.0000	0.0035		0.0002			0.0040						0.0104		0.0167							0.0011						
304	TRU-ZB-1		0.0000	0.0034		0.0001			0.0039						0.0101		0.0162							0.0011						
305	TRU-ANZ-1		0.0000	0.0033		0.0001			0.0038						0.0099		0.0158							0.0010						
306	TRU-ABZ-1		0.0000	0.0034		0.0002			0.0039						0.0101		0.0162							0.0011						
307	TRU-NBZ-1		0.0000	0.0036		0.0002			0.0042						0.0107		0.0171							0.0011						
308	TRU-Al-1		0.0000	0.0035		0.0002			0.0040						0.0104		0.0166							0.0011						
309	TRU-Al-6		0.0000	0.0035		0.0002			0.0041						0.0106		0.0170							0.0011						
310	TRU-B-1		0.0000	0.0039		0.0002			0.0046						0.0118		0.0188							0.0013						
311	TRU-B-2		0.0000	0.0038		0.0002			0.0045						0.0115		0.0185							0.0012						
312	TRU-B-3		0.0000	0.0037		0.0002			0.0043						0.0112		0.0179							0.0012						
313	TRU-B-4		0.0000	0.0034		0.0002			0.0040						0.0103		0.0166							0.0011						
314	TRU-B-5		0.0000	0.0039		0.0002			0.0045						0.0116		0.0186							0.0012						
315	TRU-Bi-1		0.0000	0.0038		0.0002			0.0044						0.0114		0.0183							0.0012						
316	TRU-Bi-2		0.0000	0.0037		0.0002			0.0043						0.0111		0.0178							0.0012						
317	TRU-Bi-3		0.0000	0.0035		0.0002			0.0041						0.0106		0.0169							0.0011						
318	TRU-Bi-4		0.0000	0.0034		0.0002			0.0040						0.0103		0.0165							0.0011						
319	TRU-Ce-1		0.0000	0.0035		0.0002			0.0041						0.0106		0.0170							0.0011						
320	TRU-Ce-2		0.0000	0.0035		0.0002			0.0041						0.0105		0.0168							0.0011						
321	TRU-Ce-3		0.0000	0.0034		0.0002			0.0040						0.0103		0.0165							0.0011						
322	TRU-Li-1		0.0000	0.0038		0.0002			0.0044						0.0113		0.0181							0.0012						
323	TRU-Li-2		0.0000	0.0037		0.0002			0.0043						0.0111		0.0179							0.0012						
324	TRU-Li-3		0.0000	0.0037		0.0002			0.0043						0.0110		0.0176							0.0012						
325	TRU-Li-4		0.0000	0.0035		0.0002			0.0041						0.0106		0.0170							0.0011						
326	TRU-Na-1		0.0000	0.0039		0.0002			0.0045						0.0116		0.0186							0.0012						
327	TRU-Na-2		0.0000	0.0038		0.0002			0.0044						0.0113		0.0182							0.0012						
328	TRU-Na-3		0.0000	0.0037		0.0002			0.0043						0.0110		0.0177							0.0012						

#	Glass ID	ReO2-t	Re2O7-t	Rh2O3-t	RhO2-t	RuO2-t	Ru2O3-t	Sb2O3-t	Sb2O5-t	SeO2-t	Sm2O3-t	SnO-t	SnO2-t	SO3-t	SrO-t	Tc2O7-t	TeO2-t	ThO2-t	TiO2-t	Tl2O-t	Tl2O3-t	U3O8-t	UO2-t	UO3-t	V2O5-t	WO3-t	Y2O3-t	ZnO-t	Sum-t	Al2O3-a
247	CVS2-113			0.0005		0.0016		0.0000		0.0000	0.0005			0.0030	0.0011		0.0000		0.0000				0.0000				0.0005	0.0000	1.0000	
248	CVS2-114			0.0005		0.0016		0.0000		0.0000	0.0005			0.0029	0.0010		0.0000		0.0000				0.0000				0.0005	0.0000	1.0000	
249	CVS2-115			0.0005		0.0015		0.0000		0.0000	0.0005			0.0028	0.0010		0.0000		0.0000				0.0000				0.0005	0.0000	1.0000	
250	CVS2-116			0.0005		0.0016		0.0000		0.0000	0.0005			0.0029	0.0010		0.0000		0.0000				0.0000				0.0005	0.0000	1.0000	
251	CVS2-117			0.0005		0.0016		0.0000		0.0000	0.0005			0.0029	0.0011		0.0000		0.0000				0.0000				0.0005	0.0000	1.0000	
252	CVS2-118			0.0005		0.0016		0.0000		0.0000	0.0005			0.0029	0.0010		0.0000		0.0000				0.0000				0.0005	0.0000	1.0000	
253	CVS2-119			0.0005		0.0016		0.0000		0.0000	0.0005			0.0030	0.0011		0.0000		0.0000				0.0000				0.0005	0.0000	1.0000	
254	CVS2-120			0.0005		0.0015		0.0000		0.0000	0.0005			0.0028	0.0010		0.0000		0.0000				0.0000				0.0005	0.0000	1.0000	
255	CVS2-121			0.0005		0.0015		0.0000		0.0000	0.0005			0.0027	0.0010		0.0000		0.0000				0.0000				0.0005	0.0000	1.0000	
256	CVS2-122			0.0005		0.0014		0.0000		0.0000	0.0005			0.0025	0.0009		0.0000		0.0000				0.0000				0.0005	0.0000	1.0000	
257	CVS2-123			0.0000		0.0015		0.0000		0.0000	0.0000			0.0044	0.0000		0.0000		0.0000				0.0000				0.0000	0.0049	1.0000	
258	CVS3-1			0.0000		0.0000		0.0000		0.0000	0.0000			0.0020	0.0000		0.0000		0.0000				0.0000			0.0011	0.0000	0.0000	1.0000	
259	CVS3-2			0.0000		0.0000		0.0000		0.0000	0.0000			0.0017	0.0000		0.0000		0.0000				0.0000			0.0009	0.0000	0.0000	1.0000	
260	CVS3-3			0.0000		0.0000		0.0000		0.0000	0.0000			0.0024	0.0000		0.0000		0.0000				0.0000			0.0013	0.0000	0.0000	1.0000	
261	CVS3-4			0.0000		0.0000		0.0000		0.0000	0.0000			0.0026	0.0000		0.0000		0.0000				0.0000			0.0014	0.0000	0.0000	1.0000	
262	CVS3-5			0.0000		0.0000		0.0000		0.0000	0.0000			0.0028	0.0000		0.0000		0.0000				0.0000			0.0015	0.0000	0.0000	1.0000	
263	CVS3-6			0.0000		0.0000		0.0000		0.0000	0.0000			0.0019	0.0000		0.0000		0.0000				0.0000			0.0010	0.0000	0.0000	1.0000	
264	CVS3-7			0.0000		0.0000		0.0000		0.0000	0.0000			0.0020	0.0000		0.0000		0.0000				0.0000			0.0010	0.0000	0.0000	1.0000	
265	CVS3-8			0.0000		0.0000		0.0000		0.0000	0.0000			0.0018	0.0000		0.0000		0.0000				0.0000			0.0009	0.0000	0.0000	1.0000	
266	CVS3-9			0.0000		0.0000		0.0000		0.0000	0.0000			0.0022	0.0000		0.0000		0.0000				0.0000			0.0012	0.0000	0.0000	1.0000	
267	CVS3-10			0.0000		0.0000		0.0000		0.0000	0.0000			0.0020	0.0000		0.0000		0.0000				0.0000			0.0010	0.0000	0.0000	1.0000	
268	CVS3-11			0.0000		0.0000		0.0000		0.0000	0.0000			0.0020	0.0000		0.0000		0.0000				0.0000			0.0011	0.0000	0.0000	1.0000	
269	CVS3-12			0.0000		0.0000		0.0000		0.0000	0.0000			0.0021	0.0000		0.0000		0.0000				0.0000			0.0011	0.0000	0.0000	1.0000	
270	CVS3-13			0.0000		0.0000		0.0000		0.0000	0.0000			0.0019	0.0000		0.0000		0.0000				0.0000			0.0010	0.0000	0.0000	1.0000	
271	CVS3-14			0.0000		0.0000		0.0000		0.0000	0.0000			0.0019	0.0000		0.0000		0.0000				0.0000			0.0010	0.0000	0.0000	1.0000	
272	CVS3-15			0.0000		0.0000		0.0000		0.0000	0.0000			0.0022	0.0000		0.0000		0.0000				0.0000			0.0012	0.0000	0.0000	1.0000	
273	CVS3-16			0.0000		0.0000		0.0000		0.0000	0.0000			0.0016	0.0000		0.0000		0.0000				0.0000			0.0008	0.0000	0.0000	1.0000	
274	CVS3-17			0.0000		0.0000		0.0000		0.0000	0.0000			0.0018	0.0000		0.0000		0.0000				0.0000			0.0009	0.0000	0.0000	1.0000	
275	CVS3-18			0.0000		0.0000		0.0000		0.0000	0.0000			0.0019	0.0000		0.0000		0.0000				0.0000			0.0010	0.0000	0.0000	1.0000	
276	CVS3-19			0.0000		0.0000		0.0000		0.0000	0.0000			0.0021	0.0000		0.0000		0.0000				0.0000			0.0011	0.0000	0.0000	1.0000	
277	CVS3-20			0.0000		0.0000		0.0000		0.0000	0.0000			0.0018	0.0000		0.0000		0.0000				0.0000			0.0009	0.0000	0.0000	1.0000	
278	CVS3-21			0.0000		0.0000		0.0000		0.0000	0.0000			0.0019	0.0000		0.0000		0.0000				0.0000			0.0010	0.0000	0.0000	1.0000	
279	CVS3-22			0.0000		0.0000		0.0000		0.0000	0.0000			0.0020	0.0000		0.0000		0.0000				0.0000			0.0010	0.0000	0.0000	1.0000	
280	CVS3-23			0.0000		0.0000		0.0000		0.0000	0.0000			0.0021	0.0000		0.0000		0.0000				0.0000			0.0011	0.0000	0.0000	1.0000	
281	CVS3-24			0.0000		0.0000		0.0000		0.0000	0.0000			0.0029	0.0000		0.0000		0.0000				0.0000			0.0015	0.0000	0.0000	1.0000	
282	CVS3-25			0.0000		0.0000		0.0000		0.0000	0.0000			0.0011	0.0000		0.0000		0.0000				0.0000			0.0006	0.0000	0.0000	1.0000	
283	CVS3-26			0.0000		0.0015		0.0000		0.0000	0.0000			0.0044	0.0000		0.0000		0.0000				0.0000			0.0000	0.0000	0.0049	1.0000	
284	CVS3-27			0.0000		0.0000		0.0000		0.0000	0.0000			0.0019	0.0000		0.0000		0.0000				0.0000			0.0010	0.0000	0.0000	1.0000	
285	CVS3-28			0.0000		0.0000		0.0000		0.0000	0.0000			0.0020	0.0000		0.0000		0.0000				0.0000			0.0010	0.0000	0.0000	1.0000	
286	CVS3-29			0.0000		0.0000		0.0000		0.0000	0.0000			0.0019	0.0000		0.0000		0.0000				0.0000			0.0010	0.0000	0.0000	1.0000	
287	CVS3-30			0.0000		0.0000		0.0000		0.0000	0.0000			0.0018	0.0000		0.0000		0.0000				0.0000			0.0010	0.0000	0.0000	1.0000	
288	CVS3-31			0.0000		0.0000		0.0000		0.0000	0.0000			0.0017	0.0000		0.0000		0.0000				0.0000			0.0009	0.0000	0.0000	1.0000	
289	CVS3-32			0.0000		0.0000		0.0000		0.0000	0.0000			0.0019	0.0000		0.0000		0.0000				0.0900			0.0010	0.0000	0.0000	1.0000	
290	CVS3-33			0.0000		0.0000		0.0000		0.0000	0.0000			0.0020	0.0000		0.0000		0.0000				0.0320			0.0011	0.0000	0.0000	1.0000	
291	CVS3-34			0.0000		0.0000		0.0000		0.0000	0.0000			0.0019	0.0000		0.0000		0.0000				0.0610			0.0010	0.0000	0.0000	1.0000	
292	CVS3-35			0.0000		0.0000		0.0000		0.0000	0.0000			0.0018	0.0000		0.0000		0.0000				0.1190			0.0010	0.0000	0.0000	1.0000	
293	CVS3-36			0.0000		0.0000		0.0000		0.0000	0.0000			0.0018	0.0000		0.0000		0.0000				0.1480			0.0009	0.0000	0.0000	1.0000	
294	CVS3-37			0.0000		0.0000		0.0000		0.0000	0.0000			0.0020	0.0000		0.0000		0.0000				0.0000			0.0011	0.0000	0.0000	1.0000	
295	CVS3-38			0.0000		0.0000		0.0000		0.0000	0.0000			0.0020	0.0000		0.0000		0.0000				0.0000			0.0010	0.0000	0.0000	1.0000	
296	CVS3-39			0.0000		0.0000		0.0000		0.0000	0.0000			0.0019	0.0000		0.0000		0.0000				0.0000			0.0010	0.0000	0.0000	1.0000	
297	CVS3-40			0.0000		0.0000		0.0000		0.0000	0.0000			0.0019	0.0000		0.0000		0.0000				0.0000			0.0010	0.0000	0.0000	1.0000	
298	TRU-BL-1														0.0006												0.0005	1.0000	
299	TRU-AZ-1														0.0006												0.0005	1.0000	
300	TRU-NL-1														0.0006												0.0005	1.0000	
301	TRU-AB-1														0.0006												0.0005	1.0000	
302	TRU-NB-1														0.0006												0.0005	1.0000	
303	TRU-ZN-1														0.0006												0.0005	1.0000	
304	TRU-ZB-1														0.0006												0.0005	1.0000	
305	TRU-ANZ-1														0.0005												0.0005	1.0000	
306	TRU-ABZ-1														0.0006												0.0005	1.0000	
307	TRU-NBZ-1														0.0006												0.0005	1.0000	
308	TRU-Al-1														0.0006												0.0005	1.0000	
309	TRU-Al-6														0.0006												0.0005	1.0000	
310	TRU-B-1														0.0007												0.0006	1.0000	
311	TRU-B-2														0.0006												0.0006	1.0000	
312	TRU-B-3														0.0006												0.0005	1.0000	
313	TRU-B-4														0.0006												0.0005	1.0000	
314	TRU-B-5														0.0006												0.0006	1.0000	
315	TRU-Bi-1														0.0006												0.0005	1.0000	
316	TRU-Bi-2														0.0006												0.0005	1.0000	
317	TRU-Bi-3														0.0006												0.0005	1.0000	
318	TRU-Bi-4														0.0006												0.0005	1.0000	
319	TRU-Ce-1														0.0006												0.0005	1.0000	
320	TRU-Ce-2														0.0006												0.0005	1.0000	
321	TRU-Ce-3														0.0006												0.0005	1.0000	
322	TRU-Li-1														0.0006												0.0005	1.0000	
323	TRU-Li-2														0.0006												0.0005	1.0000	
324	TRU-Li-3														0.0006												0.0005	1.0000	
325	TRU-Li-4														0.0006												0.0005	1.0000	
326	TRU-Na-1														0.0006												0.0006	1.0000	
327	TRU-Na-2														0.0006												0.0005	1.0000	
328	TRU-Na-3														0.0006												0.0005	1.0000	

#	Glass ID	B2O3-a	CaO-a	Fe2O3-a	FeO-a	K2O-a	Li2O-a	MgO-a	Na2O-a	NiO-a	P2O5-a	SiO2-a	ZrO2-a	Ag2O-a	As2O3-a	As2O5-a	BaO-a	BeO-a	Bi2O3-a	Br-a	CdO-a	Ce2O3-a	CeO2-a	Cl-a	CoO-a	Co2O3-a	Cr2O3-a	Cs2O-a	CuO-a	F-a
247	CVS2-113																													
248	CVS2-114																													
249	CVS2-115																													
250	CVS2-116																													
251	CVS2-117																													
252	CVS2-118																													
253	CVS2-119																													
254	CVS2-120																													
255	CVS2-121																													
256	CVS2-122																													
257	CVS2-123																													
258	CVS3-1																													
259	CVS3-2																													
260	CVS3-3																													
261	CVS3-4																													
262	CVS3-5																													
263	CVS3-6																													
264	CVS3-7																													
265	CVS3-8																													
266	CVS3-9																													
267	CVS3-10																													
268	CVS3-11																													
269	CVS3-12																													
270	CVS3-13																													
271	CVS3-14																													
272	CVS3-15																													
273	CVS3-16																													
274	CVS3-17																													
275	CVS3-18																													
276	CVS3-19																													
277	CVS3-20																													
278	CVS3-21																													
279	CVS3-22																													
280	CVS3-23																													
281	CVS3-24																													
282	CVS3-25																													
283	CVS3-26																													
284	CVS3-27																													
285	CVS3-28																													
286	CVS3-29																													
287	CVS3-30																													
288	CVS3-31																													
289	CVS3-32																													
290	CVS3-33																													
291	CVS3-34																													
292	CVS3-35																													
293	CVS3-36																													
294	CVS3-37																													
295	CVS3-38																													
296	CVS3-39																													
297	CVS3-40																													
298	TRU-BL-1																													
299	TRU-AZ-1																													
300	TRU-NL-1																													
301	TRU-AB-1																													
302	TRU-NB-1																													
303	TRU-ZN-1																													
304	TRU-ZB-1																													
305	TRU-ANZ-1																													
306	TRU-ABZ-1																													
307	TRU-NBZ-1																													
308	TRU-Al-1																													
309	TRU-Al-6																													
310	TRU-B-1																													
311	TRU-B-2																													
312	TRU-B-3																													
313	TRU-B-4																													
314	TRU-B-5																													
315	TRU-Bi-1																													
316	TRU-Bi-2																													
317	TRU-Bi-3																													
318	TRU-Bi-4																													
319	TRU-Ce-1																													
320	TRU-Ce-2																													
321	TRU-Ce-3																													
322	TRU-Li-1																													
323	TRU-Li-2																													
324	TRU-Li-3																													
325	TRU-Li-4																													
326	TRU-Na-1																													
327	TRU-Na-2																													
328	TRU-Na-3																													

#	Glass ID	Ga2O3-a	Gd2O3-a	I-a	La2O3-a	MnO2-a	MnO-a	MoO-a	MoO3-a	Nb2O5-a	Nd2O3-a	NpO2-a	PbO-a	PdO2-a	PdO-a	Pr2O3-a	Pr6O11-a	PuO2-a	Rb2O-a	ReO-a	ReO2-a	Re2O7-a	Rh2O3-a	RhO2-a	RuO2-a	Sb2O3-a	Sb2O5-a	SeO2-a
247	CVS2-113																											
248	CVS2-114																											
249	CVS2-115																											
250	CVS2-116																											
251	CVS2-117																											
252	CVS2-118																											
253	CVS2-119																											
254	CVS2-120																											
255	CVS2-121																											
256	CVS2-122																											
257	CVS2-123																											
258	CVS3-1																											
259	CVS3-2																											
260	CVS3-3																											
261	CVS3-4																											
262	CVS3-5																											
263	CVS3-6																											
264	CVS3-7																											
265	CVS3-8																											
266	CVS3-9																											
267	CVS3-10																											
268	CVS3-11																											
269	CVS3-12																											
270	CVS3-13																											
271	CVS3-14																											
272	CVS3-15																											
273	CVS3-16																											
274	CVS3-17																											
275	CVS3-18																											
276	CVS3-19																											
277	CVS3-20																											
278	CVS3-21																											
279	CVS3-22																											
280	CVS3-23																											
281	CVS3-24																											
282	CVS3-25																											
283	CVS3-26																											
284	CVS3-27																											
285	CVS3-28																											
286	CVS3-29																											
287	CVS3-30																											
288	CVS3-31																											
289	CVS3-32																											
290	CVS3-33																											
291	CVS3-34																											
292	CVS3-35																											
293	CVS3-36																											
294	CVS3-37																											
295	CVS3-38																											
296	CVS3-39																											
297	CVS3-40																											
298	TRU-BL-1																											
299	TRU-AZ-1																											
300	TRU-NL-1																											
301	TRU-AB-1																											
302	TRU-NB-1																											
303	TRU-ZN-1																											
304	TRU-ZB-1																											
305	TRU-ANZ-1																											
306	TRU-ABZ-1																											
307	TRU-NBZ-1																											
308	TRU-Al-1																											
309	TRU-Al-6																											
310	TRU-B-1																											
311	TRU-B-2																											
312	TRU-B-3																											
313	TRU-B-4																											
314	TRU-B-5																											
315	TRU-Bi-1																											
316	TRU-Bi-2																											
317	TRU-Bi-3																											
318	TRU-Bi-4																											
319	TRU-Ce-1																											
320	TRU-Ce-2																											
321	TRU-Ce-3																											
322	TRU-Li-1																											
323	TRU-Li-2																											
324	TRU-Li-3																											
325	TRU-Li-4																											
326	TRU-Na-1																											
327	TRU-Na-2																											
328	TRU-Na-3																											

#	Glass ID	Sm2O3-a	SnO-a	SnO2-a	SO3-a	SrO-a	Tc2O7-a	TeO2-a	ThO2-a	TiO2-a	Tl2O-a	Tl2O3-a	U3O8-a	UO2-a	UO3-a	V2O5-a	WO3-a	Y2O3-a	ZnO-a	Sum-a	T_M (°C)	$T_{L,G}$ (°C)	$T_{L,U}$ (°C)	$T_{1\%}$ (°C)	Primary Phase	$C_{650°C}$	$C_{700°C}$	$C_{750°C}$
247	CVS2-113																			0.0000								
248	CVS2-114																			0.0000								
249	CVS2-115																			0.0000								
250	CVS2-116																			0.0000								
251	CVS2-117																			0.0000								
252	CVS2-118																			0.0000								
253	CVS2-119																			0.0000								
254	CVS2-120																			0.0000								
255	CVS2-121																			0.0000								
256	CVS2-122																			0.0000								
257	CVS2-123																			0.0000								
258	CVS3-1																			0.0000			1153		spinel			
259	CVS3-2																			0.0000			1181		spinel			
260	CVS3-3																			0.0000			1130		spinel			
261	CVS3-4																			0.0000			1186		Ce, Zr, Oy			
262	CVS3-5																			0.0000			1232		Nd, Ce, Zr, Oy			
263	CVS3-6																			0.0000			1066		?			
264	CVS3-7																			0.0000			1132		spinel			
265	CVS3-8																			0.0000			1066		Na, Zr, Si			
266	CVS3-9																			0.0000			1374		spinel			
267	CVS3-10																			0.0000			1021		spinel			
268	CVS3-11																			0.0000			1075		spinel			
269	CVS3-12																			0.0000			1278		spinel			
270	CVS3-13																			0.0000			1295		spinel			
271	CVS3-14																			0.0000			1227		spinel			
272	CVS3-15																			0.0000			1111		Cr			
273	CVS3-16																			0.0000								
274	CVS3-17																			0.0000								
275	CVS3-18																			0.0000			1293		spinel			
276	CVS3-19																			0.0000			1070		spinel			
277	CVS3-20																			0.0000								
278	CVS3-21																			0.0000			1400		zircon			
279	CVS3-22																			0.0000			1177		spinel			
280	CVS3-23																			0.0000			1122		spinel			
281	CVS3-24																			0.0000			1127		spinel			
282	CVS3-25																			0.0000			1150		spinel			
283	CVS3-26																			0.0000			1047		spinel			
284	CVS3-27																			0.0000			1285		spinel			
285	CVS3-28																			0.0000			1141		spinel			
286	CVS3-29																			0.0000			1136		spinel			
287	CVS3-30																			0.0000			1121		spinel			
288	CVS3-31																			0.0000			1109		spinel			
289	CVS3-32																			0.0000								
290	CVS3-33																			0.0000								
291	CVS3-34																			0.0000								
292	CVS3-35																			0.0000								
293	CVS3-36																			0.0000								
294	CVS3-37																			0.0000			1175		spinel			
295	CVS3-38																			0.0000			1171		spinel			
296	CVS3-39																			0.0000			1168		spinel			
297	CVS3-40																			0.0000			1198		Zr Re Oy			
298	TRU-BL-1																			0.0000			1012		Zircon			
299	TRU-AZ-1																			0.0000			1065		Zircon			
300	TRU-NL-1																			0.0000			1095		Zircon			
301	TRU-AB-1																			0.0000			1056		Zircon			
302	TRU-NB-1																			0.0000			1161		Zircon			
303	TRU-ZN-1																			0.0000			988		Zircon			
304	TRU-ZB-1																			0.0000			1094		Zircon			
305	TRU-ANZ-1																			0.0000			1032		Zircon			
306	TRU-ABZ-1																			0.0000			1151		Zircon			
307	TRU-NBZ-1																			0.0000			1010		Zircon			
308	TRU-Al-1																			0.0000			1196		ZrO2			
309	TRU-Al-6																			0.0000			1069		Zircon			
310	TRU-B-1																			0.0000			1155		ZrO2			
311	TRU-B-2																			0.0000			1031		Zircon			
312	TRU-B-3																			0.0000			1030		Zircon			
313	TRU-B-4																			0.0000			992		Zircon			
314	TRU-B-5																			0.0000			1116		ZrO2			
315	TRU-Bi-1																			0.0000			1015		Zircon			
316	TRU-Bi-2																			0.0000			1017		Zircon			
317	TRU-Bi-3																			0.0000			1009		Zircon			
318	TRU-Bi-4																			0.0000			1023		Zircon			
319	TRU-Ce-1																			0.0000			1019		Zircon			
320	TRU-Ce-2																			0.0000			1062		Zircon			
321	TRU-Ce-3																			0.0000			1120		CeO2			
322	TRU-Li-1																			0.0000			1271		ZrO2			
323	TRU-Li-2																			0.0000			1155		Zircon			
324	TRU-Li-3																			0.0000			1074		Zircon			
325	TRU-Li-4																			0.0000			982		Zircon			
326	TRU-Na-1																			0.0000			1350		Zircon			
327	TRU-Na-2																			0.0000			1223		Zircon			
328	TRU-Na-3																			0.0000			1110		Zircon			

#	Glass ID	$C_{800°C}$	$C_{850°C}$	$C_{900°C}$	$C_{950°C}$	$C_{1000°C}$	$C_{1050°C}$	$C_{1100°C}$	$C_{1150°C}$	$C_{1200°C}$	Quenched Visual/OM	Quenched XRD	CCC XRD	ρ (g/cm³)	Fulc Visc A	Fulc Visc B	Fulc Visc To	Arrh Visc E	Arrh Visc F	T1 (°C)	V1 (Pa·s)
247	CVS2-113													2.589							
248	CVS2-114													2.698							
249	CVS2-115													2.689							
250	CVS2-116													2.692							
251	CVS2-117													2.671							
252	CVS2-118													2.682							
253	CVS2-119													2.695							
254	CVS2-120													2.659							
255	CVS2-121													2.621							
256	CVS2-122													2.577							
257	CVS2-123													2.714							
258	CVS3-1										No XL				-7.170	10073.0	492.1	-12.040	22335.1	1095.0	76.079
259	CVS3-2										No XL		Amorphous		-2.610	3388.7	979.1	-11.320	22774.9	1194.0	74.061
260	CVS3-3										<<.1 undisolved cluster <<.1 spinel				-8.150	9715.8	490.4	-13.610	22648.3	1000.0	71.0640
261	CVS3-4										2.6% spinel, possibly und Zr	5 vol% XL, 90w% sp, 10w% ZrC	35vol% XL, 45w%CaNdPO4SiO4, 35w%spinel,		20w%ZrCeO			-13.640	21802.3	1044.0	16.676
262	CVS3-5										3.6% spinel, possibly und. Zr	3 vol% XL, 75w% NiO, 25w% sp	40vol% XL, 30w%CaNdPO4SiO4, 30w%spinel,		40w%ZrCeO			(-39.99)	(59812.9)	1051.0	188.3760
263	CVS3-6										No XL				-7.880	10857.0	366.6	-11.240	19441.9	1043.0	35.037
264	CVS3-7										No XL				-6.100	7680.2	577.2	-11.310	20355.7	1093.0	37.886
265	CVS3-8										No XL				-8.610	11477.0	332.8	-11.950	19755.5	992.0	40.279
266	CVS3-9										very small particles				-3.380	4309.2	942.4	-11.530	23596.9	1244.0	60.786
267	CVS3-10										No XL				-6.510	6836.5	584.0	-12.910	20788.1	949.0	65.5650
268	CVS3-11										No XL				-6.850	8702.9	501.4	-12.050	20895.7	992.0	93.903
269	CVS3-12										very small particles				-3.330	4247.6	977.9	-12.580	25798.1	1245.0	92.087
270	CVS3-13										<.1% spinel		10 vol% Spinel					(-12.45)	(22264.6)	1093.0	42.993
271	CVS3-14										No XL				-8.240	11874.0	401.9	-12.190	22179.8	1093.0	59.388
272	CVS3-15										No XL				-6.900	10081.0	508.2	-11.620	22350.5	1143.0	66.794
273	CVS3-16										3.8% XL, inhomo	10 vol% XL, 75w% sp, 25w% Nd	fully XL, 45w% LiAlSi, 40w% np, 10w% NaNdSi					(-15.756)	(31073.01)	1244.0	120.438
274	CVS3-17										2.2% XL, inhomo		25 vol% XL, 50w% NaNdSi, 35w% sp		-3.820	4518.2	948.9	-12.570	25176.8	1245.0	60.506
275	CVS3-18										very small particles similar to 3-17				-4.170	5022.3	863.4	-12.200	23840.3	1194.0	61.980
276	CVS3-19										No XL				-6.220	7808.3	584.3	-11.660	20994.0	1095.0	42.114
277	CVS3-20										3.1% XL inhomo, und Zr and oth	10% ZrO2, YZrO type	15% ZrO2, Sp					(-16.606)	(31488.601)	1194.0	94.237
278	CVS3-21										.32% same as 3-20		10 vol% XL, 60w% ZrO2, 40w% sp					-14.540	26635.5	1144.0	73.108
279	CVS3-22										No XL				-6.410	7887.1	655.4	-13.330	24483.5	1094.0	106.899
280	CVS3-23										No XL				-6.130	8624.7	513.0	-10.230	19285.4	1144.0	30.252
281	CVS3-24										very small particles inhomo	amorphous	5% Sp		-10.590	17178.0	188.2	-12.460	22463.8	1093.0	54.8630
282	CVS3-25										No XL				-6.400	9108.6	547.0	-10.890	21058.0	1193.0	33.2710
283	CVS3-26																				
284	CVS3-27										scattered spinel		10vol% XL, 70wt% Spinel, 30wt% Ca5((Si,P,S)O4)3F					-12.300	22012.2	1094.0	43.412
285	CVS3-28										No XL		Amorphous		-5.280	6550.7	671.7	-11.730	21601.3	1093.0	63.952
286	CVS3-29										No XL		Amorphous		-5.730	7242.1	623.2	-11.620	21281.6	1093.0	55.661
287	CVS3-30										No XL		Amorphous		-5.150	6062.3	677.0	-12.090	21496.7	1043.0	76.066
288	CVS3-31										No XL		Amorphous		-6.050	7152.5	601.3	-12.850	22130.1	993.0	110.8590
289	CVS3-32											amorphous	Amorphous		-4.860	5810.8	762.6	-12.060	22652.7	1160.0	45.210
290	CVS3-33											amorphous	Amorphous		-4.050	4904.8	816.2	-11.700	22277.1	1162.0	48.4700
291	CVS3-34											amorphous	small amt of Al2O3, cp		-2.260	2504.3	1035.1	-12.320	23248.5	1160.0	56.8020
292	CVS3-35											amorphous	small amt of Ce2O3 and cp		-3.440	3717.8	917.3	-12.530	23315.2	1136.5	60.795
293	CVS3-36											amorphous	cp, CeO2 type crystals		-1.580	1563.1	1154.7	-10.750	20346.7	(1136.5)	(94.1288)
294	CVS3-37										No XL	amorphous	2 vol% XL, Na3Nd(PO4)2, Li3PO4, NdPO4		-6.250	8214.7	606.9	-11.860	22236.4	1144.0	48.668
295	CVS3-38										No XL	1 vol% XL, NaNdPO4	8 vol% XL, Na3Nd(PO4)2, Li3PO4, NdPO4,		-6.400	8599.9	590.0	-11.900	22463.8	1144.0	54.859
296	CVS3-39										No XL	3 vol% XL, NaNdPO4	17 vol% XL, Na3Nd(PO4)2, Li3PO4, NdPO4		-4.460	5383.3	795.1	-12.000	22833.0	1144.0	66.2050
297	CVS3-40										No XL	7 vol% XL, NaNdPO4	22 vol% XL, Na3Nd(PO4)2, Li3PO4, NdPO4		-5.800	7434.1	687.1	-12.190	23294.0	1194.0	42.0180
298	TRU-BL-1																				
299	TRU-AZ-1																				
300	TRU-NL-1																				
301	TRU-AB-1																				
302	TRU-NB-1																				
303	TRU-ZN-1																				
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306	TRU-ABZ-1																				
307	TRU-NBZ-1																				
308	TRU-Al-1																				
309	TRU-Al-6																				
310	TRU-B-1																				
311	TRU-B-2																				
312	TRU-B-3																				
313	TRU-B-4																				
314	TRU-B-5																				
315	TRU-Bi-1																				
316	TRU-Bi-2																				
317	TRU-Bi-3																				
318	TRU-Bi-4																				
319	TRU-Ce-1																				
320	TRU-Ce-2																				
321	TRU-Ce-3																				
322	TRU-Li-1																				
323	TRU-Li-2																				
324	TRU-Li-3																				
325	TRU-Li-4																				
326	TRU-Na-1																				
327	TRU-Na-2																				
328	TRU-Na-3																				

#	Glass ID	T2 (°C)	V2 (Pa·s)	T3 (°C)	V3 (Pa·s)	T4 (°C)	V4 (Pa·s)	T5 (°C)	V5 (Pa·s)	T6 (°C)	V6 (Pa·s)	T7 (°C)	V7 (Pa·s)	T8 (°C)	V8 (Pa·s)	T9 (°C)	V9 (Pa·s)	T10 (°C)	V10 (Pa·s)	TCLP Ag	TCLP As	TCLP Ba	TCLP Cd	TCLP Cr	TCLP Ni	TCLP Pb
247	CVS2-113																									
248	CVS2-114																									
249	CVS2-115																									
250	CVS2-116																									
251	CVS2-117																									
252	CVS2-118																									
253	CVS2-119																									
254	CVS2-120																									
255	CVS2-121																									
256	CVS2-122																									
257	CVS2-123																									
258	CVS3-1	1145	40.684	1194	23.2	1244.0	14.1	1245.0	14.4	1294.0	8.9	1294.0	9.1	1295.0	9.1	1344.0	5.9	1395.0	4.0							
259	CVS3-2	1245	41.304	1294	23.4	1344.0	14.8	1344.0	15.0	1394.0	8.8410	1395.0	10.3	1395.0	10.5	1445.0	7.2	1497.0	5.5							
260	CVS3-3	1100	16.723	1150	9.9	1199.0	5.7	1200.0	5.8	1235.0	4.0	1235.0	4.1	1235.0	3.9480	1300.0	2.2	1350.0	1.5							
261	CVS3-4	1094	10.903	1143	6.2	1144.0	5.8	1193.0	3.3	1194.0	3.6	1194.0	3.2	1244.0	2.0											
262	CVS3-5	1126	21.037	1126	21.3	1126.0	7.9	1200.0	2.0																	
263	CVS3-6	1094	19.427	1144	11.8	1195.0	7.3	1244.0	4.7	1245.0	4.7	1294.0	3.2	1294.0	3.2	1295.0	3.2	1344.0	2.2							
264	CVS3-7	1144	21.2990	1194	12.7	1244.0	7.9	1244.0	7.9	1294.0	5.1	1294.0	5.3	1295.0	5.4	1344.0	3.6	1395.0	2.6							
265	CVS3-8	1043	21.123	1094	12.2	1144.0	7.2	1194.0	4.5	1194.0	4.5	1243.0	2.8910	1244.0	2.9	1245.0	3.0	1294.0	2.0							
266	CVS3-9	1294	34.410	1344	20.3	1394.0	12.9	1394.0	13.4	1444.0	8.4	1444.0	8.9	1445.0	9.0	1495.0	6.2	1547.0	4.8							
267	CVS3-10	1000	30.851	1100	8.7	1149.0	5.1	1199.0	3.1	1199.0	3.2	1249.0	2.1	1249.0	2.1770	1249.0	2.2	1299.0	1.5							
268	CVS3-11	1042	46.147	1094	24.9	1143.0	14.3	1193.0	8.6	1193.0	8.6	1243.0	5.5	1243.0	5.7	1244.0	5.7	1294.0	3.7							
269	CVS3-12	1294	49.166	1344	27.7	1394.0	16.6	1394.0	17.2	1444.0	10.7	1445.0	11.2	1446.0	11.1	1496.0	7.9	1547.0	5.5							
270	CVS3-13	1144	22.966	1194	18.5	1244.0	10.4	1244.0	10.7	1294.0	5.8	1294.0	5.9	1295.0	5.1	1344.0	3.6	1396.0	2.3							
271	CVS3-14	1144	30.650	1195	18.6	1244.0	11.4	1245.0	11.0	1294.0	7.0	1295.0	6.8	1295.0	7.1	1345.0	4.5	1395.0	3.2							
272	CVS3-15	1194	36.803	1244	21.6	1294.0	13.7240	1294.0	13.9	1343.0	8.7	1344.0	8.9320	1345.0	8.9	1394.0	6.1	1445.0	4.1							
273	CVS3-16	1294	45.916	1345	38.8	1395.0	18.5	1395.0	20.5	1445.0	9.5	1445.0	10.1660	1446.0	8.8	1496.0	5.7	1547.0	4.1							
274	CVS3-17	1295	32.075	1345	19.9	1395.0	12.1	1395.0	12.4	1444.0	7.5	1445.0	7.5	1446.0	7.4	1496.0	5.0570	1547.0	4.3							
275	CVS3-18	1245	33.993	1294	19.3	1344.0	12.0	1344.0	12.3	1394.0	7.6	1395.0	7.8	1396.0	8.0	1446.0	5.3	1496.0	4.1							
276	CVS3-19	1145	23.382	1194	13.6	1244.0	8.5	1244.0	8.6	1294.0	5.5	1294.0	5.7	1295.0	5.6	1345.0	3.8140	1395.0	2.7							
277	CVS3-20	1245	35.827	1295	80.0100	1345.0	24.3	1345.0	23.2	1395.0	11.7	1395.0	10.3	1396.0	5.7	1446.0	5.2	1496.0	2.4							
278	CVS3-21	1195	32.159	1245	21.6	1294.0	12.4	1295.0	11.9	1344.0	6.7220	1345.0	7.2	1346.0	6.1	1395.0	4.2	1446.0	2.6							
279	CVS3-22	1144	51.787	1195	27.6	1244.0	15.1	1294.0	9.2	1295.0	9.4	1344.0	5.9	1345.0	6.1	1345.0	6.1	1395.0	3.9640							
280	CVS3-23	1194	18.578	1244	11.6	1294.0	7.6	1294.0	7.8	1344.0	5.2110	1345.0	5.4	1345.0	5.6	1396.0	3.8	1446.0	2.8							
281	CVS3-24	1144	29.055	1194	17.4	1244.0	10.4	1244.0	10.6	1294.0	6.4	1295.0	6.6	1295.0	6.4	1345.0	4.1	1396.0	2.8							
282	CVS3-25	1244	19.924	1293	12.7	1343.0	8.2	1344.0	8.3	1393.0	5.6	1394.0	5.7	1394.0	5.7	1444.0	3.9	1495.0	2.9							
283	CVS3-26																									
284	CVS3-27	1144	23.025	1195	16.4	1244.0	9.7660	1245.0	9.4	1295.0	5.5	1295.0	5.7190	1296.0	5.3	1345.0	3.6	1396.0	2.4							
285	CVS3-28	1144	33.534	1194	19.2	1244.0	11.9	1244.0	12.0	1293.0	7.6	1294.0	7.7	1295.0	7.6	1344.0	5.3	1395.0	3.7							
286	CVS3-29	1144	29.980	1194	17.1000	1244.0	10.6	1244.0	10.8	1294.0	6.9	1294.0	7.0	1295.0	6.9	1345.0	4.9	1395.0	3.3							
287	CVS3-30	1093	38.350	1143	21.0	1193.0	12.6510	1193.0	12.8	1243.0	7.8	1243.0	7.9	1245.0	7.9	1294.0	5.1190	1344.0	3.7							
288	CVS3-31	1043	52.279	1093	27.4	1142.0	15.4	1143.0	15.1	1192.0	9.3	1193.0	9.2	1194.0	9.3	1243.0	5.9	1294.0	3.9							
289	CVS3-32	1241	17.379	1289	11.0	1289.0	11.0	1337.0	7.4	1338.0	7.4	1338.0	7.5	1424.0	3.8											
290	CVS3-33	1234	21.132	1281	13.0	1281.0	13.5	1329.0	8.8	1329.0	9.2	1330.0	9.3	1401.0	5.2											
291	CVS3-34	1243	18.943	1289	12.0	1290.0	11.9	1336.0	7.7	1337.0	7.9670	1338.0	9.2520	1425.0	4.5											
292	CVS3-35	1242	16.187	1289	10.3200	1289.0	10.4	1336.0	6.9	1337.0	6.8	1338.0	6.9190	1424.0	3.8											
293	CVS3-36	1243	15.129	1289	9.7	1290.0	9.7	1336.0	6.4	1338.0	6.3	1339.0	6.4	1424.0	3.6											
294	CVS3-37	1194	27.483	1244	15.6	1294.0	10.1	1295.0	9.8	1377.0	6.3	1345.0	6.6	1346.0	6.7	1396.0	4.4	1446.0	3.1							
295	CVS3-38	1194	30.554	1244	17.3640	1294.0	11.1	1295.0	10.9040	1344.0	7.0	1345.0	7.3	1346.0	7.3	1396.0	4.9	1446.0	3.3							
296	CVS3-39	1194	35.4260	1244	20.0920	1294.0	12.4400	1294.0	12.6360	1344.0	7.9220	1344.0	8.0880	1345.0	8.0270	1396.0	5.4590	1446.0	4.0000							
297	CVS3-40	1245	23.0540	1295	14.0670	1295.0	14.1720	1344.0	8.7200	1345.0	8.9160	1346.0	8.9910	1396.0	5.9810	1447.0	4.0230									
298	TRU-BL-1																									
299	TRU-AZ-1																									
300	TRU-NL-1																									
301	TRU-AB-1																									
302	TRU-NB-1																									
303	TRU-ZN-1																									
304	TRU-ZB-1																									
305	TRU-ANZ-1																									
306	TRU-ABZ-1																									
307	TRU-NBZ-1																									
308	TRU-Al-1																									
309	TRU-Al-6																									
310	TRU-B-1																									
311	TRU-B-2																									
312	TRU-B-3																									
313	TRU-B-4																									
314	TRU-B-5																									
315	TRU-Bi-1																									
316	TRU-Bi-2																									
317	TRU-Bi-3																									
318	TRU-Bi-4																									
319	TRU-Ce-1																									
320	TRU-Ce-2																									
321	TRU-Ce-3																									
322	TRU-Li-1																									
323	TRU-Li-2																									
324	TRU-Li-3																									
325	TRU-Li-4																									
326	TRU-Na-1																									
327	TRU-Na-2																									
328	TRU-Na-3																									

#	Glass ID	TCLP Se	TCLP Zn	TCLP Al	TCLP B	TCLP Sb	TCLP Tl	TCLP V	Q PCT B (g/m²)	Q PCT Li (g/m²)	Q PCT Na (g/m²)	Q PCT Si (g/m²)	Q PCT pH	CCC PCT B (g/m²)	CCC PCT Li (g/m²)	CCC PCT Na (g/m²)	CCC PCT Si (g/m²)	CCC PCT pH	T1 (°C)
247	CVS2-113								0.612	0.630	0.510	0.216	9.630	0.558	0.515	0.437	0.202	9.630	
248	CVS2-114								7.116	4.928	4.599	1.860	11.410	7.038	4.498	4.170	1.758	11.350	
249	CVS2-115								9.406	5.837	5.765	1.942	11.550	9.472	5.704	5.611	1.827	11.550	
250	CVS2-116								3.012	2.203	2.030	0.606	10.425	2.754	2.019	1.922	0.570	10.400	
251	CVS2-117								1.590	1.337	1.099	0.445	10.190	1.600	1.366	1.141	0.436	10.200	
252	CVS2-118								3.630	2.609	2.394	0.606	10.395	2.808	2.106	1.968	0.555	10.300	
253	CVS2-119								3.803	2.688	2.574	0.829	10.320	3.593	3.014	2.815	0.827	10.340	
254	CVS2-120								0.291	0.324	0.231	0.154	10.096	0.291	0.306	0.216	0.138	10.090	
255	CVS2-121								0.199	0.311	0.137	0.129	10.055	0.175	0.270	0.135	0.119	10.005	
256	CVS2-122								0.193	0.363	0.089	0.128	9.910	0.213	0.309	0.089	0.116	9.920	
257	CVS2-123								1.473	1.125	1.075	0.391	10.220	1.352	1.054	1.006	0.356	10.200	
258	CVS3-1								0.422	0.383	0.400	0.160	11.200	0.294	0.361	0.354	0.152	11.145	
259	CVS3-2								4.803	0.360	0.306	0.132	10.800	0.262	0.328	0.286	0.131	10.770	
260	CVS3-3								0.450	0.447	0.609	0.202	11.610	0.450	0.477	0.606	0.206	11.625	
261	CVS3-4								0.654	0.595	0.907	0.254	11.875	0.645	0.882	1.356	0.359	12.045	
262	CVS3-5								0.627	0.620	1.174	0.271	12.030	1.216	1.300	2.237	0.479	12.295	
263	CVS3-6								0.309	0.346	0.296	0.151	10.230	0.275	0.306	0.268	0.144	10.170	
264	CVS3-7								0.264	0.326	0.307	0.150	11.725	0.241	0.295	0.278	0.137	10.585	
265	CVS3-8								1.266	1.643	2.625	0.585	12.445	1.548	1.477	2.462	0.580	12.415	
266	CVS3-9								0.209	0.355	0.034	0.100	10.235	0.627	0.345	0.045	0.101	10.210	
267	CVS3-10								0.703	0.865	0.824	0.334	11.845		1.324	0.732	0.319	11.790	
268	CVS3-11								0.429	0.540	0.567	0.224	11.575		0.844	0.502	0.229	11.470	
269	CVS3-12								0.100	0.000	0.314	0.113	10.785	0.268		0.299	0.114	10.640	
270	CVS3-13								0.804	0.380	0.336	0.162	11.020	0.583	0.364	0.332	0.160	11.045	
271	CVS3-14								0.301	0.356	0.346	0.155	11.060	0.503	0.554	0.614	0.200	11.505	
272	CVS3-15								0.466	0.529	0.585	0.187	11.535	0.306	0.333	0.320	0.139	11.135	
273	CVS3-16								0.268	0.511	0.079	0.120	10.345	1.250	0.418	0.037	0.117	9.460	
274	CVS3-17								0.523	0.422	0.129	0.118	10.640	0.563	0.476	0.126	0.160	10.475	
275	CVS3-18								0.643	0.304	0.199	0.111	10.740	0.302	0.301	0.199	0.112	10.695	
276	CVS3-19								2.022	1.640	1.717	0.842	11.430	2.220	1.398	1.470	0.743	11.300	
277	CVS3-20								0.181	0.331	0.298	0.110	11.030	0.804	0.396	0.364	0.135	11.175	
278	CVS3-21								0.196	0.301	0.254	0.097	11.025	0.530	0.359	0.322	0.124	11.140	
279	CVS3-22								0.324	0.310	0.303	0.119	11.070	0.432	0.330	0.303	0.118	10.965	
280	CVS3-23								0.402	0.502	0.562	0.232	11.280	0.515	0.481	0.528	0.228	11.170	
281	CVS3-24								0.261	0.355	0.380	0.151	11.070	0.362	0.356	0.342	0.155	10.970	
282	CVS3-25								0.209	0.384	0.420	0.161	11.260	0.338	0.368	0.382	0.156	11.175	
283	CVS3-26																		
284	CVS3-27								0.342	0.358	0.329	0.157	10.975	0.704	0.395	0.391	0.159	11.145	
285	CVS3-28								0.305	0.382	0.400	0.160	11.210	1.094	0.365	0.366	0.157	11.085	
286	CVS3-29								0.241	0.411	0.432	0.189	11.220	0.531	0.376	0.381	0.155	11.155	
287	CVS3-30								0.338	0.397	0.420	0.183	11.230	0.463	0.385	0.379	0.159	11.030	
288	CVS3-31								0.261	0.451	0.465	0.202	11.250	2.311	0.382	0.376	0.156	11.045	
289	CVS3-32								0.487	0.370	0.326	0.159	10.875	0.412	0.367	0.289	0.155	10.840	
290	CVS3-33								0.403	0.338	0.335	0.149	10.950	0.368	0.334	0.299	0.144	10.865	
291	CVS3-34								0.411	0.357	0.331	0.154	10.890	0.394	0.369	0.297	0.151	10.875	
292	CVS3-35								0.422	0.395	0.325	0.163	10.780	0.441	0.468	0.343	1.740	10.940	
293	CVS3-36								0.543	0.393	0.304	0.165	10.800	0.523	0.458	0.313	0.174	10.880	
294	CVS3-37								0.547	0.188	0.370	0.151	10.520	0.294	0.354	0.361	0.152	10.955	
295	CVS3-38								0.418	0.292	0.327	0.147	11.030	0.370	0.326	0.283	0.120	10.900	
296	CVS3-39								0.209	0.234	0.252	0.121	10.811	0.242	0.681	0.286	0.130	10.890	
297	CVS3-40								0.225	0.205	0.248	0.141	10.590	0.290	1.055	0.359	0.168	10.720	
298	TRU-BL-1																		
299	TRU-AZ-1																		
300	TRU-NL-1																		
301	TRU-AB-1																		
302	TRU-NB-1																		
303	TRU-ZN-1																		
304	TRU-ZB-1																		
305	TRU-ANZ-1																		
306	TRU-ABZ-1																		
307	TRU-NBZ-1																		
308	TRU-Al-1																		
309	TRU-Al-6																		
310	TRU-B-1																		
311	TRU-B-2																		
312	TRU-B-3																		
313	TRU-B-4																		
314	TRU-B-5																		
315	TRU-Bi-1																		
316	TRU-Bi-2																		
317	TRU-Bi-3																		
318	TRU-Bi-4																		
319	TRU-Ce-1																		
320	TRU-Ce-2																		
321	TRU-Ce-3																		
322	TRU-Li-1																		
323	TRU-Li-2																		
324	TRU-Li-3																		
325	TRU-Li-4																		
326	TRU-Na-1																		
327	TRU-Na-2																		
328	TRU-Na-3																		

#	Glass ID	EC1 (S/cm)	T2 (°C)	EC2 (S/cm)	T3 (°C)	EC3 (S/cm)	T4 (°C)	EC4 (S/cm)	T5 (°C)	EC5 (S/cm)	T6 (°C)	EC6 (S/cm)	A	B	To
247	CVS2-113														
248	CVS2-114														
249	CVS2-115														
250	CVS2-116														
251	CVS2-117														
252	CVS2-118														
253	CVS2-119														
254	CVS2-120														
255	CVS2-121														
256	CVS2-122														
257	CVS2-123														
258	CVS3-1														
259	CVS3-2														
260	CVS3-3														
261	CVS3-4														
262	CVS3-5														
263	CVS3-6														
264	CVS3-7														
265	CVS3-8														
266	CVS3-9														
267	CVS3-10														
268	CVS3-11														
269	CVS3-12														
270	CVS3-13														
271	CVS3-14														
272	CVS3-15														
273	CVS3-16														
274	CVS3-17														
275	CVS3-18														
276	CVS3-19														
277	CVS3-20														
278	CVS3-21														
279	CVS3-22														
280	CVS3-23														
281	CVS3-24														
282	CVS3-25														
283	CVS3-26														
284	CVS3-27														
285	CVS3-28														
286	CVS3-29														
287	CVS3-30														
288	CVS3-31														
289	CVS3-32														
290	CVS3-33														
291	CVS3-34														
292	CVS3-35														
293	CVS3-36														
294	CVS3-37														
295	CVS3-38														
296	CVS3-39														
297	CVS3-40														
298	TRU-BL-1														
299	TRU-AZ-1														
300	TRU-NL-1														
301	TRU-AB-1														
302	TRU-NB-1														
303	TRU-ZN-1														
304	TRU-ZB-1														
305	TRU-ANZ-1														
306	TRU-ABZ-1														
307	TRU-NBZ-1														
308	TRU-Al-1														
309	TRU-Al-6														
310	TRU-B-1														
311	TRU-B-2														
312	TRU-B-3														
313	TRU-B-4														
314	TRU-B-5														
315	TRU-Bi-1														
316	TRU-Bi-2														
317	TRU-Bi-3														
318	TRU-Bi-4														
319	TRU-Ce-1														
320	TRU-Ce-2														
321	TRU-Ce-3														
322	TRU-Li-1														
323	TRU-Li-2														
324	TRU-Li-3														
325	TRU-Li-4														
326	TRU-Na-1														
327	TRU-Na-2														
328	TRU-Na-3														

#	Glass ID	Study	Reference	Al2O3-t	B2O3-t	CaO-t	Fe2O3-t	FeO-t	K2O-t	Li2O-t	MgO-t	Na2O-t	NiO-t	P2O5-t	SiO2-t	ZrO2-t	Ag2O-t	As2O3-t	As2O5-t	BaO-t	BeO-t	Bi2O3-t	Br-t	CdO-t	Ce2O3-t	CeO2-t	Cl-t
329	TRU-Na-4	TRU Study	Crum et al. 1997	0.0226	0.0800	0.0096	0.0428		0.0027	0.0450	0.0026	0.1300	0.0007	0.0086	0.4591	0.1050	0.0002			0.0004		0.0532				0.0000	
330	TRU-P-1	TRU Study	Crum et al. 1997	0.0227	0.0806	0.0097	0.0430		0.0027	0.0453	0.0026	0.1126	0.0007	0.0200	0.4623	0.1058	0.0002			0.0004		0.0535				0.0000	
331	TRU-P-2	TRU Study	Crum et al. 1997	0.0225	0.0798	0.0096	0.0426		0.0026	0.0449	0.0026	0.1115	0.0007	0.0300	0.4576	0.1047	0.0002			0.0004		0.0530				0.0000	
332	TRU-P-3	TRU Study	Crum et al. 1997	0.0222	0.0789	0.0095	0.0422		0.0026	0.0444	0.0026	0.1103	0.0007	0.0400	0.4528	0.1036	0.0002			0.0004		0.0524				0.0000	
333	TRU-P-4	TRU Study	Crum et al. 1997	0.0220	0.0781	0.0094	0.0417		0.0026	0.0439	0.0025	0.1092	0.0007	0.0500	0.4481	0.1025	0.0002			0.0004		0.0519				0.0000	
334	TRU-Si-1	TRU Study	Crum et al. 1997	0.0255	0.0903	0.0108	0.0483		0.0030	0.0508	0.0029	0.1263	0.0008	0.0097	0.4100	0.1185	0.0002			0.0005		0.0600				0.0000	
335	TRU-Si-2	TRU Study	Crum et al. 1997	0.0207	0.0735	0.0088	0.0393		0.0024	0.0413	0.0024	0.1027	0.0006	0.0079	0.5200	0.0964	0.0002			0.0004		0.0488				0.0000	
336	TRU-Si-3	TRU Study	Crum et al. 1997	0.0272	0.0964	0.0115	0.0515		0.0032	0.0543	0.0031	0.1348	0.0008	0.0103	0.3700	0.1266	0.0002			0.0005		0.0641				0.0000	
337	TRU-Si-4	TRU Study	Crum et al. 1997	0.0186	0.0658	0.0079	0.0352		0.0022	0.0370	0.0021	0.0920	0.0005	0.0070	0.5700	0.0864	0.0002			0.0004		0.0437				0.0000	
338	TRU-Zr-1	TRU Study	Crum et al. 1997	0.0237	0.0840	0.0101	0.0449		0.0028	0.0472	0.0027	0.1174	0.0007	0.0090	0.4817	0.0800	0.0002			0.0005		0.0558				0.0000	
339	TRU-Zr-2	TRU Study	Crum et al. 1997	0.0226	0.0803	0.0096	0.0429		0.0027	0.0452	0.0026	0.1123	0.0007	0.0086	0.4608	0.1200	0.0002			0.0004		0.0534				0.0000	
340	TRU-Zr-3	TRU Study	Crum et al. 1997	0.0221	0.0785	0.0094	0.0419		0.0026	0.0442	0.0025	0.1097	0.0007	0.0084	0.4503	0.1400	0.0002			0.0004		0.0522				0.0000	
341	TRU-Zr-4	TRU Study	Crum et al. 1997	0.0216	0.0767	0.0092	0.0410		0.0025	0.0431	0.0025	0.1072	0.0006	0.0082	0.4398	0.1600	0.0002			0.0004		0.0509				0.0000	
342	Zr-1	Zr Study	Vienna et al. 1999	0.0450	0.1000	0.0009			0.0042	0.0750		0.1100		0.0021	0.5114	0.1500									0.0002		
343	Zr-2	Zr Study	Vienna et al. 1999	0.0450	0.1000	0.0008			0.0038	0.0750		0.1116		0.0019	0.5256	0.1350									0.0002		
344	Zr-3	Zr Study	Vienna et al. 1999	0.0450	0.1000	0.0009			0.0047	0.0750		0.1084		0.0023	0.4971	0.1650									0.0002		
345	Zr-4	Zr Study	Vienna et al. 1999	0.0300	0.1000	0.0009			0.0042	0.0750		0.1083		0.0021	0.5281	0.1500									0.0002		
346	Zr-5	Zr Study	Vienna et al. 1999	0.0600	0.1000	0.0009			0.0042	0.0750		0.1118		0.0021	0.4946	0.1500									0.0002		
347	Zr-6	Zr Study	Vienna et al. 1999	0.0450	0.1000	0.0009			0.0042	0.0750		0.1100		0.0021	0.5114	0.1500									0.0002		
348	Zr-7	Zr Study	Vienna et al. 1999	0.0450	0.0500	0.0009			0.0042	0.0750		0.1480		0.0021	0.5234	0.1500									0.0002		
349	Zr-8	Zr Study	Vienna et al. 1999	0.0450	0.1500	0.0009			0.0042	0.0750		0.0721		0.0021	0.4993	0.1500									0.0002		
350	Zr-9	Zr Study	Vienna et al. 1999	0.0450	0.1000	0.0009			0.0042	0.0600		0.1425		0.0021	0.4939	0.1500									0.0002		
351	Zr-10	Zr Study	Vienna et al. 1999	0.0450	0.1000	0.0009			0.0042	0.0750		0.1100		0.0021	0.5114	0.1500									0.0002		
352	Zr-11	Zr Study	Vienna et al. 1999	0.0450	0.1000	0.0009			0.0042	0.0900		0.0776		0.0021	0.5288	0.1500									0.0002		
353	Zr-12	Zr Study	Vienna et al. 1999	0.0600	0.1500	0.0009			0.0047	0.0900		0.0398		0.0023	0.4858	0.1650									0.0002		
354	Zr-13	Zr Study	Vienna et al. 1999	0.0600	0.1500	0.0009			0.0047	0.0600		0.1046		0.0023	0.4509	0.1650									0.0002		
355	Zr-14	Zr Study	Vienna et al. 1999	0.0600	0.0500	0.0009			0.0047	0.0900		0.1157		0.0023	0.5098	0.1650									0.0002		
356	Zr-15	Zr Study	Vienna et al. 1999	0.0600	0.0500	0.0009			0.0047	0.0600		0.1805		0.0023	0.4750	0.1650									0.0002		
357	Zr-16	Zr Study	Vienna et al. 1999	0.0450	0.1000	0.0009			0.0042	0.0750		0.1100		0.0021	0.5114	0.1500									0.0002		
358	Zr-17	Zr Study	Vienna et al. 1999	0.0300	0.1500	0.0009			0.0047	0.0900		0.0362		0.0023	0.5193	0.1650									0.0002		
359	Zr-18	Zr Study	Vienna et al. 1999	0.0300	0.1500	0.0009			0.0047	0.0600		0.1011		0.0023	0.4844	0.1650									0.0002		
360	Zr-19	Zr Study	Vienna et al. 1999	0.0300	0.0500	0.0009			0.0047	0.0900		0.1122		0.0023	0.5434	0.1650									0.0002		
361	Zr-20	Zr Study	Vienna et al. 1999	0.0300	0.0500	0.0009			0.0047	0.0600		0.1770		0.0023	0.5085	0.1650									0.0002		
362	Zr-21	Zr Study	Vienna et al. 1999	0.0600	0.1500	0.0008			0.0038	0.0900		0.0430		0.0019	0.5142	0.1350									0.0002		
363	Zr-22	Zr Study	Vienna et al. 1999	0.0600	0.1500	0.0008			0.0038	0.0600		0.1079		0.0019	0.4794	0.1350									0.0002		
364	Zr-23	Zr Study	Vienna et al. 1999	0.0600	0.0500	0.0008			0.0038	0.0900		0.1189		0.0019	0.5383	0.1350									0.0002		
365	Zr-24	Zr Study	Vienna et al. 1999	0.0600	0.0500	0.0008			0.0038	0.0600		0.1838		0.0019	0.5035	0.1350									0.0002		
366	Zr-25	Zr Study	Vienna et al. 1999	0.0300	0.1500	0.0008			0.0038	0.0900		0.0395		0.0019	0.5477	0.1350									0.0002		
367	Zr-26	Zr Study	Vienna et al. 1999	0.0300	0.1500	0.0008			0.0038	0.0600		0.1044		0.0019	0.5129	0.1350									0.0002		
368	Zr-27	Zr Study	Vienna et al. 1999	0.0300	0.0500	0.0008			0.0038	0.0900		0.1154		0.0019	0.5718	0.1350									0.0002		
369	Zr-28	Zr Study	Vienna et al. 1999	0.0450	0.1000	0.0009			0.0042	0.0750		0.1100		0.0021	0.5114	0.1500									0.0002		
370	Zr-29	Zr Study	Vienna et al. 1999	0.0300	0.0500	0.0008			0.0038	0.0600		0.1803		0.0019	0.5370	0.1350									0.0002		
371	SP-1a	SP	Mika et al. 1997	0.0800	0.0700	0.0100	0.1250		0.0028	0.0300	0.0060	0.1573	0.0052	0.0046	0.4600	0.0185	0.0007	0.0000		0.0030		0.0000		0.0070		0.0007	0.0001
372	SP-1b	SP	Mika et al. 1997	0.0800	0.0700	0.0100	0.1250		0.0028	0.0300	0.0060	0.1573	0.0052	0.0046	0.4600	0.0185	0.0007	0.0000		0.0030		0.0000		0.0070		0.0007	0.0001
373	SP-1c	SP	Mika et al. 1997	0.0800	0.0700	0.0100	0.1250		0.0028	0.0300	0.0060	0.1573	0.0052	0.0046	0.4600	0.0185	0.0007	0.0000		0.0030		0.0000		0.0070		0.0007	0.0001
374	SP-1d	SP	Mika et al. 1997	0.0800	0.0700	0.0100	0.1250		0.0028	0.0300	0.0060	0.1573	0.0052	0.0046	0.4600	0.0185	0.0007	0.0000		0.0030		0.0000		0.0070		0.0007	0.0001
375	SP-1e	SP	Mika et al. 1997	0.0800	0.0700	0.0100	0.1250		0.0028	0.0300	0.0060	0.1573	0.0052	0.0046	0.4600	0.0185	0.0007	0.0000		0.0030		0.0000		0.0070		0.0007	0.0001
376	SP-1f	SP	Mika et al. 1997	0.0800	0.0700	0.0100	0.1250		0.0028	0.0300	0.0060	0.1573	0.0052	0.0046	0.4600	0.0185	0.0007	0.0000		0.0030		0.0000		0.0070		0.0007	0.0001
377	SP-1g	SP	Mika et al. 1997	0.0800	0.0700	0.0100	0.1250		0.0028	0.0300	0.0060	0.1573	0.0052	0.0046	0.4600	0.0185	0.0007	0.0000		0.0030		0.0000		0.0070		0.0007	0.0001
378	SP-1h	SP	Mika et al. 1997	0.0800	0.0700	0.0100	0.1250		0.0028	0.0300	0.0060	0.1573	0.0052	0.0046	0.4600	0.0185	0.0007	0.0000		0.0030		0.0000		0.0070		0.0007	0.0001
379	SP-1i	SP	Mika et al. 1997	0.0800	0.0700	0.0100	0.1250		0.0028	0.0300	0.0060	0.1573	0.0052	0.0046	0.4600	0.0185	0.0007	0.0000		0.0030		0.0000		0.0070		0.0007	0.0001
380	SP-Al-1	SP	Mika et al. 1997	0.0400	0.0730	0.0104	0.1304		0.0029	0.0313	0.0063	0.1641	0.0054	0.0048	0.4800	0.0193	0.0007	0.0000		0.0032		0.0000		0.0073		0.0007	0.0001
381	SP-Al-2	SP	Mika et al. 1997	0.1200	0.0670	0.0096	0.1196		0.0027	0.0287	0.0057	0.1505	0.0050	0.0044	0.4400	0.0177	0.0007	0.0000		0.0029		0.0000		0.0067		0.0007	0.0001
382	SP-Al-3	SP	Mika et al. 1997	0.1600	0.0639	0.0091	0.1141		0.0026	0.0274	0.0055	0.1436	0.0047	0.0042	0.4200	0.0169	0.0006	0.0000		0.0028		0.0000		0.0064		0.0006	0.0001
383	SP-B-1	SP	Mika et al. 1997	0.0860	0.0000	0.0108	0.1344		0.0030	0.0323	0.0065	0.1691	0.0056	0.0050	0.4946	0.0199	0.0008	0.0000		0.0033		0.0000		0.0075		0.0008	0.0001
384	SP-B-2	SP	Mika et al. 1997	0.0852	0.0100	0.0106	0.1331		0.0030	0.0319	0.0064	0.1674	0.0055	0.0049	0.4897	0.0197	0.0008	0.0000		0.0032		0.0000		0.0074		0.0008	0.0001
385	SP-B-3	SP	Mika et al. 1997	0.0826	0.0400	0.0103	0.1290		0.0029	0.0310	0.0062	0.1624	0.0054	0.0048	0.4748	0.0191	0.0007	0.0000		0.0031		0.0000		0.0072		0.0007	0.0001
386	SP-B-4	SP	Mika et al. 1997	0.0757	0.1200	0.0095	0.1183		0.0026	0.0284	0.0057	0.1488	0.0049	0.0044	0.4353	0.0175	0.0007	0.0000		0.0029		0.0000		0.0066		0.0007	0.0001
387	SP-Cr-1	SP	Mika et al. 1997	0.0802	0.0702	0.0100	0.1253		0.0028	0.0301	0.0060	0.1576	0.0052	0.0047	0.4610	0.0185	0.0007	0.0000		0.0030		0.0000		0.0070		0.0007	0.0001
388	SP-Cr-2	SP	Mika et al. 1997	0.0798	0.0698	0.0100	0.1246		0.0028	0.0299	0.0060	0.1569	0.0052	0.0046	0.4587	0.0184	0.0007	0.0000		0.0030		0.0000		0.0069		0.0007	0.0001
389	SP-Cr-3	SP	Mika et al. 1997	0.0795	0.0696	0.0099	0.1243		0.0028	0.0298	0.0060	0.1564	0.0052	0.0046	0.4573	0.0184	0.0007	0.0000		0.0030		0.0000		0.0069		0.0007	0.0001
390	SP-Cr-4	SP	Mika et al. 1997	0.0792	0.0693	0.0099	0.1238		0.0028	0.0297	0.0059	0.1558	0.0051	0.0046	0.4555	0.0183	0.0007	0.0000		0.0030		0.0000		0.0069		0.0007	0.0001
391	SP-Fe-1	SP	Mika et al. 1997	0.0859	0.0752	0.0107	0.0600		0.0030	0.0322	0.0064	0.1690	0.0056	0.0050	0.4942	0.0198	0.0008	0.0000		0.0033		0.0000		0.0075		0.0008	0.0001
392	SP-Fe-2	SP	Mika et al. 1997	0.0832	0.0728	0.0104	0.0900		0.0029	0.0312	0.0062	0.1636	0.0054	0.0048	0.4784	0.0192	0.0007	0.0000		0.0031		0.0000		0.0072		0.0007	0.0001
393	SP-Fe-3	SP	Mika et al. 1997	0.0777	0.0680	0.0097	0.1500		0.0027	0.0291	0.0058	0.1528	0.0051	0.0045	0.4469	0.0179	0.0007	0.0000		0.0029		0.0000		0.0068		0.0007	0.0001
394	SP-Li-1	SP	Mika et al. 1997	0.0825	0.0722	0.0103	0.1289		0.0029	0.0000	0.0062	0.1622	0.0054	0.0048	0.4742	0.0190	0.0007	0.0000		0.0031		0.0000		0.0072		0.0007	0.0001
395	SP-Li-2	SP	Mika et al. 1997	0.0816	0.0714	0.0102	0.1276		0.0029	0.0100	0.0061	0.1605	0.0053	0.0047	0.4695	0.0188	0.0007	0.0000		0.0031		0.0000		0.0071		0.0007	0.0001
396	SP-Li-3	SP	Mika et al. 1997	0.0800	0.0700	0.0100	0.1250		0.0028	0.0300	0.0060	0.1573	0.0052	0.0046	0.4600	0.0185	0.0007	0.0000		0.0030		0.0000		0.0070		0.0007	0.0001
397	SP-Mg-1	SP	Mika et al. 1997	0.0797	0.0697	0.0100	0.1245		0.0028	0.0299	0.0100	0.1567	0.0052	0.0046	0.4581	0.0184	0.0007	0.0000		0.0030		0.0000		0.0069		0.0007	0.0001
398	SP-Mg-2	SP	Mika et al. 1997	0.0789	0.0690	0.0099	0.1232		0.0028	0.0296	0.0200	0.1551	0.0051	0.0046	0.4535	0.0182	0.0007	0.0000		0.0030		0.0000		0.0069		0.0007	0.0001
399	SP-Mg-3	SP	Mika et al. 1997	0.0757	0.0662	0.0095	0.1182		0.0026	0.0284	0.0600	0.1488	0.0049	0.0044	0.4350	0.0175	0.0007	0.0000		0.0029		0.0000		0.0066		0.0007	0.0001
400	SP-Mn-1	SP	Mika et al. 1997	0.0803	0.0703	0.0100	0.1255		0.0028	0.0301	0.0060	0.1579	0.0052	0.0047	0.4617	0.0185	0.0007	0.0000		0.0030		0.0000		0.0070		0.0007	0.0001
401	SP-Mn-2	SP	Mika et al. 1997	0.0795	0.0696	0.0099	0.1242		0.0028	0.0298	0.0060	0.1563	0.0052	0.0046	0.4570	0.0183	0.0007	0.0000		0.0030		0.0000		0.0069		0.0007	0.0001
402	SP-Mn-3	SP	Mika et al. 1997	0.0771	0.0674	0.0096	0.1204		0.0027	0.0289	0.0058	0.1516	0.0050	0.0045	0.4432	0.0178	0.0007	0.0000		0.0029		0.0000		0.0067		0.0007	0.0001
403	SP-Na-1	SP	Mika et al. 1997	0.0873	0.0764	0.0109	0.1365		0.0031	0.0328	0.0066	0.0800	0.0057	0.0051	0.5022	0.0202	0.0008	0.0000		0.0033		0.0000		0.0076		0.0008	0.0001
404	SP-Na-2	SP	Mika et al. 1997	0.0835	0.0731	0.0104	0.1305		0.0029	0.0313	0.0063	0.1200	0.0054	0.0049	0.4804	0.0193	0.0007	0.0000		0.0032		0.0000		0.0073		0.0007	0.0001
405	SP-Na-3	SP	Mika et al. 1997	0.0759	0.0665	0.0095	0.1187		0.0027	0.0285	0.0057	0.2000	0.0049	0.0044	0.4367	0.0175	0.0007	0.0000		0.0029		0.0000		0.0066		0.0007	0.0001
406	SP-Ni-1	SP	Mika et al. 1997	0.0804	0.0704	0.0101	0.1257		0.0028	0.0302	0.0060	0.1581	0.0000	0.0047	0.4624	0.0186	0.0007	0.0000		0.0030		0.0000		0.0070		0.0007	0.0001
407	SP-Ni-2	SP	Mika et al. 1997	0.0796	0.0697	0.0100	0.1244		0.0028	0.0299	0.0060	0.1565	0.0100	0.0046	0.4578	0.0184	0.0007	0.0000		0.0030		0.0000		0.0069		0.0007	0.0001
408	SP-Ni-3	SP	Mika et al. 1997	0.0780	0.0683	0.0098	0.1219		0.0027	0.0293	0.0059	0.1534	0.0300	0.0045	0.4485	0.0180	0.0007	0.0000		0.0030		0.0000		0.0068		0.0007	0.0001
409	SP-Si-1	SP	Mika et al. 1997	0.0919	0.0804	0.0115	0.1435		0.0032	0.0344	0.0069	0.1806	0.0060	0.0053	0.3800	0.0212	0.0008	0.0000		0.0035		0.0000		0.0080		0.0008	0.0001
410	SP-Si-2	SP	Mika et al. 1997	0.0711	0.0622	0.0089	0.1111		0.0025	0.0267	0.0053	0.1398	0.0046	0.0041	0.5200	0.0164	0.0006	0.0000		0.0027		0.0000		0.0062		0.0006	0.0001

#	Glass ID	CoO-t	Co2O3-t	Cr2O3-t	Cs2O-t	CuO-t	Dy2O3-t	Eu2O3-t	F-t	Ga2O3-t	Gd2O3-t	HfO2-t	HgO-t	I-t	La2O3-t	MnO2-t	MnO-t	MoO-t	MoO2-t	MoO3-t	Nb2O5-t	Nd2O3-t	NpO2-t	PbO-t	PdO2-t	PdO-t	Pr2O3-t	Pr6O11-t	Rb2O-t	ReO-t
329	TRU-Na-4		0.0000	0.0035		0.0002			0.0041						0.0106		0.0170							0.0011						
330	TRU-P-1		0.0000	0.0036		0.0002			0.0042						0.0107		0.0171							0.0011						
331	TRU-P-2		0.0000	0.0035		0.0002			0.0041						0.0106		0.0169							0.0011						
332	TRU-P-3		0.0000	0.0035		0.0002			0.0041						0.0105		0.0168							0.0011						
333	TRU-P-4		0.0000	0.0035		0.0002			0.0040						0.0104		0.0166							0.0011						
334	TRU-Si-1		0.0000	0.0040		0.0002			0.0047						0.0120		0.0192							0.0013						
335	TRU-Si-2		0.0000	0.0032		0.0001			0.0038						0.0097		0.0156							0.0010						
336	TRU-Si-3		0.0000	0.0043		0.0002			0.0050						0.0128		0.0205							0.0014						
337	TRU-Si-4		0.0000	0.0029		0.0001			0.0034						0.0087		0.0140							0.0009						
338	TRU-Zr-1		0.0000	0.0037		0.0002			0.0043						0.0111		0.0178							0.0012						
339	TRU-Zr-2		0.0000	0.0035		0.0002			0.0041						0.0106		0.0170							0.0011						
340	TRU-Zr-3		0.0000	0.0035		0.0002			0.0040						0.0104		0.0167							0.0011						
341	TRU-Zr-4		0.0000	0.0034		0.0002			0.0040						0.0102		0.0163							0.0011						
342	Zr-1				0.0004						0.0007																			
343	Zr-2				0.0004						0.0006																			
344	Zr-3				0.0005						0.0008																			
345	Zr-4				0.0004						0.0007																			
346	Zr-5				0.0004						0.0007																			
347	Zr-6				0.0004						0.0007																			
348	Zr-7				0.0004						0.0007																			
349	Zr-8				0.0004						0.0007																			
350	Zr-9				0.0004						0.0007																			
351	Zr-10				0.0004						0.0007																			
352	Zr-11				0.0004						0.0007																			
353	Zr-12				0.0005						0.0008																			
354	Zr-13				0.0005						0.0008																			
355	Zr-14				0.0005						0.0008																			
356	Zr-15				0.0005						0.0008																			
357	Zr-16				0.0004						0.0007																			
358	Zr-17				0.0005						0.0008																			
359	Zr-18				0.0005						0.0008																			
360	Zr-19				0.0005						0.0008																			
361	Zr-20				0.0005						0.0008																			
362	Zr-21				0.0005						0.0006																			
363	Zr-22				0.0004						0.0006																			
364	Zr-23				0.0004						0.0006																			
365	Zr-24				0.0004						0.0006																			
366	Zr-25				0.0004						0.0006																			
367	Zr-26				0.0004						0.0006																			
368	Zr-27				0.0004						0.0006																			
369	Zr-28				0.0004						0.0007																			
370	Zr-29				0.0004						0.0006																			
371	SP-1a		0.0009	0.0022	0.0000	0.0003			0.0006						0.0027		0.0036			0.0001		0.0018		0.0017		0.0000		0.0000	0.0000	
372	SP-1b		0.0009	0.0022	0.0000	0.0003			0.0006						0.0027		0.0036			0.0001		0.0018		0.0017		0.0000		0.0000	0.0000	
373	SP-1c		0.0009	0.0022	0.0000	0.0003			0.0006						0.0027		0.0036			0.0001		0.0018		0.0017		0.0000		0.0000	0.0000	
374	SP-1d		0.0009	0.0022	0.0000	0.0003			0.0006						0.0027		0.0036			0.0001		0.0018		0.0017		0.0000		0.0000	0.0000	
375	SP-1e		0.0009	0.0022	0.0000	0.0003			0.0006						0.0027		0.0036			0.0001		0.0018		0.0017		0.0000		0.0000	0.0000	
376	SP-1f		0.0009	0.0022	0.0000	0.0003			0.0006						0.0027		0.0036			0.0001		0.0018		0.0017		0.0000		0.0000	0.0000	
377	SP-1g		0.0009	0.0022	0.0000	0.0003			0.0006						0.0027		0.0036			0.0001		0.0018		0.0017		0.0000		0.0000	0.0000	
378	SP-1h		0.0009	0.0022	0.0000	0.0003			0.0006						0.0027		0.0036			0.0001		0.0018		0.0017		0.0000		0.0000	0.0000	
379	SP-1i		0.0009	0.0022	0.0000	0.0003			0.0006						0.0027		0.0036			0.0001		0.0018		0.0017		0.0000		0.0000	0.0000	
380	SP-Al-1		0.0009	0.0023	0.0000	0.0003			0.0006						0.0028		0.0038			0.0001		0.0019		0.0018		0.0000		0.0000	0.0000	
381	SP-Al-2		0.0009	0.0021	0.0000	0.0003			0.0006						0.0026		0.0034			0.0001		0.0017		0.0016		0.0000		0.0000	0.0000	
382	SP-Al-3		0.0008	0.0020	0.0000	0.0003			0.0006						0.0025		0.0033			0.0001		0.0017		0.0016		0.0000		0.0000	0.0000	
383	SP-B-1		0.0010	0.0024	0.0000	0.0003			0.0007						0.0029		0.0039			0.0001		0.0020		0.0018		0.0000		0.0000	0.0000	
384	SP-B-2		0.0010	0.0023	0.0000	0.0003			0.0006						0.0029		0.0038			0.0001		0.0019		0.0018		0.0000		0.0000	0.0000	
385	SP-B-3		0.0009	0.0023	0.0000	0.0003			0.0006						0.0028		0.0037			0.0001		0.0019		0.0018		0.0000		0.0000	0.0000	
386	SP-B-4		0.0009	0.0021	0.0000	0.0003			0.0006						0.0026		0.0034			0.0001		0.0017		0.0016		0.0000		0.0000	0.0000	
387	SP-Cr-1		0.0009	0.0000	0.0000	0.0003			0.0006						0.0027		0.0036			0.0001		0.0018		0.0017		0.0000		0.0000	0.0000	
388	SP-Cr-2		0.0009	0.0050	0.0000	0.0003			0.0006						0.0027		0.0036			0.0001		0.0018		0.0017		0.0000		0.0000	0.0000	
389	SP-Cr-3		0.0009	0.0080	0.0000	0.0003			0.0006						0.0027		0.0036			0.0001		0.0018		0.0017		0.0000		0.0000	0.0000	
390	SP-Cr-4		0.0009	0.0120	0.0000	0.0003			0.0006						0.0027		0.0036			0.0001		0.0018		0.0017		0.0000		0.0000	0.0000	
391	SP-Fe-1		0.0010	0.0024	0.0000	0.0003			0.0007						0.0029		0.0039			0.0001		0.0020		0.0018		0.0000		0.0000	0.0000	
392	SP-Fe-2		0.0009	0.0023	0.0000	0.0003			0.0006						0.0028		0.0037			0.0001		0.0019		0.0018		0.0000		0.0000	0.0000	
393	SP-Fe-3		0.0009	0.0021	0.0000	0.0003			0.0006						0.0026		0.0035			0.0001		0.0018		0.0017		0.0000		0.0000	0.0000	
394	SP-Li-1		0.0009	0.0023	0.0000	0.0003			0.0006						0.0028		0.0037			0.0001		0.0019		0.0018		0.0000		0.0000	0.0000	
395	SP-Li-2		0.0009	0.0022	0.0000	0.0003			0.0006						0.0028		0.0037			0.0001		0.0019		0.0018		0.0000		0.0000	0.0000	
396	SP-Li-3		0.0009	0.0022	0.0000	0.0003			0.0006						0.0027		0.0036			0.0001		0.0018		0.0017		0.0000		0.0000	0.0000	
397	SP-Mg-1		0.0009	0.0022	0.0000	0.0003			0.0006						0.0027		0.0036			0.0001		0.0018		0.0017		0.0000		0.0000	0.0000	
398	SP-Mg-2		0.0009	0.0022	0.0000	0.0003			0.0006						0.0027		0.0035			0.0001		0.0018		0.0017		0.0000		0.0000	0.0000	
399	SP-Mg-3		0.0009	0.0021	0.0000	0.0003			0.0006						0.0026		0.0034			0.0001		0.0017		0.0016		0.0000		0.0000	0.0000	
400	SP-Mn-1		0.0009	0.0022	0.0000	0.0003			0.0006						0.0027		0.0000			0.0001		0.0018		0.0017		0.0000		0.0000	0.0000	
401	SP-Mn-2		0.0009	0.0022	0.0000	0.0003			0.0006						0.0027		0.0100			0.0001		0.0018		0.0017		0.0000		0.0000	0.0000	
402	SP-Mn-3		0.0009	0.0021	0.0000	0.0003			0.0006						0.0026		0.0400			0.0001		0.0018		0.0017		0.0000		0.0000	0.0000	
403	SP-Na-1		0.0010	0.0024	0.0000	0.0003			0.0007						0.0030		0.0039			0.0001		0.0020		0.0019		0.0000		0.0000	0.0000	
404	SP-Na-2		0.0009	0.0023	0.0000	0.0003			0.0006						0.0028		0.0038			0.0001		0.0019		0.0018		0.0000		0.0000	0.0000	
405	SP-Na-3		0.0009	0.0021	0.0000	0.0003			0.0006						0.0026		0.0034			0.0001		0.0017		0.0016		0.0000		0.0000	0.0000	
406	SP-Ni-1		0.0009	0.0022	0.0000	0.0003			0.0006						0.0027		0.0036			0.0001		0.0018		0.0017		0.0000		0.0000	0.0000	
407	SP-Ni-2		0.0009	0.0022	0.0000	0.0003			0.0006						0.0027		0.0036			0.0001		0.0018		0.0017		0.0000		0.0000	0.0000	
408	SP-Ni-3		0.0009	0.0021	0.0000	0.0003			0.0006						0.0027		0.0035			0.0001		0.0018		0.0017		0.0000		0.0000	0.0000	
409	SP-Si-1		0.0010	0.0025	0.0000	0.0003			0.0007						0.0031		0.0041			0.0001		0.0021		0.0020		0.0000		0.0000	0.0000	
410	SP-Si-2		0.0008	0.0020	0.0000	0.0003			0.0005						0.0024		0.0032			0.0001		0.0016		0.0015		0.0000		0.0000	0.0000	

#	Glass ID	ReO2-t	Re2O7-t	Rh2O3-t	RhO2-t	RuO2-t	Ru2O3-t	Sb2O3-t	Sb2O5-t	SeO2-t	Sm2O3-t	SnO-t	SnO2-t	SO3-t	SrO-t	Tc2O7-t	TeO2-t	ThO2-t	TiO2-t	Tl2O-t	Tl2O3-t	U3O8-t	UO2-t	UO3-t	V2O5-t	WO3-t	Y2O3-t	ZnO-t	Sum-t	Al2O3-a
329	TRU-Na-4														0.0006												0.0005	1.0000	
330	TRU-P-1														0.0006												0.0005	1.0000	
331	TRU-P-2														0.0006												0.0005	1.0000	
332	TRU-P-3														0.0006												0.0005	1.0000	
333	TRU-P-4														0.0006												0.0005	1.0000	
334	TRU-Si-1														0.0007												0.0006	1.0000	
335	TRU-Si-2														0.0005												0.0005	1.0000	
336	TRU-Si-3														0.0007												0.0006	1.0000	
337	TRU-Si-4														0.0005												0.0004	1.0000	
338	TRU-Zr-1														0.0006												0.0005	1.0000	
339	TRU-Zr-2														0.0006												0.0005	1.0000	
340	TRU-Zr-3														0.0006												0.0005	1.0000	
341	TRU-Zr-4														0.0006												0.0005	1.0000	
342	Zr-1														0.0001													1.0000	
343	Zr-2														0.0001													1.0000	
344	Zr-3														0.0001													1.0000	
345	Zr-4														0.0001													1.0000	
346	Zr-5														0.0001													1.0000	
347	Zr-6														0.0001													1.0000	
348	Zr-7														0.0001													1.0000	
349	Zr-8														0.0001													1.0000	
350	Zr-9														0.0001													1.0000	
351	Zr-10														0.0001													1.0000	
352	Zr-11														0.0001													1.0000	
353	Zr-12														0.0001													1.0001	
354	Zr-13														0.0001													1.0000	
355	Zr-14														0.0001													1.0000	
356	Zr-15														0.0001													1.0000	
357	Zr-16														0.0001													1.0000	
358	Zr-17														0.0001													1.0000	
359	Zr-18														0.0001													1.0000	
360	Zr-19														0.0001													1.0001	
361	Zr-20														0.0001													1.0000	
362	Zr-21														0.0001													1.0001	
363	Zr-22														0.0001													1.0001	
364	Zr-23														0.0001													1.0000	
365	Zr-24														0.0001													1.0001	
366	Zr-25														0.0001													1.0000	
367	Zr-26														0.0001													1.0001	
368	Zr-27														0.0001													1.0000	
369	Zr-28														0.0001													1.0000	
370	Zr-29														0.0001													1.0001	
371	SP-1a			0.0003		0.0003		0.0007		0.0009	0.0000			0.0019	0.0003		0.0000		0.0003			0.0000				0.0000	0.0000	0.0004	1.0000	
372	SP-1b			0.0003		0.0003		0.0007		0.0009	0.0000			0.0019	0.0003		0.0000		0.0003			0.0000				0.0000	0.0000	0.0004	1.0000	
373	SP-1c			0.0003		0.0003		0.0007		0.0009	0.0000			0.0019	0.0003		0.0000		0.0003			0.0000				0.0000	0.0000	0.0004	1.0000	
374	SP-1d			0.0003		0.0003		0.0007		0.0009	0.0000			0.0019	0.0003		0.0000		0.0003			0.0000				0.0000	0.0000	0.0004	1.0000	
375	SP-1e			0.0003		0.0003		0.0007		0.0009	0.0000			0.0019	0.0003		0.0000		0.0003			0.0000				0.0000	0.0000	0.0004	1.0000	
376	SP-1f			0.0003		0.0003		0.0007		0.0009	0.0000			0.0019	0.0003		0.0000		0.0003			0.0000				0.0000	0.0000	0.0004	1.0000	
377	SP-1g			0.0003		0.0003		0.0007		0.0009	0.0000			0.0019	0.0003		0.0000		0.0003			0.0000				0.0000	0.0000	0.0004	1.0000	
378	SP-1h			0.0003		0.0003		0.0007		0.0009	0.0000			0.0019	0.0003		0.0000		0.0003			0.0000				0.0000	0.0000	0.0004	1.0000	
379	SP-1i			0.0003		0.0003		0.0007		0.0009	0.0000			0.0019	0.0003		0.0000		0.0003			0.0000				0.0000	0.0000	0.0004	1.0000	
380	SP-Al-1			0.0003		0.0003		0.0007		0.0009	0.0000			0.0020	0.0003		0.0000		0.0003			0.0000				0.0000	0.0000	0.0004	1.0000	
381	SP-Al-2			0.0003		0.0003		0.0007		0.0009	0.0000			0.0018	0.0003		0.0000		0.0003			0.0000				0.0000	0.0000	0.0004	1.0000	
382	SP-Al-3			0.0003		0.0003		0.0006		0.0008	0.0000			0.0017	0.0003		0.0000		0.0003			0.0000				0.0000	0.0000	0.0004	1.0000	
383	SP-B-1			0.0003		0.0003		0.0008		0.0010	0.0000			0.0021	0.0003		0.0000		0.0003			0.0000				0.0000	0.0000	0.0004	1.0000	
384	SP-B-2			0.0003		0.0003		0.0008		0.0010	0.0000			0.0020	0.0003		0.0000		0.0003			0.0000				0.0000	0.0000	0.0004	1.0000	
385	SP-B-3			0.0003		0.0003		0.0007		0.0009	0.0000			0.0020	0.0003		0.0000		0.0003			0.0000				0.0000	0.0000	0.0004	1.0000	
386	SP-B-4			0.0003		0.0003		0.0007		0.0009	0.0000			0.0018	0.0003		0.0000		0.0003			0.0000				0.0000	0.0000	0.0004	1.0000	
387	SP-Cr-1			0.0003		0.0003		0.0007		0.0009	0.0000			0.0019	0.0003		0.0000		0.0003			0.0000				0.0000	0.0000	0.0004	1.0000	
388	SP-Cr-2			0.0003		0.0003		0.0007		0.0009	0.0000			0.0019	0.0003		0.0000		0.0003			0.0000				0.0000	0.0000	0.0004	1.0000	
389	SP-Cr-3			0.0003		0.0003		0.0007		0.0009	0.0000			0.0019	0.0003		0.0000		0.0003			0.0000				0.0000	0.0000	0.0004	1.0000	
390	SP-Cr-4			0.0003		0.0003		0.0007		0.0009	0.0000			0.0019	0.0003		0.0000		0.0003			0.0000				0.0000	0.0000	0.0004	1.0000	
391	SP-Fe-1			0.0003		0.0003		0.0008		0.0010	0.0000			0.0021	0.0003		0.0000		0.0003			0.0000				0.0000	0.0000	0.0004	1.0000	
392	SP-Fe-2			0.0003		0.0003		0.0007		0.0009	0.0000			0.0020	0.0003		0.0000		0.0003			0.0000				0.0000	0.0000	0.0004	1.0000	
393	SP-Fe-3			0.0003		0.0003		0.0007		0.0009	0.0000			0.0019	0.0003		0.0000		0.0003			0.0000				0.0000	0.0000	0.0004	1.0000	
394	SP-Li-1			0.0003		0.0003		0.0007		0.0009	0.0000			0.0020	0.0003		0.0000		0.0003			0.0000				0.0000	0.0000	0.0004	1.0000	
395	SP-Li-2			0.0003		0.0003		0.0007		0.0009	0.0000			0.0020	0.0003		0.0000		0.0003			0.0000				0.0000	0.0000	0.0004	1.0000	
396	SP-Li-3			0.0003		0.0003		0.0007		0.0009	0.0000			0.0019	0.0003		0.0000		0.0003			0.0000				0.0000	0.0000	0.0004	1.0000	
397	SP-Mg-1			0.0003		0.0003		0.0007		0.0009	0.0000			0.0019	0.0003		0.0000		0.0003			0.0000				0.0000	0.0000	0.0004	1.0000	
398	SP-Mg-2			0.0003		0.0003		0.0007		0.0009	0.0000			0.0019	0.0003		0.0000		0.0003			0.0000				0.0000	0.0000	0.0004	1.0000	
399	SP-Mg-3			0.0003		0.0003		0.0007		0.0009	0.0000			0.0018	0.0003		0.0000		0.0003			0.0000				0.0000	0.0000	0.0004	1.0000	
400	SP-Mn-1			0.0003		0.0003		0.0007		0.0009	0.0000			0.0019	0.0003		0.0000		0.0003			0.0000				0.0000	0.0000	0.0004	1.0000	
401	SP-Mn-2			0.0003		0.0003		0.0007		0.0009	0.0000			0.0019	0.0003		0.0000		0.0003			0.0000				0.0000	0.0000	0.0004	1.0000	
402	SP-Mn-3			0.0003		0.0003		0.0007		0.0009	0.0000			0.0018	0.0003		0.0000		0.0003			0.0000				0.0000	0.0000	0.0004	1.0000	
403	SP-Na-1			0.0003		0.0003		0.0008		0.0010	0.0000			0.0021	0.0003		0.0000		0.0003			0.0000				0.0000	0.0000	0.0004	1.0000	
404	SP-Na-2			0.0003		0.0003		0.0007		0.0009	0.0000			0.0020	0.0003		0.0000		0.0003			0.0000				0.0000	0.0000	0.0004	1.0000	
405	SP-Na-3			0.0003		0.0003		0.0007		0.0009	0.0000			0.0018	0.0003		0.0000		0.0003			0.0000				0.0000	0.0000	0.0004	1.0000	
406	SP-Ni-1			0.0003		0.0003		0.0007		0.0009	0.0000			0.0019	0.0003		0.0000		0.0003			0.0000				0.0000	0.0000	0.0004	1.0000	
407	SP-Ni-2			0.0003		0.0003		0.0007		0.0009	0.0000			0.0019	0.0003		0.0000		0.0003			0.0000				0.0000	0.0000	0.0004	1.0000	
408	SP-Ni-3			0.0003		0.0003		0.0007		0.0009	0.0000			0.0019	0.0003		0.0000		0.0003			0.0000				0.0000	0.0000	0.0004	1.0000	
409	SP-Si-1			0.0003		0.0003		0.0008		0.0010	0.0000			0.0022	0.0003		0.0000		0.0003			0.0000				0.0000	0.0000	0.0005	1.0000	
410	SP-Si-2			0.0003		0.0003		0.0006		0.0008	0.0000			0.0017	0.0003		0.0000		0.0003			0.0000				0.0000	0.0000	0.0004	1.0000	

#	Glass ID	B2O3-a	CaO-a	Fe2O3-a	FeO-a	K2O-a	Li2O-a	MgO-a	Na2O-a	NiO-a	P2O5-a	SiO2-a	ZrO2-a	Ag2O-a	As2O3-a	As2O5-a	BaO-a	BeO-a	Bi2O3-a	Br-a	CdO-a	Ce2O3-a	CeO2-a	Cl-a	CoO-a	Co2O3-a	Cr2O3-a	Cs2O-a	CuO-a	F-a
329	TRU-Na-4																													
330	TRU-P-1																													
331	TRU-P-2																													
332	TRU-P-3																													
333	TRU-P-4																													
334	TRU-Si-1																													
335	TRU-Si-2																													
336	TRU-Si-3																													
337	TRU-Si-4																													
338	TRU-Zr-1																													
339	TRU-Zr-2																													
340	TRU-Zr-3																													
341	TRU-Zr-4																													
342	Zr-1																													
343	Zr-2																													
344	Zr-3																													
345	Zr-4																													
346	Zr-5																													
347	Zr-6																													
348	Zr-7																													
349	Zr-8																													
350	Zr-9																													
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363	Zr-22																													
364	Zr-23																													
365	Zr-24																													
366	Zr-25																													
367	Zr-26																													
368	Zr-27																													
369	Zr-28																													
370	Zr-29																													
371	SP-1a																													
372	SP-1b																													
373	SP-1c																													
374	SP-1d																													
375	SP-1e																													
376	SP-1f																													
377	SP-1g																													
378	SP-1h																													
379	SP-1i																													
380	SP-Al-1																													
381	SP-Al-2																													
382	SP-Al-3																													
383	SP-B-1																													
384	SP-B-2																													
385	SP-B-3																													
386	SP-B-4																													
387	SP-Cr-1																													
388	SP-Cr-2																													
389	SP-Cr-3																													
390	SP-Cr-4																													
391	SP-Fe-1																													
392	SP-Fe-2																													
393	SP-Fe-3																													
394	SP-Li-1																													
395	SP-Li-2																													
396	SP-Li-3																													
397	SP-Mg-1																													
398	SP-Mg-2																													
399	SP-Mg-3																													
400	SP-Mn-1																													
401	SP-Mn-2																													
402	SP-Mn-3																													
403	SP-Na-1																													
404	SP-Na-2																													
405	SP-Na-3																													
406	SP-Ni-1																													
407	SP-Ni-2																													
408	SP-Ni-3																													
409	SP-Si-1																													
410	SP-Si-2																													

#	Glass ID	Ga2O3-a	Gd2O3-a	I-a	La2O3-a	MnO2-a	MnO-a	MoO-a	MoO3-a	Nb2O5-a	Nd2O3-a	NpO2-a	PbO-a	PdO2-a	PdO-a	Pr2O3-a	Pr6O11-a	PuO2-a	Rb2O-a	ReO-a	ReO2-a	Re2O7-a	Rh2O3-a	RhO2-a	RuO2-a	Sb2O3-a	Sb2O5-a	SeO2-a
329	TRU-Na-4																											
330	TRU-P-1																											
331	TRU-P-2																											
332	TRU-P-3																											
333	TRU-P-4																											
334	TRU-Si-1																											
335	TRU-Si-2																											
336	TRU-Si-3																											
337	TRU-Si-4																											
338	TRU-Zr-1																											
339	TRU-Zr-2																											
340	TRU-Zr-3																											
341	TRU-Zr-4																											
342	Zr-1																											
343	Zr-2																											
344	Zr-3																											
345	Zr-4																											
346	Zr-5																											
347	Zr-6																											
348	Zr-7																											
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366	Zr-25																											
367	Zr-26																											
368	Zr-27																											
369	Zr-28																											
370	Zr-29																											
371	SP-1a																											
372	SP-1b																											
373	SP-1c																											
374	SP-1d																											
375	SP-1e																											
376	SP-1f																											
377	SP-1g																											
378	SP-1h																											
379	SP-1i																											
380	SP-Al-1																											
381	SP-Al-2																											
382	SP-Al-3																											
383	SP-B-1																											
384	SP-B-2																											
385	SP-B-3																											
386	SP-B-4																											
387	SP-Cr-1																											
388	SP-Cr-2																											
389	SP-Cr-3																											
390	SP-Cr-4																											
391	SP-Fe-1																											
392	SP-Fe-2																											
393	SP-Fe-3																											
394	SP-Li-1																											
395	SP-Li-2																											
396	SP-Li-3																											
397	SP-Mg-1																											
398	SP-Mg-2																											
399	SP-Mg-3																											
400	SP-Mn-1																											
401	SP-Mn-2																											
402	SP-Mn-3																											
403	SP-Na-1																											
404	SP-Na-2																											
405	SP-Na-3																											
406	SP-Ni-1																											
407	SP-Ni-2																											
408	SP-Ni-3																											
409	SP-Si-1																											
410	SP-Si-2																											

#	Glass ID	Sm2O3-a	SnO-a	SnO2-a	SO3-a	SrO-a	Tc2O7-a	TeO2-a	ThO2-a	TiO2-a	Tl2O-a	Tl2O3-a	U3O8-a	UO2-a	UO3-a	V2O5-a	WO3-a	Y2O3-a	ZnO-a	Sum-a	T_M (°C)	$T_{L,G}$ (°C)	$T_{L,U}$ (°C)	$T_{1\%}$ (°C)	Primary Phase	$C_{650°C}$	$C_{700°C}$	$C_{750°C}$
329	TRU-Na-4																			0.0000			930		Zircon			
330	TRU-P-1																			0.0000			1042		Zircon			
331	TRU-P-2																			0.0000			1052		Zircon			
332	TRU-P-3																			0.0000			1057		Zircon			
333	TRU-P-4																			0.0000			1070		Zircon			
334	TRU-Si-1																			0.0000			1012		Zircon			
335	TRU-Si-2																			0.0000			1022		Zircon			
336	TRU-Si-3																			0.0000					Zircon			
337	TRU-Si-4																			0.0000			1022		Zircon			
338	TRU-Zr-1																			0.0000			937		Zircon			
339	TRU-Zr-2																			0.0000			1074		Zircon			
340	TRU-Zr-3																			0.0000			1182		ZrO2			
341	TRU-Zr-4																			0.0000					ZrO2			
342	Zr-1																			0.0000	1150		1064		Zircon			
343	Zr-2																			0.0000	1150		964		Zircon			
344	Zr-3																			0.0000	1150		1110		Baddeleyite			
345	Zr-4																			0.0000	1150		1038		Baddeleyite			
346	Zr-5																			0.0000	1150		1085		Baddeleyite			
347	Zr-6																			0.0000	1150		1064		Zircon			
348	Zr-7																			0.0000	1150		1005		Parakeldyshite			
349	Zr-8																			0.0000	1200		1177		Zircon			
350	Zr-9																			0.0000	1150		965		Parakeldyshite			
351	Zr-10																			0.0000	1150		1064		Zircon			
352	Zr-11																			0.0000	1150		1140		Zircon			
353	Zr-12																			0.0000	1400		1250		Zircon			
354	Zr-13																			0.0000	1350		1189		Baddeleyite			
355	Zr-14																			0.0000	1350		1314		Baddeleyite			
356	Zr-15																			0.0000	1350		1336		Baddeleyite			
357	Zr-16																			0.0000	1150		1067		Zircon			
358	Zr-17																			0.0000	1450		1228		Baddeleyite			
359	Zr-18																			0.0000	1350		1125		Zircon			
360	Zr-19																			0.0000	1250		1034		Zircon			
361	Zr-20																			0.0000	1150		1113		Parakeldyshite			
362	Zr-21																			0.0000	1350		1180		Zircon			
363	Zr-22																			0.0000	1150		1087		Parakeldyshite			
364	Zr-23																			0.0000	1150		1003		Zircon			
365	Zr-24																			0.0000	1150		1105		Parakeldyshite			
366	Zr-25																			0.0000	1150		1137		Zircon			
367	Zr-26																			0.0000	1150		1070		Zircon			
368	Zr-27																			0.0000	1150		1081		Zircon			
369	Zr-28																			0.0000	1150		1064		Zircon			
370	Zr-29																			0.0000	1150		1059		Parakeldyshite			
371	SP-1a																			0.0000			1048		spinel			
372	SP-1b																			0.0000			1040		spinel			
373	SP-1c																			0.0000			1039		spinel			
374	SP-1d																			0.0000			1034		spinel			
375	SP-1e																			0.0000			1036		spinel			
376	SP-1f																			0.0000			1037		spinel			
377	SP-1g																			0.0000			1041		spinel			
378	SP-1h																			0.0000			1043		spinel			
379	SP-1i																			0.0000			1039		spinel			
380	SP-Al-1																			0.0000			1007		spinel			
381	SP-Al-2																			0.0000			1148		spinel			
382	SP-Al-3																			0.0000			1275		spinel			
383	SP-B-1																			0.0000			1117		spinel			
384	SP-B-2																			0.0000			1085		spinel			
385	SP-B-3																			0.0000			1058		spinel			
386	SP-B-4																			0.0000			1020		spinel			
387	SP-Cr-1																			0.0000			1018		spinel			
388	SP-Cr-2																			0.0000			1058		spinel			
389	SP-Cr-3																			0.0000			1141		spinel			
390	SP-Cr-4																			0.0000			1248		spinel			
391	SP-Fe-1																			0.0000			948		spinel			
392	SP-Fe-2																			0.0000			966		spinel			
393	SP-Fe-3																			0.0000			1106		spinel			
394	SP-Li-1																			0.0000			1142		spinel			
395	SP-Li-2																			0.0000			1084		spinel			
396	SP-Li-3																			0.0000			1042		spinel			
397	SP-Mg-1																			0.0000			1031		spinel			
398	SP-Mg-2																			0.0000			1075		spinel			
399	SP-Mg-3																			0.0000			1150		spinel			
400	SP-Mn-1																			0.0000			1043		spinel			
401	SP-Mn-2																			0.0000			1060		spinel			
402	SP-Mn-3																			0.0000			1080		spinel			
403	SP-Na-1																			0.0000			1350		spinel			
404	SP-Na-2																			0.0000			1147		spinel			
405	SP-Na-3																			0.0000			941		spinel			
406	SP-Ni-1																			0.0000			970		spinel			
407	SP-Ni-2																			0.0000			1078		spinel			
408	SP-Ni-3																			0.0000			1222		spinel			
409	SP-Si-1																			0.0000			1107		spinel			
410	SP-Si-2																			0.0000			1007		spinel			

#	Glass ID	$C_{800°C}$	$C_{850°C}$	$C_{900°C}$	$C_{950°C}$	$C_{1000°C}$	$C_{1050°C}$	$C_{1100°C}$	$C_{1150°C}$	$C_{1200°C}$	Quenched Visual/OM	Quenched XRD	CCC XRD	ρ (g/cm³)	Fulc Visc A	Fulc Visc B	Fulc Visc To	Arrh Visc E	Arrh Visc F	T1 (°C)	V1 (Pa·s)
329	TRU-Na-4																				
330	TRU-P-1																				
331	TRU-P-2																				
332	TRU-P-3																				
333	TRU-P-4																				
334	TRU-Si-1																				
335	TRU-Si-2																				
336	TRU-Si-3																				
337	TRU-Si-4																				
338	TRU-Zr-1																				
339	TRU-Zr-2																				
340	TRU-Zr-3																				
341	TRU-Zr-4																				
342	Zr-1																				
343	Zr-2																				
344	Zr-3																				
345	Zr-4																				
346	Zr-5																				
347	Zr-6																				
348	Zr-7																				
349	Zr-8																				
350	Zr-9																				
351	Zr-10																				
352	Zr-11																				
353	Zr-12																				
354	Zr-13																				
355	Zr-14																				
356	Zr-15																				
357	Zr-16																				
358	Zr-17																				
359	Zr-18																				
360	Zr-19																				
361	Zr-20																				
362	Zr-21																				
363	Zr-22																				
364	Zr-23																				
365	Zr-24																				
366	Zr-25																				
367	Zr-26																				
368	Zr-27																				
369	Zr-28																				
370	Zr-29																				
371	SP-1a																				
372	SP-1b																				
373	SP-1c																				
374	SP-1d																				
375	SP-1e																				
376	SP-1f																				
377	SP-1g																				
378	SP-1h																				
379	SP-1i																				
380	SP-Al-1																				
381	SP-Al-2																				
382	SP-Al-3																				
383	SP-B-1																				
384	SP-B-2																				
385	SP-B-3																				
386	SP-B-4																				
387	SP-Cr-1																				
388	SP-Cr-2																				
389	SP-Cr-3																				
390	SP-Cr-4																				
391	SP-Fe-1																				
392	SP-Fe-2																				
393	SP-Fe-3																				
394	SP-Li-1																				
395	SP-Li-2																				
396	SP-Li-3																				
397	SP-Mg-1																				
398	SP-Mg-2																				
399	SP-Mg-3																				
400	SP-Mn-1																				
401	SP-Mn-2																				
402	SP-Mn-3																				
403	SP-Na-1																				
404	SP-Na-2																				
405	SP-Na-3																				
406	SP-Ni-1																				
407	SP-Ni-2																				
408	SP-Ni-3																				
409	SP-Si-1																				
410	SP-Si-2																				

#	Glass ID	T2 (°C)	V2 (Pa·s)	T3 (°C)	V3 (Pa·s)	T4 (°C)	V4 (Pa·s)	T5 (°C)	V5 (Pa·s)	T6 (°C)	V6 (Pa·s)	T7 (°C)	V7 (Pa·s)	T8 (°C)	V8 (Pa·s)	T9 (°C)	V9 (Pa·s)	T10 (°C)	V10 (Pa·s)	TCLP Ag	TCLP As	TCLP Ba	TCLP Cd	TCLP Cr	TCLP Ni	TCLP Pb
329	TRU-Na-4																									
330	TRU-P-1																									
331	TRU-P-2																									
332	TRU-P-3																									
333	TRU-P-4																									
334	TRU-Si-1																									
335	TRU-Si-2																									
336	TRU-Si-3																									
337	TRU-Si-4																									
338	TRU-Zr-1																									
339	TRU-Zr-2																									
340	TRU-Zr-3																									
341	TRU-Zr-4																									
342	Zr-1																									
343	Zr-2																									
344	Zr-3																									
345	Zr-4																									
346	Zr-5																									
347	Zr-6																									
348	Zr-7																									
349	Zr-8																									
350	Zr-9																									
351	Zr-10																									
352	Zr-11																									
353	Zr-12																									
354	Zr-13																									
355	Zr-14																									
356	Zr-15																									
357	Zr-16																									
358	Zr-17																									
359	Zr-18																									
360	Zr-19																									
361	Zr-20																									
362	Zr-21																									
363	Zr-22																									
364	Zr-23																									
365	Zr-24																									
366	Zr-25																									
367	Zr-26																									
368	Zr-27																									
369	Zr-28																									
370	Zr-29																									
371	SP-1a																									
372	SP-1b																									
373	SP-1c																									
374	SP-1d																									
375	SP-1e																									
376	SP-1f																									
377	SP-1g																									
378	SP-1h																									
379	SP-1i																									
380	SP-Al-1																									
381	SP-Al-2																									
382	SP-Al-3																									
383	SP-B-1																									
384	SP-B-2																									
385	SP-B-3																									
386	SP-B-4																									
387	SP-Cr-1																									
388	SP-Cr-2																									
389	SP-Cr-3																									
390	SP-Cr-4																									
391	SP-Fe-1																									
392	SP-Fe-2																									
393	SP-Fe-3																									
394	SP-Li-1																									
395	SP-Li-2																									
396	SP-Li-3																									
397	SP-Mg-1																									
398	SP-Mg-2																									
399	SP-Mg-3																									
400	SP-Mn-1																									
401	SP-Mn-2																									
402	SP-Mn-3																									
403	SP-Na-1																									
404	SP-Na-2																									
405	SP-Na-3																									
406	SP-Ni-1																									
407	SP-Ni-2																									
408	SP-Ni-3																									
409	SP-Si-1																									
410	SP-Si-2																									

#	Glass ID	TCLP Se	TCLP Zn	TCLP Al	TCLP B	TCLP Sb	TCLP Tl	TCLP V	Q PCT B (g/m²)	Q PCT Li (g/m²)	Q PCT Na (g/m²)	Q PCT Si (g/m²)	Q PCT pH	CCC PCT B (g/m²)	CCC PCT Li (g/m²)	CCC PCT Na (g/m²)	CCC PCT Si (g/m²)	CCC PCT pH	T1 (°C)
329	TRU-Na-4																		
330	TRU-P-1																		
331	TRU-P-2																		
332	TRU-P-3																		
333	TRU-P-4																		
334	TRU-Si-1																		
335	TRU-Si-2																		
336	TRU-Si-3																		
337	TRU-Si-4																		
338	TRU-Zr-1																		
339	TRU-Zr-2																		
340	TRU-Zr-3																		
341	TRU-Zr-4																		
342	Zr-1								0.239	0.338	0.241								
343	Zr-2								0.277	0.364	0.269								
344	Zr-3								0.231	0.352	0.242								
345	Zr-4								0.301	0.383	0.268								
346	Zr-5								0.228	0.327	0.234								
347	Zr-6								0.251	0.361	0.259								
348	Zr-7								0.290	0.492	0.810								
349	Zr-8								0.434	0.451	0.127								
350	Zr-9								0.293	0.295	0.383								
351	Zr-10								0.247	0.336	0.240								
352	Zr-11								0.237	0.356	0.127								
353	Zr-12								0.220	0.310	0.020								
354	Zr-13								0.420	0.485	0.205								
355	Zr-14																		
356	Zr-15								0.210	0.300	0.970								
357	Zr-16								0.185	0.340	0.230								
358	Zr-17								0.265	0.330	0.020								
359	Zr-18								0.660	0.750	0.335								
360	Zr-19								0.275	0.540	0.495								
361	Zr-20								0.490	0.505	1.175								
362	Zr-21								0.300	0.360	0.035								
363	Zr-22								1.030	0.965	0.525								
364	Zr-23								0.255	0.515	0.545								
365	Zr-24								0.295	0.410	1.160								
366	Zr-25								0.405	0.450	0.065								
367	Zr-26								0.610	0.620	0.315								
368	Zr-27								0.595	0.735	0.710								
369	Zr-28								0.240	0.340	0.260								
370	Zr-29								3.890	2.715	3.085								
371	SP-1a																		
372	SP-1b																		
373	SP-1c																		
374	SP-1d																		
375	SP-1e																		
376	SP-1f																		
377	SP-1g																		
378	SP-1h																		
379	SP-1i																		
380	SP-Al-1																		
381	SP-Al-2																		
382	SP-Al-3																		
383	SP-B-1																		
384	SP-B-2																		
385	SP-B-3																		
386	SP-B-4																		
387	SP-Cr-1																		
388	SP-Cr-2																		
389	SP-Cr-3																		
390	SP-Cr-4																		
391	SP-Fe-1																		
392	SP-Fe-2																		
393	SP-Fe-3																		
394	SP-Li-1																		
395	SP-Li-2																		
396	SP-Li-3																		
397	SP-Mg-1																		
398	SP-Mg-2																		
399	SP-Mg-3																		
400	SP-Mn-1																		
401	SP-Mn-2																		
402	SP-Mn-3																		
403	SP-Na-1																		
404	SP-Na-2																		
405	SP-Na-3																		
406	SP-Ni-1																		
407	SP-Ni-2																		
408	SP-Ni-3																		
409	SP-Si-1																		
410	SP-Si-2																		

#	Glass ID	EC1 (S/cm)	T2 (°C)	EC2 (S/cm)	T3 (°C)	EC3 (S/cm)	T4 (°C)	EC4 (S/cm)	T5 (°C)	EC5 (S/cm)	T6 (°C)	EC6 (S/cm)	A	B	To
329	TRU-Na-4														
330	TRU-P-1														
331	TRU-P-2														
332	TRU-P-3														
333	TRU-P-4														
334	TRU-Si-1														
335	TRU-Si-2														
336	TRU-Si-3														
337	TRU-Si-4														
338	TRU-Zr-1														
339	TRU-Zr-2														
340	TRU-Zr-3														
341	TRU-Zr-4														
342	Zr-1														
343	Zr-2														
344	Zr-3														
345	Zr-4														
346	Zr-5														
347	Zr-6														
348	Zr-7														
349	Zr-8														
350	Zr-9														
351	Zr-10														
352	Zr-11														
353	Zr-12														
354	Zr-13														
355	Zr-14														
356	Zr-15														
357	Zr-16														
358	Zr-17														
359	Zr-18														
360	Zr-19														
361	Zr-20														
362	Zr-21														
363	Zr-22														
364	Zr-23														
365	Zr-24														
366	Zr-25														
367	Zr-26														
368	Zr-27														
369	Zr-28														
370	Zr-29														
371	SP-1a														
372	SP-1b														
373	SP-1c														
374	SP-1d														
375	SP-1e														
376	SP-1f														
377	SP-1g														
378	SP-1h														
379	SP-1i														
380	SP-Al-1														
381	SP-Al-2														
382	SP-Al-3														
383	SP-B-1														
384	SP-B-2														
385	SP-B-3														
386	SP-B-4														
387	SP-Cr-1														
388	SP-Cr-2														
389	SP-Cr-3														
390	SP-Cr-4														
391	SP-Fe-1														
392	SP-Fe-2														
393	SP-Fe-3														
394	SP-Li-1														
395	SP-Li-2														
396	SP-Li-3														
397	SP-Mg-1														
398	SP-Mg-2														
399	SP-Mg-3														
400	SP-Mn-1														
401	SP-Mn-2														
402	SP-Mn-3														
403	SP-Na-1														
404	SP-Na-2														
405	SP-Na-3														
406	SP-Ni-1														
407	SP-Ni-2														
408	SP-Ni-3														
409	SP-Si-1														
410	SP-Si-2														

#	Glass ID	Study	Reference	Al2O3-t	B2O3-t	CaO-t	Fe2O3-t	FeO-t	K2O-t	Li2O-t	MgO-t	Na2O-t	NiO-t	P2O5-t	SiO2-t	ZrO2-t	Ag2O-t	As2O3-t	As2O5-t	BaO-t	BeO-t	Bi2O3-t	Br-t	CdO-t	Ce2O3-t	CeO2-t	Cl-t
411	SP-Si-3	SP	Mika et al. 1997	0.0593	0.0519	0.0074	0.0926		0.0021	0.0222	0.0044	0.1165	0.0039	0.0034	0.6000	0.0137	0.0005	0.0000		0.0022		0.0000		0.0052		0.0005	0.0001
412	MS-1a	MS	Hrma 1999	0.0800	0.0700		0.1300			0.0450	0.0060	0.1570	0.0200		0.4500	0.0300											
413	MS-1b	MS	Hrma 1999	0.0800	0.0700		0.1300			0.0450	0.0060	0.1570	0.0200		0.4500	0.0300											
414	MS-2a	MS	Hrma 1999	0.0800	0.0700		0.1450			0.0400	0.0060	0.1530	0.0120		0.4240	0.0600											
415	MS-2b	MS	Hrma 1999	0.0800	0.0700		0.1450			0.0400	0.0060	0.1530	0.0120		0.4240	0.0600											
416	MS-3a	MS	Hrma 1999	0.0800	0.0700		0.1150			0.0400	0.0060	0.1530	0.0120		0.4540	0.0600											
417	MS-3b	MS	Hrma 1999	0.0800	0.0700		0.1150			0.0400	0.0060	0.1530	0.0120		0.4540	0.0600											
418	MS-4a	MS	Hrma 1999	0.0800	0.0700		0.0889			0.0454	0.0060	0.1530	0.0120		0.4746	0.0600											
419	MS-4b	MS	Hrma 1999	0.0800	0.0700		0.0889			0.0454	0.0060	0.1530	0.0120		0.4746	0.0600											
420	MS-5	MS	Hrma 1999	0.0800	0.0700		0.1150			0.0410	0.0060	0.1530	0.0074		0.4576	0.0600											
421	MS-6	MS	Hrma 1999	0.0800	0.0700		0.1250			0.0300	0.0060	0.1573	0.0140		0.4600	0.0506											
422	MS-7	MS	Hrma 1999	0.0800	0.0700		0.1150			0.0454	0.0060	0.1530	0.0095		0.4531	0.0600											
423	MS-8	MS	Hrma 1999	0.0800	0.0700		0.1250			0.0300	0.0060	0.1573	0.0075		0.4600	0.0571											
424	MS-9	MS	Hrma 1999	0.0800	0.0700		0.1100			0.0400	0.0060	0.1573	0.0100		0.4531	0.0600											
425	MS-7 H-Al	MS	Wilson et al. 2001	0.1100	0.0677		0.1113			0.0439	0.0058	0.1480	0.0092		0.4383	0.0580											
426	MS-7 L-Al	MS	Wilson et al. 2001	0.0500	0.0723		0.1180			0.0469	0.0062	0.1580	0.0098		0.4679	0.0620											
427	MS-7 H-Cr	MS	Wilson et al. 2001	0.0789	0.0699		0.1148			0.0453	0.0060	0.1527	0.0095		0.4522	0.0599											
428	MS-7 L-Cr	MS	Wilson et al. 2001	0.0802	0.0701		0.1152			0.0455	0.0060	0.1533	0.0095		0.4540	0.0601											
429	MS-7 H-Fe	MS	Wilson et al. 2001	0.0768	0.0672		0.1500			0.0436	0.0058	0.1469	0.0091		0.4352	0.0576											
430	MS-7 L-Fe	MS	Wilson et al. 2001	0.0832	0.0728		0.0800			0.0472	0.0062	0.1591	0.0099		0.4710	0.0624											
431	MS-7 H-Li	MS	Wilson et al. 2001	0.0788	0.0689		0.1132			0.0600	0.0059	0.1507	0.0094		0.4462	0.0591											
432	MS-7 L-Li	MS	Wilson et al. 2001	0.0813	0.0711		0.1169			0.0300	0.0061	0.1555	0.0097		0.4604	0.0610											
433	MS-7 H-Mg	MS	Wilson et al. 2001	0.0781	0.0683		0.1122			0.0443	0.0300	0.1493	0.0093		0.4422	0.0586											
434	MS-7 L-Mg	MS	Wilson et al. 2001	0.0805	0.0704		0.1157			0.0457	0.0000	0.1539	0.0096		0.4558	0.0604											
435	MS-7 H-Na	MS	Wilson et al. 2001	0.0774	0.0678		0.1113			0.0440	0.0058	0.1800	0.0092		0.4387	0.0581											
436	MS-7 L-Na	MS	Wilson et al. 2001	0.0831	0.0727		0.1195			0.0472	0.0062	0.1200	0.0099		0.4708	0.0623											
437	MS-7 VH-Ni	MS	Wilson et al. 2001	0.0783	0.0685		0.1126			0.0445	0.0059	0.1498	0.0300		0.4438	0.0588											
438	MS-7 H-Ni	MS	Wilson et al. 2001	0.0793	0.0694		0.1140			0.0450	0.0059	0.1517	0.0180		0.4492	0.0595											
439	MS-7 L-Ni	MS	Wilson et al. 2001	0.0805	0.0705		0.1158			0.0457	0.0060	0.1540	0.0030		0.4561	0.0604											
440	SG01	SG	Hrma et al. 1999	0.0250	0.0999	0.0200	0.1499		0.0380	0.0599	0.0050	0.0599	0.0200	0.0000	0.4496	0.0000	0.0000	0.0000		0.0000		0.0000		0.0000		0.0000	0.0000
441	SG02	SG	Hrma et al. 1999	0.0250	0.0500	0.0200	0.0599		0.0380	0.0599	0.0250	0.1099	0.0005	0.0000	0.5785	0.0000	0.0000	0.0000		0.0000		0.0000		0.0000		0.0000	0.0000
442	SG03	SG	Hrma et al. 1999	0.0390	0.0876	0.0158	0.1202		0.0208	0.0375	0.0200	0.0976	0.0151	0.0000	0.4741	0.0000	0.0000	0.0000		0.0000		0.0000		0.0000		0.0000	0.0000
443	SG04	SG	Hrma et al. 1999	0.0799	0.0500	0.0030	0.1499		0.0150	0.0599	0.0250	0.0599	0.0200	0.0000	0.5240	0.0000	0.0000	0.0000		0.0000		0.0000		0.0000		0.0000	0.0000
444	SG05	SG	Hrma et al. 1999	0.0530	0.0752	0.0115	0.1052		0.0266	0.0450	0.0150	0.0852	0.0102	0.0000	0.5186	0.0000	0.0000	0.0000		0.0000		0.0000		0.0000		0.0000	0.0000
445	SG06	SG	Hrma et al. 1999	0.0799	0.0500	0.0200	0.1499		0.0380	0.0300	0.0050	0.1099	0.0005	0.0000	0.4991	0.0000	0.0000	0.0000		0.0000		0.0000		0.0000		0.0000	0.0000
446	SG07	SG	Hrma et al. 1999	0.0799	0.0999	0.0030	0.0599		0.0380	0.0599	0.0250	0.0599	0.0005	0.0000	0.5385	0.0000	0.0000	0.0000		0.0000		0.0000		0.0000		0.0000	0.0000
447	SG08	SG	Hrma et al. 1999	0.0390	0.0626	0.0158	0.1275		0.0323	0.0375	0.0200	0.0726	0.0054	0.0000	0.5397	0.0000	0.0000	0.0000		0.0000		0.0000		0.0000		0.0000	0.0000
448	SG09	SG	Hrma et al. 1999	0.0799	0.0999	0.0200	0.1499		0.0150	0.0599	0.0050	0.0599	0.0005	0.0000	0.4396	0.0000	0.0000	0.0000		0.0000		0.0000		0.0000		0.0000	0.0000
449	SG10	SG	Hrma et al. 1999	0.0390	0.0626	0.0073	0.0825		0.0323	0.0525	0.0200	0.0726	0.0151	0.0000	0.5437	0.0000	0.0000	0.0000		0.0000		0.0000		0.0000		0.0000	0.0000
450	SG11	SG	Hrma et al. 1999	0.0390	0.0876	0.0073	0.0825		0.0208	0.0525	0.0200	0.0976	0.0054	0.0000	0.5497	0.0000	0.0000	0.0000		0.0000		0.0000		0.0000		0.0000	0.0000
451	SG12	SG	Hrma et al. 1999	0.0250	0.0500	0.0030	0.1499		0.0150	0.0300	0.0250	0.1099	0.0005	0.0000	0.5765	0.0000	0.0000	0.0000		0.0000		0.0000		0.0000		0.0000	0.0000
452	SG13	SG	Hrma et al. 1999	0.0250	0.0999	0.0030	0.0874		0.0150	0.0599	0.0050	0.0599	0.0200	0.0000	0.5895	0.0000	0.0000	0.0000		0.0000		0.0000		0.0000		0.0000	0.0000
453	SG14	SG	Hrma et al. 1999	0.0250	0.0999	0.0030	0.1499		0.0380	0.0300	0.0250	0.1099	0.0005	0.0000	0.4306	0.0000	0.0000	0.0000		0.0000		0.0000		0.0000		0.0000	0.0000
454	SG15	SG	Hrma et al. 1999	0.0250	0.0999	0.0200	0.0599		0.0150	0.0599	0.0250	0.0599	0.0200	0.0000	0.5895	0.0000	0.0000	0.0000		0.0000		0.0000		0.0000		0.0000	0.0000
455	SG16	SG	Hrma et al. 1999	0.0664	0.0626	0.0158	0.0825		0.0208	0.0525	0.0200	0.0976	0.0054	0.0000	0.5026	0.0000	0.0000	0.0000		0.0000		0.0000		0.0000		0.0000	0.0000
456	SG17	SG	Hrma et al. 1999	0.0390	0.0725	0.0158	0.1275		0.0323	0.0525	0.0100	0.0976	0.0151	0.0000	0.4741	0.0000	0.0000	0.0000		0.0000		0.0000		0.0000		0.0000	0.0000
457	SG18a	SG	Hrma et al. 1999	0.0250	0.0999	0.0030	0.1499		0.0150	0.0599	0.0050	0.1099	0.0005	0.0000	0.4921	0.0000	0.0000	0.0000		0.0000		0.0000		0.0000		0.0000	0.0000
458	SG18b	SG	Hrma et al. 1999	0.0250	0.0999	0.0030	0.1499		0.0150	0.0599	0.0050	0.1099	0.0005	0.0000	0.4921	0.0000	0.0000	0.0000		0.0000		0.0000		0.0000		0.0000	0.0000
459	SG18c	SG	Hrma et al. 1999	0.0250	0.0999	0.0030	0.1499		0.0150	0.0599	0.0050	0.1099	0.0005	0.0000	0.4921	0.0000	0.0000	0.0000		0.0000		0.0000		0.0000		0.0000	0.0000
460	SG18d	SG	Hrma et al. 1999	0.0250	0.0999	0.0030	0.1499		0.0150	0.0599	0.0050	0.1099	0.0005	0.0000	0.4921	0.0000	0.0000	0.0000		0.0000		0.0000		0.0000		0.0000	0.0000
461	SG18e	SG	Hrma et al. 1999	0.0250	0.0999	0.0030	0.1499		0.0150	0.0599	0.0050	0.1099	0.0005	0.0000	0.4921	0.0000	0.0000	0.0000		0.0000		0.0000		0.0000		0.0000	0.0000
462	SG18f	SG	Hrma et al. 1999	0.0250	0.0999	0.0030	0.1499		0.0150	0.0599	0.0050	0.1099	0.0005	0.0000	0.4921	0.0000	0.0000	0.0000		0.0000		0.0000		0.0000		0.0000	0.0000
463	SG18g	SG	Hrma et al. 1999	0.0250	0.0999	0.0030	0.1499		0.0150	0.0599	0.0050	0.1099	0.0005	0.0000	0.4921	0.0000	0.0000	0.0000		0.0000		0.0000		0.0000		0.0000	0.0000
464	SG19	SG	Hrma et al. 1999	0.0799	0.0999	0.0030	0.0599		0.0380	0.0599	0.0050	0.1099	0.0200	0.0000	0.4541	0.0000	0.0000	0.0000		0.0000		0.0000		0.0000		0.0000	0.0000
465	SG20	SG	Hrma et al. 1999	0.0799	0.0500	0.0200	0.0599		0.0150	0.0599	0.0250	0.1099	0.0005	0.0000	0.5070	0.0000	0.0000	0.0000		0.0000		0.0000		0.0000		0.0000	0.0000
466	SG21	SG	Hrma et al. 1999	0.0390	0.0876	0.0158	0.0825		0.0208	0.0525	0.0100	0.0726	0.0151	0.0000	0.5540	0.0000	0.0000	0.0000		0.0000		0.0000		0.0000		0.0000	0.0000
467	SG22	SG	Hrma et al. 1999	0.0664	0.0626	0.0158	0.1275		0.0208	0.0525	0.0100	0.0976	0.0151	0.0000	0.4931	0.0000	0.0000	0.0000		0.0000		0.0000		0.0000		0.0000	0.0000
468	SG23	SG	Hrma et al. 1999	0.0417	0.0626	0.0158	0.0825		0.0323	0.0375	0.0200	0.0976	0.0151	0.0000	0.5540	0.0000	0.0000	0.0000		0.0000		0.0000		0.0000		0.0000	0.0000
469	SG24	SG	Hrma et al. 1999	0.0250	0.0500	0.0030	0.1194		0.0150	0.0599	0.0050	0.0599	0.0005	0.0000	0.5895	0.0000	0.0000	0.0000		0.0000		0.0000		0.0000		0.0000	0.0000
470	SG25	SG	Hrma et al. 1999	0.0799	0.0999	0.0030	0.1499		0.0380	0.0300	0.0250	0.0599	0.0200	0.0000	0.4811	0.0000	0.0000	0.0000		0.0000		0.0000		0.0000		0.0000	0.0000
471	SG26	SG	Hrma et al. 1999	0.0390	0.0626	0.0073	0.1275		0.0208	0.0375	0.0100	0.0976	0.0054	0.0000	0.5276	0.0000	0.0000	0.0000		0.0000		0.0000		0.0000		0.0000	0.0000
472	SG27	SG	Hrma et al. 1999	0.0664	0.0876	0.0158	0.1109		0.0323	0.0525	0.0200	0.0726	0.0054	0.0000	0.4741	0.0000	0.0000	0.0000		0.0000		0.0000		0.0000		0.0000	0.0000
473	SG28	SG	Hrma et al. 1999	0.0250	0.0999	0.0200	0.1499		0.0150	0.0599	0.0050	0.1099	0.0005	0.0000	0.5015	0.0000	0.0000	0.0000		0.0000		0.0000		0.0000		0.0000	0.0000
474	SG29	SG	Hrma et al. 1999	0.0799	0.0500	0.0030	0.0599		0.0150	0.0599	0.0050	0.1099	0.0005	0.0000	0.5240	0.0000	0.0000	0.0000		0.0000		0.0000		0.0000		0.0000	0.0000
475	SG30	SG	Hrma et al. 1999	0.0799	0.0500	0.0200	0.0599		0.0380	0.0599	0.0250	0.1099	0.0200	0.0000	0.4491	0.0000	0.0000	0.0000		0.0000		0.0000		0.0000		0.0000	0.0000
476	SG31	SG	Hrma et al. 1999	0.0799	0.0999	0.0200	0.1494		0.0380	0.0599	0.0250	0.0599	0.0005	0.0000	0.4296	0.0000	0.0000	0.0000		0.0000		0.0000		0.0000		0.0000	0.0000
477	SG32	SG	Hrma et al. 1999	0.0799	0.0999	0.0030	0.1499		0.0150	0.0599	0.0050	0.1099	0.0200	0.0000	0.4396	0.0000	0.0000	0.0000		0.0000		0.0000		0.0000		0.0000	0.0000
478	SG33	SG	Hrma et al. 1999	0.0799	0.0999	0.0200	0.0599		0.0380	0.0599	0.0050	0.1099	0.0200	0.0000	0.4676	0.0000	0.0000	0.0000		0.0000		0.0000		0.0000		0.0000	0.0000
479	SG34	SG	Hrma et al. 1999	0.0799	0.0999	0.0200	0.1454		0.0150	0.0300	0.0250	0.0599	0.0005	0.0000	0.4296	0.0000	0.0000	0.0000		0.0000		0.0000		0.0000		0.0000	0.0000
480	SG35	SG	Hrma et al. 1999	0.0799	0.0500	0.0030	0.1449		0.0380	0.0599	0.0250	0.1099	0.0200	0.0000	0.4296	0.0000	0.0000	0.0000		0.0000		0.0000		0.0000		0.0000	0.0000
481	SG36	SG	Hrma et al. 1999	0.0250	0.0999	0.0200	0.0599		0.0380	0.0300	0.0050	0.1099	0.0005	0.0000	0.5415	0.0000	0.0000	0.0000		0.0000		0.0000		0.0000		0.0000	0.0000
482	SG37	SG	Hrma et al. 1999	0.0250	0.0999	0.0200	0.0599		0.0380	0.0599	0.0250	0.0599	0.0030	0.0000	0.5895	0.0000	0.0000	0.0000		0.0000		0.0000		0.0000		0.0000	0.0000
483	SG38	SG	Hrma et al. 1999	0.0250	0.0999	0.0030	0.1464		0.0380	0.0300	0.0250	0.1099	0.0005	0.0000	0.4296	0.0000	0.0000	0.0000		0.0000		0.0000		0.0000		0.0000	0.0000
484	SG39	SG	Hrma et al. 1999	0.0250	0.0500	0.0200	0.1499		0.0150	0.0300	0.0050	0.1099	0.0200	0.0000	0.5355	0.0000	0.0000	0.0000		0.0000		0.0000		0.0000		0.0000	0.0000
485	SG40	SG	Hrma et al. 1999	0.0799	0.0999	0.0030	0.0599		0.0150	0.0300	0.0250	0.1099	0.0200	0.0000	0.4826	0.0000	0.0000	0.0000		0.0000		0.0000		0.0000		0.0000	0.0000
486	SG41	SG	Hrma et al. 1999	0.0799	0.0999	0.0200	0.1499		0.0150	0.0300	0.0050	0.0599	0.0200	0.0000	0.4321	0.0000	0.0000	0.0000		0.0000		0.0000		0.0000		0.0000	0.0000
487	SG42	SG	Hrma et al. 1999	0.0449	0.0876	0.0073	0.1275		0.0323	0.0525	0.0200	0.0976	0.0054	0.0000	0.4741	0.0000	0.0000	0.0000		0.0000		0.0000		0.0000		0.0000	0.0000
488	SG43	SG	Hrma et al. 1999	0.0664	0.0876	0.0073	0.0825		0.0323	0.0375	0.0100	0.0976	0.0054	0.0000	0.5257	0.0000	0.0000	0.0000		0.0000		0.0000		0.0000		0.0000	0.0000
489	SG44	SG	Hrma et al. 1999	0.0664	0.0876	0.0073	0.1275		0.0208	0.0375	0.0200	0.0726	0.0151	0.0000	0.5052	0.0000	0.0000	0.0000		0.0000		0.0000		0.0000		0.0000	0.0000
490	SG45	SG	Hrma et al. 1999	0.0250	0.0999	0.0200	0.0599		0.0150	0.0300	0.0250	0.1099	0.0200	0.0000	0.5620	0.0000	0.0000	0.0000		0.0000		0.0000		0.0000		0.0000	0.0000
491	SG46	SG	Hrma et al. 1999	0.0250	0.0500	0.0030	0.1499		0.0380	0.0599	0.0250	0.0599	0.0200	0.0000	0.4946	0.0000	0.0000	0.0000		0.0000		0.0000		0.0000		0.0000	0.0000
492	SG47	SG	Hrma et al. 1999	0.0250	0.0500	0.0200	0.1499		0.0150	0.0599	0.0250	0.1099	0.0200	0.0000	0.4551	0.0000	0.0000	0.0000		0.0000		0.0000		0.0000		0.0000	0.0000

#	Glass ID	CoO-t	Co2O3-t	Cr2O3-t	Cs2O-t	CuO-t	Dy2O3-t	Eu2O3-t	F-t	Ga2O3-t	Gd2O3-t	HfO2-t	HgO-t	I-t	La2O3-t	MnO2-t	MnO-t	MoO-t	MoO2-t	MoO3-t	Nb2O5-t	Nd2O3-t	NpO2-t	PbO-t	PdO2-t	PdO-t	Pr2O3-t	Pr6O11-t	Rb2O-t	ReO-t
411	SP-Si-3		0.0007	0.0016	0.0000	0.0002			0.0004						0.0020		0.0027			0.0001		0.0013		0.0013		0.0000		0.0000	0.0000	
412	MS-1a			0.0070													0.0050													
413	MS-1b			0.0070													0.0050													
414	MS-2a			0.0050													0.0050													
415	MS-2b			0.0050													0.0050													
416	MS-3a			0.0050													0.0050													
417	MS-3b			0.0050													0.0050													
418	MS-4a			0.0050													0.0050													
419	MS-4b			0.0050													0.0050													
420	MS-5			0.0050													0.0050													
421	MS-6			0.0035													0.0036													
422	MS-7			0.0030													0.0050													
423	MS-8			0.0035													0.0036													
424	MS-9			0.0100													0.0036													
425	MS-7 H-Al			0.0029													0.0048													
426	MS-7 L-Al			0.0031													0.0052													
427	MS-7 H-Cr			0.0050													0.0050													
428	MS-7 L-Cr			0.0010													0.0050													
429	MS-7 H-Fe			0.0029													0.0048													
430	MS-7 L-Fe			0.0031													0.0052													
431	MS-7 H-Li			0.0030													0.0049													
432	MS-7 L-Li			0.0030													0.0051													
433	MS-7 H-Mg			0.0029													0.0049													
434	MS-7 L-Mg			0.0030													0.0050													
435	MS-7 H-Na			0.0029													0.0048													
436	MS-7 L-Na			0.0031													0.0052													
437	MS-7 VH-Ni			0.0029													0.0049													
438	MS-7 H-Ni			0.0030													0.0050													
439	MS-7 L-Ni			0.0030													0.0050													
440	SG01		0.0000	0.0010	0.0000	0.0000			0.0000						0.0000		0.0100			0.0000		0.0000		0.0000		0.0000		0.0000	0.0000	
441	SG02		0.0000	0.0010	0.0000	0.0000			0.0000						0.0000		0.0300			0.0000		0.0000		0.0000		0.0000		0.0000	0.0000	
442	SG03		0.0000	0.0025	0.0000	0.0000			0.0000						0.0000		0.0250			0.0000		0.0000		0.0000		0.0000		0.0000	0.0000	
443	SG04		0.0000	0.0010	0.0000	0.0000			0.0000						0.0000		0.0100			0.0000		0.0000		0.0000		0.0000		0.0000	0.0000	
444	SG05		0.0000	0.0020	0.0000	0.0000			0.0000						0.0000		0.0200			0.0000		0.0000		0.0000		0.0000		0.0000	0.0000	
445	SG06		0.0000	0.0010	0.0000	0.0000			0.0000						0.0000		0.0100			0.0000		0.0000		0.0000		0.0000		0.0000	0.0000	
446	SG07		0.0000	0.0030	0.0000	0.0000			0.0000						0.0000		0.0300			0.0000		0.0000		0.0000		0.0000		0.0000	0.0000	
447	SG08		0.0000	0.0015	0.0000	0.0000			0.0000						0.0000		0.0250			0.0000		0.0000		0.0000		0.0000		0.0000	0.0000	
448	SG09		0.0000	0.0030	0.0000	0.0000			0.0000						0.0000		0.0100			0.0000		0.0000		0.0000		0.0000		0.0000	0.0000	
449	SG10		0.0000	0.0025	0.0000	0.0000			0.0000						0.0000		0.0250			0.0000		0.0000		0.0000		0.0000		0.0000	0.0000	
450	SG11		0.0000	0.0015	0.0000	0.0000			0.0000						0.0000		0.0150			0.0000		0.0000		0.0000		0.0000		0.0000	0.0000	
451	SG12		0.0000	0.0030	0.0000	0.0000			0.0000						0.0000		0.0100			0.0000		0.0000		0.0000		0.0000		0.0000	0.0000	
452	SG13		0.0000	0.0030	0.0000	0.0000			0.0000						0.0000		0.0300			0.0000		0.0000		0.0000		0.0000		0.0000	0.0000	
453	SG14		0.0000	0.0010	0.0000	0.0000			0.0000						0.0000		0.0300			0.0000		0.0000		0.0000		0.0000		0.0000	0.0000	
454	SG15		0.0000	0.0010	0.0000	0.0000			0.0000						0.0000		0.0100			0.0000		0.0000		0.0000		0.0000		0.0000	0.0000	
455	SG16		0.0000	0.0015	0.0000	0.0000			0.0000						0.0000		0.0250			0.0000		0.0000		0.0000		0.0000		0.0000	0.0000	
456	SG17		0.0000	0.0015	0.0000	0.0000			0.0000						0.0000		0.0150			0.0000		0.0000		0.0000		0.0000		0.0000	0.0000	
457	SG18a		0.0000	0.0030	0.0000	0.0000			0.0000						0.0000		0.0300			0.0000		0.0000		0.0000		0.0000		0.0000	0.0000	
458	SG18b		0.0000	0.0030	0.0000	0.0000			0.0000						0.0000		0.0300			0.0000		0.0000		0.0000		0.0000		0.0000	0.0000	
459	SG18c		0.0000	0.0030	0.0000	0.0000			0.0000						0.0000		0.0300			0.0000		0.0000		0.0000		0.0000		0.0000	0.0000	
460	SG18d		0.0000	0.0030	0.0000	0.0000			0.0000						0.0000		0.0300			0.0000		0.0000		0.0000		0.0000		0.0000	0.0000	
461	SG18e		0.0000	0.0030	0.0000	0.0000			0.0000						0.0000		0.0300			0.0000		0.0000		0.0000		0.0000		0.0000	0.0000	
462	SG18f		0.0000	0.0030	0.0000	0.0000			0.0000						0.0000		0.0300			0.0000		0.0000		0.0000		0.0000		0.0000	0.0000	
463	SG18g		0.0000	0.0030	0.0000	0.0000			0.0000						0.0000		0.0300			0.0000		0.0000		0.0000		0.0000		0.0000	0.0000	
464	SG19		0.0000	0.0030	0.0000	0.0000			0.0000						0.0000		0.0100			0.0000		0.0000		0.0000		0.0000		0.0000	0.0000	
465	SG20		0.0000	0.0010	0.0000	0.0000			0.0000						0.0000		0.0100			0.0000		0.0000		0.0000		0.0000		0.0000	0.0000	
466	SG21		0.0000	0.0025	0.0000	0.0000			0.0000						0.0000		0.0242			0.0000		0.0000		0.0000		0.0000		0.0000	0.0000	
467	SG22		0.0000	0.0025	0.0000	0.0000			0.0000						0.0000		0.0150			0.0000		0.0000		0.0000		0.0000		0.0000	0.0000	
468	SG23		0.0000	0.0025	0.0000	0.0000			0.0000						0.0000		0.0150			0.0000		0.0000		0.0000		0.0000		0.0000	0.0000	
469	SG24		0.0000	0.0010	0.0000	0.0000			0.0000						0.0000		0.0100			0.0000		0.0000		0.0000		0.0000		0.0000	0.0000	
470	SG25		0.0000	0.0010	0.0000	0.0000			0.0000						0.0000		0.0100			0.0000		0.0000		0.0000		0.0000		0.0000	0.0000	
471	SG26		0.0000	0.0025	0.0000	0.0000			0.0000						0.0000		0.0150			0.0000		0.0000		0.0000		0.0000		0.0000	0.0000	
472	SG27		0.0000	0.0025	0.0000	0.0000			0.0000						0.0000		0.0150			0.0000		0.0000		0.0000		0.0000		0.0000	0.0000	
473	SG28		0.0000	0.0010	0.0000	0.0000			0.0000						0.0000		0.0100			0.0000		0.0000		0.0000		0.0000		0.0000	0.0000	
474	SG29		0.0000	0.0010	0.0000	0.0000			0.0000						0.0000		0.0300			0.0000		0.0000		0.0000		0.0000		0.0000	0.0000	
475	SG30		0.0000	0.0010	0.0000	0.0000			0.0000						0.0000		0.0300			0.0000		0.0000		0.0000		0.0000		0.0000	0.0000	
476	SG31		0.0000	0.0010	0.0000	0.0000			0.0000						0.0000		0.0300			0.0000		0.0000		0.0000		0.0000		0.0000	0.0000	
477	SG32		0.0000	0.0010	0.0000	0.0000			0.0000						0.0000		0.0100			0.0000		0.0000		0.0000		0.0000		0.0000	0.0000	
478	SG33		0.0000	0.0030	0.0000	0.0000			0.0000						0.0000		0.0300			0.0000		0.0000		0.0000		0.0000		0.0000	0.0000	
479	SG34		0.0000	0.0030	0.0000	0.0000			0.0000						0.0000		0.0300			0.0000		0.0000		0.0000		0.0000		0.0000	0.0000	
480	SG35		0.0000	0.0030	0.0000	0.0000			0.0000						0.0000		0.0300			0.0000		0.0000		0.0000		0.0000		0.0000	0.0000	
481	SG36		0.0000	0.0030	0.0000	0.0000			0.0000						0.0000		0.0100			0.0000		0.0000		0.0000		0.0000		0.0000	0.0000	
482	SG37		0.0000	0.0030	0.0000	0.0000			0.0000						0.0000		0.0100			0.0000		0.0000		0.0000		0.0000		0.0000	0.0000	
483	SG38		0.0000	0.0010	0.0000	0.0000			0.0000						0.0000		0.0300			0.0000		0.0000		0.0000		0.0000		0.0000	0.0000	
484	SG39		0.0000	0.0030	0.0000	0.0000			0.0000						0.0000		0.0300			0.0000		0.0000		0.0000		0.0000		0.0000	0.0000	
485	SG40		0.0000	0.0030	0.0000	0.0000			0.0000						0.0000		0.0100			0.0000		0.0000		0.0000		0.0000		0.0000	0.0000	
486	SG41		0.0000	0.0010	0.0000	0.0000			0.0000						0.0000		0.0300			0.0000		0.0000		0.0000		0.0000		0.0000	0.0000	
487	SG42		0.0000	0.0025	0.0000	0.0000			0.0000						0.0000		0.0250			0.0000		0.0000		0.0000		0.0000		0.0000	0.0000	
488	SG43		0.0000	0.0015	0.0000	0.0000			0.0000						0.0000		0.0250			0.0000		0.0000		0.0000		0.0000		0.0000	0.0000	
489	SG44		0.0000	0.0015	0.0000	0.0000			0.0000						0.0000		0.0150			0.0000		0.0000		0.0000		0.0000		0.0000	0.0000	
490	SG45		0.0000	0.0010	0.0000	0.0000			0.0000						0.0000		0.0300			0.0000		0.0000		0.0000		0.0000		0.0000	0.0000	
491	SG46		0.0000	0.0030	0.0000	0.0000			0.0000						0.0000		0.0100			0.0000		0.0000		0.0000		0.0000		0.0000	0.0000	
492	SG47		0.0000	0.0030	0.0000	0.0000			0.0000						0.0000		0.0100			0.0000		0.0000		0.0000		0.0000		0.0000	0.0000	

#	Glass ID	ReO2-t	Re2O7-t	Rh2O3-t	RhO2-t	RuO2-t	Ru2O3-t	Sb2O3-t	Sb2O5-t	SeO2-t	Sm2O3-t	SnO-t	SnO2-t	SO3-t	SrO-t	Tc2O7-t	TeO2-t	ThO2-t	TiO2-t	Tl2O-t	Tl2O3-t	U3O8-t	UO2-t	UO3-t	V2O5-t	WO3-t	Y2O3-t	ZnO-t	Sum-t	Al2O3-a
411	SP-Si-3			0.0002		0.0002		0.0005		0.0007	0.0000			0.0014	0.0002		0.0000		0.0002			0.0000				0.0000	0.0000	0.0003	1.0000	
412	MS-1a																											1.0000	
413	MS-1b																											1.0000	
414	MS-2a																											1.0000	
415	MS-2b																											1.0000	
416	MS-3a																											1.0000	
417	MS-3b																											1.0000	
418	MS-4a																											1.0000	
419	MS-4b																											1.0000	
420	MS-5																											1.0000	
421	MS-6																											1.0000	
422	MS-7																											1.0000	
423	MS-8																											1.0000	
424	MS-9																											1.0000	
425	MS-7 H-Al																											0.9999	
426	MS-7 L-Al																											0.9994	
427	MS-7 H-Cr																											0.9992	
428	MS-7 L-Cr																											0.9999	
429	MS-7 H-Fe																											1.0000	
430	MS-7 L-Fe																											1.0000	
431	MS-7 H-Li																											1.0001	
432	MS-7 L-Li																											1.0001	
433	MS-7 H-Mg																											1.0000	
434	MS-7 L-Mg																											1.0000	
435	MS-7 H-Na																											1.0000	
436	MS-7 L-Na																											1.0000	
437	MS-7 VH-Ni																											1.0000	
438	MS-7 H-Ni																											1.0000	
439	MS-7 L-Ni																											1.0000	
440	SG01			0.0000		0.0009		0.0000		0.0000	0.0000			0.0000	0.0000		0.0000		0.0060			0.0550				0.0000	0.0000	0.0000	1.0000	
441	SG02			0.0000		0.0009		0.0000		0.0000	0.0000			0.0000	0.0000		0.0000		0.0015			0.0000				0.0000	0.0000	0.0000	1.0001	
442	SG03			0.0000		0.0009		0.0000		0.0000	0.0000			0.0000	0.0000		0.0000		0.0026			0.0415				0.0000	0.0000	0.0000	1.0000	
443	SG04			0.0000		0.0009		0.0000		0.0000	0.0000			0.0000	0.0000		0.0000		0.0015			0.0000				0.0000	0.0000	0.0000	1.0000	
444	SG05			0.0000		0.0009		0.0000		0.0000	0.0000			0.0000	0.0000		0.0000		0.0037			0.0280				0.0000	0.0000	0.0000	1.0000	
445	SG06			0.0000		0.0009		0.0000		0.0000	0.0000			0.0000	0.0000		0.0000		0.0060			0.0000				0.0000	0.0000	0.0000	1.0000	
446	SG07			0.0000		0.0009		0.0000		0.0000	0.0000			0.0000	0.0000		0.0000		0.0015			0.0000				0.0000	0.0000	0.0000	1.0000	
447	SG08			0.0000		0.0009		0.0000		0.0000	0.0000			0.0000	0.0000		0.0000		0.0026			0.0177				0.0000	0.0000	0.0000	1.0000	
448	SG09			0.0000		0.0009		0.0000		0.0000	0.0000			0.0000	0.0000		0.0000		0.0015			0.0550				0.0000	0.0000	0.0000	1.0000	
449	SG10			0.0000		0.0009		0.0000		0.0000	0.0000			0.0000	0.0000		0.0000		0.0026			0.0415				0.0000	0.0000	0.0000	1.0000	
450	SG11			0.0000		0.0009		0.0000		0.0000	0.0000			0.0000	0.0000		0.0000		0.0026			0.0177				0.0000	0.0000	0.0000	1.0000	
451	SG12			0.0000		0.0009		0.0000		0.0000	0.0000			0.0000	0.0000		0.0000		0.0015			0.0000				0.0000	0.0000	0.0000	1.0000	
452	SG13			0.0000		0.0009		0.0000		0.0000	0.0000			0.0000	0.0000		0.0000		0.0015			0.0000				0.0000	0.0000	0.0000	1.0000	
453	SG14			0.0000		0.0009		0.0000		0.0000	0.0000			0.0000	0.0000		0.0000		0.0015			0.0550				0.0000	0.0000	0.0000	1.0000	
454	SG15			0.0000		0.0009		0.0000		0.0000	0.0000			0.0000	0.0000		0.0000		0.0060			0.0080				0.0000	0.0000	0.0000	1.0000	
455	SG16			0.0000		0.0009		0.0000		0.0000	0.0000			0.0000	0.0000		0.0000		0.0049			0.0415				0.0000	0.0000	0.0000	1.0000	
456	SG17			0.0000		0.0009		0.0000		0.0000	0.0000			0.0000	0.0000		0.0000		0.0049			0.0415				0.0000	0.0000	0.0000	1.0000	
457	SG18a			0.0000		0.0009		0.0000		0.0000	0.0000			0.0000	0.0000		0.0000		0.0060			0.0000				0.0000	0.0000	0.0000	1.0000	
458	SG18b			0.0000		0.0009		0.0000		0.0000	0.0000			0.0000	0.0000		0.0000		0.0060			0.0000				0.0000	0.0000	0.0000	1.0000	
459	SG18c			0.0000		0.0009		0.0000		0.0000	0.0000			0.0000	0.0000		0.0000		0.0060			0.0000				0.0000	0.0000	0.0000	1.0000	
460	SG18d			0.0000		0.0009		0.0000		0.0000	0.0000			0.0000	0.0000		0.0000		0.0060			0.0000				0.0000	0.0000	0.0000	1.0000	
461	SG18e			0.0000		0.0009		0.0000		0.0000	0.0000			0.0000	0.0000		0.0000		0.0060			0.0000				0.0000	0.0000	0.0000	1.0000	
462	SG18f			0.0000		0.0009		0.0000		0.0000	0.0000			0.0000	0.0000		0.0000		0.0060			0.0000				0.0000	0.0000	0.0000	1.0000	
463	SG18g			0.0000		0.0009		0.0000		0.0000	0.0000			0.0000	0.0000		0.0000		0.0060			0.0000				0.0000	0.0000	0.0000	1.0000	
464	SG19			0.0000		0.0009		0.0000		0.0000	0.0000			0.0000	0.0000		0.0000		0.0015			0.0550				0.0000	0.0000	0.0000	1.0000	
465	SG20			0.0000		0.0009		0.0000		0.0000	0.0000			0.0000	0.0000		0.0000		0.0060			0.0550				0.0000	0.0000	0.0000	1.0000	
466	SG21			0.0000		0.0009		0.0000		0.0000	0.0000			0.0000	0.0000		0.0000		0.0049			0.0177				0.0000	0.0000	0.0000	1.0000	
467	SG22			0.0000		0.0009		0.0000		0.0000	0.0000			0.0000	0.0000		0.0000		0.0026			0.0177				0.0000	0.0000	0.0000	1.0000	
468	SG23			0.0000		0.0009		0.0000		0.0000	0.0000			0.0000	0.0000		0.0000		0.0049			0.0177				0.0000	0.0000	0.0000	1.0000	
469	SG24			0.0000		0.0009		0.0000		0.0000	0.0000			0.0000	0.0000		0.0000		0.0060			0.0550				0.0000	0.0000	0.0000	1.0001	
470	SG25			0.0000		0.0009		0.0000		0.0000	0.0000			0.0000	0.0000		0.0000		0.0015			0.0000				0.0000	0.0000	0.0000	1.0000	
471	SG26			0.0000		0.0009		0.0000		0.0000	0.0000			0.0000	0.0000		0.0000		0.0049			0.0415				0.0000	0.0000	0.0000	1.0000	
472	SG27			0.0000		0.0009		0.0000		0.0000	0.0000			0.0000	0.0000		0.0000		0.0026			0.0415				0.0000	0.0000	0.0000	1.0000	
473	SG28			0.0000		0.0009		0.0000		0.0000	0.0000			0.0000	0.0000		0.0000		0.0015			0.0000				0.0000	0.0000	0.0000	1.0000	
474	SG29			0.0000		0.0009		0.0000		0.0000	0.0000			0.0000	0.0000		0.0000		0.0060			0.0550				0.0000	0.0000	0.0000	1.0000	
475	SG30			0.0000		0.0009		0.0000		0.0000	0.0000			0.0000	0.0000		0.0000		0.0015			0.0550				0.0000	0.0000	0.0000	1.0000	
476	SG31			0.0000		0.0009		0.0000		0.0000	0.0000			0.0000	0.0000		0.0000		0.0060			0.0000				0.0000	0.0000	0.0000	1.0000	
477	SG32			0.0000		0.0009		0.0000		0.0000	0.0000			0.0000	0.0000		0.0000		0.0060			0.0000				0.0000	0.0000	0.0000	1.0000	
478	SG33			0.0000		0.0009		0.0000		0.0000	0.0000			0.0000	0.0000		0.0000		0.0060			0.0000				0.0000	0.0000	0.0000	1.0000	
479	SG34			0.0000		0.0009		0.0000		0.0000	0.0000			0.0000	0.0000		0.0000		0.0060			0.0550				0.0000	0.0000	0.0000	1.0000	
480	SG35			0.0000		0.0009		0.0000		0.0000	0.0000			0.0000	0.0000		0.0000		0.0060			0.0000				0.0000	0.0000	0.0000	1.0000	
481	SG36			0.0000		0.0009		0.0000		0.0000	0.0000			0.0000	0.0000		0.0000		0.0015			0.0550				0.0000	0.0000	0.0000	1.0001	
482	SG37			0.0000		0.0009		0.0000		0.0000	0.0000			0.0000	0.0000		0.0000		0.0060			0.0000				0.0000	0.0000	0.0000	1.0000	
483	SG38			0.0000		0.0009		0.0000		0.0000	0.0000			0.0000	0.0000		0.0000		0.0060			0.0550				0.0000	0.0000	0.0000	1.0000	
484	SG39			0.0000		0.0009		0.0000		0.0000	0.0000			0.0000	0.0000		0.0000		0.0060			0.0000				0.0000	0.0000	0.0000	1.0000	
485	SG40			0.0000		0.0009		0.0000		0.0000	0.0000			0.0000	0.0000		0.0000		0.0060			0.0550				0.0000	0.0000	0.0000	1.0000	
486	SG41			0.0000		0.0009		0.0000		0.0000	0.0000			0.0000	0.0000		0.0000		0.0015			0.0550				0.0000	0.0000	0.0000	1.0000	
487	SG42			0.0000		0.0009		0.0000		0.0000	0.0000			0.0000	0.0000		0.0000		0.0049			0.0177				0.0000	0.0000	0.0000	1.0000	
488	SG43			0.0000		0.0009		0.0000		0.0000	0.0000			0.0000	0.0000		0.0000		0.0026			0.0177				0.0000	0.0000	0.0000	1.0000	
489	SG44			0.0000		0.0009		0.0000		0.0000	0.0000			0.0000	0.0000		0.0000		0.0049			0.0177				0.0000	0.0000	0.0000	1.0000	
490	SG45			0.0000		0.0009		0.0000		0.0000	0.0000			0.0000	0.0000		0.0000		0.0015			0.0000				0.0000	0.0000	0.0000	1.0000	
491	SG46			0.0000		0.0009		0.0000		0.0000	0.0000			0.0000	0.0000		0.0000		0.0060			0.0550				0.0000	0.0000	0.0000	1.0000	
492	SG47			0.0000		0.0009		0.0000		0.0000	0.0000			0.0000	0.0000		0.0000		0.0015			0.0550				0.0000	0.0000	0.0000	1.0000	

#	Glass ID	B2O3-a	CaO-a	Fe2O3-a	FeO-a	K2O-a	Li2O-a	MgO-a	Na2O-a	NiO-a	P2O5-a	SiO2-a	ZrO2-a	Ag2O-a	As2O3-a	As2O5-a	BaO-a	BeO-a	Bi2O3-a	Br-a	CdO-a	Ce2O3-a	CeO2-a	Cl-a	CoO-a	Co2O3-a	Cr2O3-a	Cs2O-a	CuO-a	F-a
411	SP-Si-3																													
412	MS-1a																													
413	MS-1b																													
414	MS-2a																													
415	MS-2b																													
416	MS-3a																													
417	MS-3b																													
418	MS-4a																													
419	MS-4b																													
420	MS-5																													
421	MS-6																													
422	MS-7																													
423	MS-8																													
424	MS-9																													
425	MS-7 H-Al																													
426	MS-7 L-Al																													
427	MS-7 H-Cr																													
428	MS-7 L-Cr																													
429	MS-7 H-Fe																													
430	MS-7 L-Fe																													
431	MS-7 H-Li																													
432	MS-7 L-Li																													
433	MS-7 H-Mg																													
434	MS-7 L-Mg																													
435	MS-7 H-Na																													
436	MS-7 L-Na																													
437	MS-7 VH-Ni																													
438	MS-7 H-Ni																													
439	MS-7 L-Ni																													
440	SG01																													
441	SG02																													
442	SG03																													
443	SG04																													
444	SG05																													
445	SG06																													
446	SG07																													
447	SG08																													
448	SG09																													
449	SG10																													
450	SG11																													
451	SG12																													
452	SG13																													
453	SG14																													
454	SG15																													
455	SG16																													
456	SG17																													
457	SG18a																													
458	SG18b																													
459	SG18c																													
460	SG18d																													
461	SG18e																													
462	SG18f																													
463	SG18g																													
464	SG19																													
465	SG20																													
466	SG21																													
467	SG22																													
468	SG23																													
469	SG24																													
470	SG25																													
471	SG26																													
472	SG27																													
473	SG28																													
474	SG29																													
475	SG30																													
476	SG31																													
477	SG32																													
478	SG33																													
479	SG34																													
480	SG35																													
481	SG36																													
482	SG37																													
483	SG38																													
484	SG39																													
485	SG40																													
486	SG41																													
487	SG42																													
488	SG43																													
489	SG44																													
490	SG45																													
491	SG46																													
492	SG47																													

#	Glass ID	Ga2O3-a	Gd2O3-a	I-a	La2O3-a	MnO2-a	MnO-a	MoO-a	MoO3-a	Nb2O5-a	Nd2O3-a	NpO2-a	PbO-a	PdO2-a	PdO-a	Pr2O3-a	Pr6O11-a	PuO2-a	Rb2O-a	ReO-a	ReO2-a	Re2O7-a	Rh2O3-a	RhO2-a	RuO2-a	Sb2O3-a	Sb2O5-a	SeO2-a
411	SP-Si-3																											
412	MS-1a																											
413	MS-1b																											
414	MS-2a																											
415	MS-2b																											
416	MS-3a																											
417	MS-3b																											
418	MS-4a																											
419	MS-4b																											
420	MS-5																											
421	MS-6																											
422	MS-7																											
423	MS-8																											
424	MS-9																											
425	MS-7 H-Al																											
426	MS-7 L-Al																											
427	MS-7 H-Cr																											
428	MS-7 L-Cr																											
429	MS-7 H-Fe																											
430	MS-7 L-Fe																											
431	MS-7 H-Li																											
432	MS-7 L-Li																											
433	MS-7 H-Mg																											
434	MS-7 L-Mg																											
435	MS-7 H-Na																											
436	MS-7 L-Na																											
437	MS-7 VH-Ni																											
438	MS-7 H-Ni																											
439	MS-7 L-Ni																											
440	SG01																											
441	SG02																											
442	SG03																											
443	SG04																											
444	SG05																											
445	SG06																											
446	SG07																											
447	SG08																											
448	SG09																											
449	SG10																											
450	SG11																											
451	SG12																											
452	SG13																											
453	SG14																											
454	SG15																											
455	SG16																											
456	SG17																											
457	SG18a																											
458	SG18b																											
459	SG18c																											
460	SG18d																											
461	SG18e																											
462	SG18f																											
463	SG18g																											
464	SG19																											
465	SG20																											
466	SG21																											
467	SG22																											
468	SG23																											
469	SG24																											
470	SG25																											
471	SG26																											
472	SG27																											
473	SG28																											
474	SG29																											
475	SG30																											
476	SG31																											
477	SG32																											
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483	SG38																											
484	SG39																											
485	SG40																											
486	SG41																											
487	SG42																											
488	SG43																											
489	SG44																											
490	SG45																											
491	SG46																											
492	SG47																											

#	Glass ID	Sm2O3-a	SnO-a	SnO2-a	SO3-a	SrO-a	Tc2O7-a	TeO2-a	ThO2-a	TiO2-a	Tl2O-a	Tl2O3-a	U3O8-a	UO2-a	UO3-a	V2O5-a	WO3-a	Y2O3-a	ZnO-a	Sum-a	T_M (°C)	$T_{L,G}$ (°C)	$T_{L,U}$ (°C)	$T_{1\%}$ (°C)	Primary Phase	$C_{650°C}$	$C_{700°C}$	$C_{750°C}$
411	SP-Si-3																			0.0000			1017		spinel			
412	MS-1a																			0.0000			1247		spinel			
413	MS-1b																			0.0000			1221		spinel			
414	MS-2a																			0.0000			1215		spinel			
415	MS-2b																			0.0000			1223		spinel			
416	MS-3a																			0.0000			1185		spinel			
417	MS-3b																			0.0000			1188		spinel			
418	MS-4a																			0.0000			1139		spinel			
419	MS-4b																			0.0000			1144		spinel			
420	MS-5																			0.0000			1171		spinel			
421	MS-6																			0.0000			1225		spinel			
422	MS-7																			0.0000			1078		spinel			
423	MS-8																			0.0000			1125		spinel			
424	MS-9																			0.0000			1199		spinel			
425	MS-7 H-Al																			0.0000			1136		spinel			
426	MS-7 L-Al																			0.0000			1018		spinel			
427	MS-7 H-Cr																			0.0000			1115		spinel			
428	MS-7 L-Cr																			0.0000			1039		spinel			
429	MS-7 H-Fe																			0.0000			1141		spinel			
430	MS-7 L-Fe																			0.0000			1015		spinel			
431	MS-7 H-Li																			0.0000			1042		spinel			
432	MS-7 L-Li																			0.0000			1117		spinel			
433	MS-7 H-Mg																			0.0000			1144		spinel			
434	MS-7 L-Mg																			0.0000			1062		spinel			
435	MS-7 H-Na																			0.0000			987		spinel			
436	MS-7 L-Na																			0.0000			1188		spinel			
437	MS-7 VH-Ni																			0.0000			1252		spinel			
438	MS-7 H-Ni																			0.0000			1151		spinel			
439	MS-7 L-Ni																			0.0000			1022		spinel			
440	SG01																			0.0000	1107		1124		spinel			
441	SG02																			0.0000	1150		775		RuO2, clinopyroxene			
442	SG03																			0.0000	1200		1164		spinel			
443	SG04																			0.0000	1250		1261		spinel			
444	SG05																			0.0000	1250		1084		spinel			
445	SG06																			0.0000	1322		911		RuO2, spinel			
446	SG07																			0.0000	1294		950		spinel			
447	SG08																			0.0000	1330		1114		RuO2, spinel			
448	SG09																			0.0000	1200		1173		spinel			
449	SG10																			0.0000	1275		1098		RuO2, spinel			
450	SG11																			0.0000	1264		895		RuO2, spinel			
451	SG12																			0.0000	1384		1030		RuO2, spinel			
452	SG13																			0.0000	1319		1063		RuO2, spinel			
453	SG14																			0.0000	1160		951		spinel			
454	SG15																			0.0000	1285		935		RuO2, clinopyroxene			
455	SG16																			0.0000	1250		995		RuO2, spinel			
456	SG17																			0.0000	1160		1075		spinel			
457	SG18a																			0.0000	1142		879		spinel			
458	SG18b																			0.0000	1142		887		spinel			
459	SG18c																			0.0000	1142		859		spinel			
460	SG18d																			0.0000	1142		883		spinel			
461	SG18e																			0.0000	1142		883		spinel			
462	SG18f																			0.0000	1142		891		spinel			
463	SG18g																			0.0000	1142		882		spinel			
464	SG19																			0.0000	1140		929		spinel			
465	SG20																			0.0000	1240		799		RuO2, spinel, clinopyroxene			
466	SG21																			0.0000	1284		987		RuO2, spinel			
467	SG22																			0.0000	1246		1145		spinel			
468	SG23																			0.0000	1304		1069		RuO2, spinel			
469	SG24																			0.0000	1345		995		RuO2, clinopyroxene			
470	SG25																			0.0000	1333		1310		spinel			
471	SG26																			0.0000	1304		1071		spinel			
472	SG27																			0.0000	1211		1086		spinel			
473	SG28																			0.0000	1150		833		RuO2, clinopyroxene			
474	SG29																			0.0000	1280		811		spinel			
475	SG30																			0.0000	1157		1031		spinel			
476	SG31																			0.0000	1149		1081		spinel			
477	SG32																			0.0000	1250		1132		spinel			
478	SG33																			0.0000	1145		943		spinel			
479	SG34																			0.0000	1285		1282		spinel			
480	SG35																			0.0000	1134		1231		spinel			
481	SG36																			0.0000	1265		813		RuO2, clinopyroxene			
482	SG37																			0.0000	1268		944		RuO2, spinel			
483	SG38																			0.0000	1151		897		spinel			
484	SG39																			0.0000	1322		1164		spinel			
485	SG40																			0.0000	1300		1173		spinel			
486	SG41																			0.0000	1300		1304		spinel			
487	SG42																			0.0000	1160		990		spinel			
488	SG43																			0.0000	1317		924		spinel			
489	SG44																			0.0000	1330		1244		RuO2, spinel			
490	SG45																			0.0000	1317		936		RuO2, spinel, clinopyroxene			
491	SG46																			0.0000	1257		1247		spinel			
492	SG47																			0.0000	1193		1144		spinel			

#	Glass ID	$C_{800°C}$	$C_{850°C}$	$C_{900°C}$	$C_{950°C}$	$C_{1000°C}$	$C_{1050°C}$	$C_{1100°C}$	$C_{1150°C}$	$C_{1200°C}$	Quenched Visual/OM	Quenched XRD	CCC XRD	ρ (g/cm³)	Fulc Visc A	Fulc Visc B	Fulc Visc To	Arrh Visc E	Arrh Visc F	T1 (°C)	V1 (Pa·s)
411	SP-Si-3																				
412	MS-1a																				
413	MS-1b																				
414	MS-2a																				
415	MS-2b																				
416	MS-3a																				
417	MS-3b																				
418	MS-4a																				
419	MS-4b																				
420	MS-5																				
421	MS-6																				
422	MS-7																				
423	MS-8																				
424	MS-9																				
425	MS-7 H-Al																				
426	MS-7 L-Al																				
427	MS-7 H-Cr																				
428	MS-7 L-Cr																				
429	MS-7 H-Fe																				
430	MS-7 L-Fe																				
431	MS-7 H-Li																				
432	MS-7 L-Li																				
433	MS-7 H-Mg																				
434	MS-7 L-Mg																				
435	MS-7 H-Na																				
436	MS-7 L-Na																				
437	MS-7 VH-Ni																				
438	MS-7 H-Ni																				
439	MS-7 L-Ni																				
440	SG01																				
441	SG02																				
442	SG03																				
443	SG04																				
444	SG05																				
445	SG06																				
446	SG07																				
447	SG08																				
448	SG09																				
449	SG10																				
450	SG11																				
451	SG12																				
452	SG13																				
453	SG14																				
454	SG15																				
455	SG16																				
456	SG17																				
457	SG18a																				
458	SG18b																				
459	SG18c																				
460	SG18d																				
461	SG18e																				
462	SG18f																				
463	SG18g																				
464	SG19																				
465	SG20																				
466	SG21																				
467	SG22																				
468	SG23																				
469	SG24																				
470	SG25																				
471	SG26																				
472	SG27																				
473	SG28																				
474	SG29																				
475	SG30																				
476	SG31																				
477	SG32																				
478	SG33																				
479	SG34																				
480	SG35																				
481	SG36																				
482	SG37																				
483	SG38																				
484	SG39																				
485	SG40																				
486	SG41																				
487	SG42																				
488	SG43																				
489	SG44																				
490	SG45																				
491	SG46																				
492	SG47																				

#	Glass ID	T2 (°C)	V2 (Pa·s)	T3 (°C)	V3 (Pa·s)	T4 (°C)	V4 (Pa·s)	T5 (°C)	V5 (Pa·s)	T6 (°C)	V6 (Pa·s)	T7 (°C)	V7 (Pa·s)	T8 (°C)	V8 (Pa·s)	T9 (°C)	V9 (Pa·s)	T10 (°C)	V10 (Pa·s)	TCLP Ag	TCLP As	TCLP Ba	TCLP Cd	TCLP Cr	TCLP Ni	TCLP Pb
411	SP-Si-3																									
412	MS-1a																									
413	MS-1b																									
414	MS-2a																									
415	MS-2b																									
416	MS-3a																									
417	MS-3b																									
418	MS-4a																									
419	MS-4b																									
420	MS-5																									
421	MS-6																									
422	MS-7																									
423	MS-8																									
424	MS-9																									
425	MS-7 H-Al																									
426	MS-7 L-Al																									
427	MS-7 H-Cr																									
428	MS-7 L-Cr																									
429	MS-7 H-Fe																									
430	MS-7 L-Fe																									
431	MS-7 H-Li																									
432	MS-7 L-Li																									
433	MS-7 H-Mg																									
434	MS-7 L-Mg																									
435	MS-7 H-Na																									
436	MS-7 L-Na																									
437	MS-7 VH-Ni																									
438	MS-7 H-Ni																									
439	MS-7 L-Ni																									
440	SG01																									
441	SG02																									
442	SG03																									
443	SG04																									
444	SG05																									
445	SG06																									
446	SG07																									
447	SG08																									
448	SG09																									
449	SG10																									
450	SG11																									
451	SG12																									
452	SG13																									
453	SG14																									
454	SG15																									
455	SG16																									
456	SG17																									
457	SG18a																									
458	SG18b																									
459	SG18c																									
460	SG18d																									
461	SG18e																									
462	SG18f																									
463	SG18g																									
464	SG19																									
465	SG20																									
466	SG21																									
467	SG22																									
468	SG23																									
469	SG24																									
470	SG25																									
471	SG26																									
472	SG27																									
473	SG28																									
474	SG29																									
475	SG30																									
476	SG31																									
477	SG32																									
478	SG33																									
479	SG34																									
480	SG35																									
481	SG36																									
482	SG37																									
483	SG38																									
484	SG39																									
485	SG40																									
486	SG41																									
487	SG42																									
488	SG43																									
489	SG44																									
490	SG45																									
491	SG46																									
492	SG47																									

#	Glass ID	TCLP Se	TCLP Zn	TCLP Al	TCLP B	TCLP Sb	TCLP Tl	TCLP V	Q PCT B (g/m²)	Q PCT Li (g/m²)	Q PCT Na (g/m²)	Q PCT Si (g/m²)	Q PCT pH	CCC PCT B (g/m²)	CCC PCT Li (g/m²)	CCC PCT Na (g/m²)	CCC PCT Si (g/m²)	CCC PCT pH	T1 (°C)
411	SP-Si-3																		
412	MS-1a																		
413	MS-1b																		
414	MS-2a																		
415	MS-2b																		
416	MS-3a																		
417	MS-3b																		
418	MS-4a																		
419	MS-4b																		
420	MS-5																		
421	MS-6																		
422	MS-7																		
423	MS-8																		
424	MS-9																		
425	MS-7 H-Al																		
426	MS-7 L-Al																		
427	MS-7 H-Cr																		
428	MS-7 L-Cr																		
429	MS-7 H-Fe																		
430	MS-7 L-Fe																		
431	MS-7 H-Li																		
432	MS-7 L-Li																		
433	MS-7 H-Mg																		
434	MS-7 L-Mg																		
435	MS-7 H-Na																		
436	MS-7 L-Na																		
437	MS-7 VH-Ni																		
438	MS-7 H-Ni																		
439	MS-7 L-Ni																		
440	SG01																		
441	SG02																		
442	SG03																		
443	SG04																		
444	SG05																		
445	SG06																		
446	SG07																		
447	SG08																		
448	SG09																		
449	SG10																		
450	SG11																		
451	SG12																		
452	SG13																		
453	SG14																		
454	SG15																		
455	SG16																		
456	SG17																		
457	SG18a																		
458	SG18b																		
459	SG18c																		
460	SG18d																		
461	SG18e																		
462	SG18f																		
463	SG18g																		
464	SG19																		
465	SG20																		
466	SG21																		
467	SG22																		
468	SG23																		
469	SG24																		
470	SG25																		
471	SG26																		
472	SG27																		
473	SG28																		
474	SG29																		
475	SG30																		
476	SG31																		
477	SG32																		
478	SG33																		
479	SG34																		
480	SG35																		
481	SG36																		
482	SG37																		
483	SG38																		
484	SG39																		
485	SG40																		
486	SG41																		
487	SG42																		
488	SG43																		
489	SG44																		
490	SG45																		
491	SG46																		
492	SG47																		

#	Glass ID	EC1 (S/cm)	T2 (°C)	EC2 (S/cm)	T3 (°C)	EC3 (S/cm)	T4 (°C)	EC4 (S/cm)	T5 (°C)	EC5 (S/cm)	T6 (°C)	EC6 (S/cm)	A	B	To
411	SP-Si-3														
412	MS-1a														
413	MS-1b														
414	MS-2a														
415	MS-2b														
416	MS-3a														
417	MS-3b														
418	MS-4a														
419	MS-4b														
420	MS-5														
421	MS-6														
422	MS-7														
423	MS-8														
424	MS-9														
425	MS-7 H-Al														
426	MS-7 L-Al														
427	MS-7 H-Cr														
428	MS-7 L-Cr														
429	MS-7 H-Fe														
430	MS-7 L-Fe														
431	MS-7 H-Li														
432	MS-7 L-Li														
433	MS-7 H-Mg														
434	MS-7 L-Mg														
435	MS-7 H-Na														
436	MS-7 L-Na														
437	MS-7 VH-Ni														
438	MS-7 H-Ni														
439	MS-7 L-Ni														
440	SG01														
441	SG02														
442	SG03														
443	SG04														
444	SG05														
445	SG06														
446	SG07														
447	SG08														
448	SG09														
449	SG10														
450	SG11														
451	SG12														
452	SG13														
453	SG14														
454	SG15														
455	SG16														
456	SG17														
457	SG18a														
458	SG18b														
459	SG18c														
460	SG18d														
461	SG18e														
462	SG18f														
463	SG18g														
464	SG19														
465	SG20														
466	SG21														
467	SG22														
468	SG23														
469	SG24														
470	SG25														
471	SG26														
472	SG27														
473	SG28														
474	SG29														
475	SG30														
476	SG31														
477	SG32														
478	SG33														
479	SG34														
480	SG35														
481	SG36														
482	SG37														
483	SG38														
484	SG39														
485	SG40														
486	SG41														
487	SG42														
488	SG43														
489	SG44														
490	SG45														
491	SG46														
492	SG47														

#	Glass ID	Study	Reference	Al2O3-t	B2O3-t	CaO-t	Fe2O3-t	FeO-t	K2O-t	Li2O-t	MgO-t	Na2O-t	NiO-t	P2O5-t	SiO2-t	ZrO2-t	Ag2O-t	As2O3-t	As2O5-t	BaO-t	BeO-t	Bi2O3-t	Br-t	CdO-t	Ce2O3-t	CeO2-t	Cl-t
493	SG48	SG	Hrma et al. 1999	0.0270	0.0999	0.0030	0.0599		0.0380	0.0300	0.0050	0.1099	0.0200	0.0000	0.5895	0.0000	0.0000	0.0000		0.0000		0.0000		0.0000		0.0000	0.0000
494	SG49	SG	Hrma et al. 1999	0.0250	0.0500	0.0030	0.0809		0.0380	0.0599	0.0050	0.0599	0.0005	0.0000	0.5895	0.0000	0.0000	0.0000		0.0000		0.0000		0.0000		0.0000	0.0000
495	SG50	SG	Hrma et al. 1999	0.0250	0.0500	0.0200	0.1499		0.0380	0.0300	0.0050	0.0599	0.0200	0.0000	0.5075	0.0000	0.0000	0.0000		0.0000		0.0000		0.0000		0.0000	0.0000
496	SG51	SG	Hrma et al. 1999	0.0799	0.0500	0.0200	0.1499		0.0380	0.0300	0.0050	0.1099	0.0005	0.0000	0.5015	0.0000	0.0000	0.0000		0.0000		0.0000		0.0000		0.0000	0.0000
497	SG52a	SG	Hrma et al. 1999	0.0250	0.0999	0.0030	0.1499		0.0150	0.0599	0.0050	0.1099	0.0005	0.0000	0.4921	0.0000	0.0000	0.0000		0.0000		0.0000		0.0000		0.0000	0.0000
498	SG52b	SG	Hrma et al. 1999	0.0250	0.0999	0.0030	0.1499		0.0150	0.0599	0.0050	0.1099	0.0005	0.0000	0.4921	0.0000	0.0000	0.0000		0.0000		0.0000		0.0000		0.0000	0.0000
499	SG52c	SG	Hrma et al. 1999	0.0250	0.0999	0.0030	0.1499		0.0150	0.0599	0.0050	0.1099	0.0005	0.0000	0.4921	0.0000	0.0000	0.0000		0.0000		0.0000		0.0000		0.0000	0.0000
500	SG52d	SG	Hrma et al. 1999	0.0250	0.0999	0.0030	0.1499		0.0150	0.0599	0.0050	0.1099	0.0005	0.0000	0.4921	0.0000	0.0000	0.0000		0.0000		0.0000		0.0000		0.0000	0.0000
501	SG52e	SG	Hrma et al. 1999	0.0250	0.0999	0.0030	0.1499		0.0150	0.0599	0.0050	0.1099	0.0005	0.0000	0.4921	0.0000	0.0000	0.0000		0.0000		0.0000		0.0000		0.0000	0.0000
502	SG53	SG	Hrma et al. 1999	0.0530	0.0752	0.0115	0.1052		0.0266	0.0450	0.0150	0.0852	0.0102	0.0000	0.5186	0.0000	0.0000	0.0000		0.0000		0.0000		0.0000		0.0000	0.0000
503	SP-B-5	SP-3	Vienna et al. 2001	0.0688	0.2000	0.0086	0.1075		0.0024	0.0258	0.0052	0.1353	0.0045	0.0040	0.3957	0.0159	0.0006	0.0000		0.0026		0.0000		0.0060		0.0006	0.0001
504	SP-Ca-1	SP-3	Vienna et al. 2001	0.0784	0.0686	0.0300	0.1225		0.0027	0.0294	0.0059	0.1541	0.0051	0.0045	0.4507	0.0181	0.0007	0.0000		0.0030		0.0000		0.0068		0.0007	0.0001
505	SP-Ca-2	SP-3	Vienna et al. 2001	0.0768	0.0672	0.0500	0.1199		0.0027	0.0288	0.0058	0.1509	0.0050	0.0044	0.4414	0.0178	0.0007	0.0000		0.0029		0.0000		0.0067		0.0007	0.0001
506	SP-Fe-4	SP-3	Vienna et al. 2001	0.0704	0.0616	0.0088	0.2300		0.0025	0.0264	0.0053	0.1384	0.0046	0.0041	0.4048	0.0163	0.0006	0.0000		0.0027		0.0000		0.0061		0.0006	0.0001
507	SP-K-1	SP-3	Vienna et al. 2001	0.0786	0.0688	0.0098	0.1228		0.0200	0.0295	0.0059	0.1546	0.0051	0.0045	0.4521	0.0182	0.0007	0.0000		0.0030		0.0000		0.0068		0.0007	0.0001
508	SP-K-2	SP-3	Vienna et al. 2001	0.0770	0.0674	0.0096	0.1203		0.0400	0.0289	0.0058	0.1514	0.0050	0.0045	0.4428	0.0178	0.0007	0.0000		0.0029		0.0000		0.0067		0.0007	0.0001
509	SP-Li-5	SP-3	Vienna et al. 2001	0.0788	0.0689	0.0098	0.1231		0.0028	0.0450	0.0059	0.1549	0.0051	0.0046	0.4529	0.0182	0.0007	0.0000		0.0030		0.0000		0.0068		0.0007	0.0001
510	SP-Li-6	SP-3	Vienna et al. 2001	0.0763	0.0668	0.0095	0.1192		0.0027	0.0750	0.0057	0.1500	0.0050	0.0044	0.4387	0.0176	0.0007	0.0000		0.0029		0.0000		0.0066		0.0007	0.0001
511	SP-Si-4	SP-3	Vienna et al. 2001	0.1037	0.0907	0.0130	0.1620		0.0036	0.0389	0.0078	0.2039	0.0067	0.0060	0.3000	0.0240	0.0009	0.0000		0.0039		0.0000		0.0090		0.0009	0.0001
512	SP-Ti-1	SP-3	Vienna et al. 2001	0.0780	0.0683	0.0098	0.1219		0.0027	0.0293	0.0059	0.1534	0.0051	0.0045	0.4486	0.0180	0.0007	0.0000		0.0029		0.0000		0.0068		0.0007	0.0001
513	SP-Ti-2	SP-3	Vienna et al. 2001	0.0760	0.0665	0.0095	0.1188		0.0027	0.0285	0.0057	0.1495	0.0049	0.0044	0.4371	0.0176	0.0007	0.0000		0.0029		0.0000		0.0066		0.0007	0.0001
514	SP-Zr-1	SP-3	Vienna et al. 2001	0.0782	0.0685	0.0098	0.1223		0.0027	0.0293	0.0059	0.1539	0.0051	0.0045	0.4499	0.0400	0.0007	0.0000		0.0030		0.0000		0.0068		0.0007	0.0001
515	SP-Ru-1	SP-3	Vienna et al. 2001	0.0800	0.0700	0.0000	0.1249		0.0000	0.0300	0.0060	0.1572	0.0052	0.0059	0.4597	0.0234	0.0009	0.0000		0.0038		0.0000		0.0088		0.0009	0.0001
516	SP-Ru-2	SP-3	Vienna et al. 2001	0.0799	0.0699	0.0000	0.1249		0.0000	0.0300	0.0060	0.1572	0.0052	0.0059	0.4596	0.0234	0.0009	0.0000		0.0038		0.0000		0.0088		0.0009	0.0001
517	SP-Others-1	SP-3	Vienna et al. 2001	0.0777	0.0680	0.0097	0.1215		0.0027	0.0292	0.0058	0.1529	0.0051	0.0085	0.4470	0.0180	0.0013	0.0000		0.0055		0.0000		0.0127		0.0013	0.0002
518	SP3-1(env.D)	SP-3	Vienna et al. 2001	0.1014	0.0699	0.0404	0.2297		0.0086	0.0300	0.0011	0.1575	0.0010	0.0079	0.3021	0.0000	0.0012	0.0000		0.0052		0.0000		0.0119		0.0012	0.0002
519	SP-MC-1	SP-3	Vienna et al. 2001	0.1600	0.1500	0.0000	0.0500		0.0400	0.0600	0.0000	0.1000	0.0300	0.0000	0.3600	0.0000	0.0000	0.0000		0.0000		0.0000		0.0000		0.0000	0.0000
520	SP-MC-2	SP-3	Vienna et al. 2001	0.0000	0.1500	0.0000	0.0500		0.0400	0.0000	0.0300	0.1700	0.0000	0.0085	0.3600	0.0800	0.0013	0.0000		0.0055		0.0000		0.0127		0.0013	0.0002
521	SP-MC-8	SP-3	Vienna et al. 2001	0.0057	0.0000	0.0500	0.0500		0.0000	0.0600	0.0300	0.1355	0.0300	0.0085	0.5000	0.0288	0.0013	0.0000		0.0055		0.0000		0.0127		0.0013	0.0002
522	SP-MC-9	SP-3	Vienna et al. 2001	0.0573	0.1500	0.0500	0.0500		0.0000	0.0527	0.0300	0.0500	0.0000	0.0000	0.5000	0.0000	0.0000	0.0000		0.0000		0.0000		0.0000		0.0000	0.0000
523	Sp-LHLL	SPx4	Vienna et al. 2001	0.0500	0.0706	0.0000	0.1260		0.0000	0.0302	0.0061	0.1873	0.0010	0.0059	0.4636	0.0236	0.0009	0.0000		0.0039		0.0000		0.0089		0.0009	0.0001
524	Sp-LHLH	SPx4	Vienna et al. 2001	0.0500	0.0688	0.0000	0.1228		0.0000	0.0295	0.0059	0.1873	0.0200	0.0058	0.4520	0.0231	0.0009	0.0000		0.0038		0.0000		0.0087		0.0009	0.0001
525	Sp-LHHL	SPx4	Vienna et al. 2001	0.0500	0.0700	0.0000	0.1251		0.0000	0.0300	0.0060	0.1873	0.0010	0.0059	0.4602	0.0234	0.0009	0.0000		0.0038		0.0000		0.0088		0.0009	0.0001
526	Sp-LHHH	SPx4	Vienna et al. 2001	0.0500	0.0683	0.0000	0.1219		0.0000	0.0293	0.0059	0.1873	0.0200	0.0058	0.4487	0.0229	0.0009	0.0000		0.0037		0.0000		0.0086		0.0009	0.0001
527	Sp-LHMM	SPx4	Vienna et al. 2001	0.0500	0.0700	0.0000	0.1250		0.0000	0.0300	0.0060	0.1873	0.0052	0.0059	0.4600	0.0234	0.0009	0.0000		0.0038		0.0000		0.0088		0.0009	0.0001
528	Sp-MMLL	SPx4	Vienna et al. 2001	0.0800	0.0706	0.0000	0.1260		0.0000	0.0302	0.0061	0.1573	0.0010	0.0059	0.4636	0.0236	0.0009	0.0000		0.0039		0.0000		0.0089		0.0009	0.0001
529	Sp-MMLH	SPx4	Vienna et al. 2001	0.0800	0.0688	0.0000	0.1228		0.0000	0.0295	0.0059	0.1573	0.0200	0.0058	0.4520	0.0231	0.0009	0.0000		0.0038		0.0000		0.0087		0.0009	0.0001
530	Sp-MMHL	SPx4	Vienna et al. 2001	0.0800	0.0700	0.0000	0.1251		0.0000	0.0300	0.0060	0.1573	0.0010	0.0059	0.4602	0.0234	0.0009	0.0000		0.0038		0.0000		0.0088		0.0009	0.0001
531	Sp-MMHH	SPx4	Vienna et al. 2001	0.0800	0.0683	0.0000	0.1219		0.0000	0.0293	0.0059	0.1573	0.0200	0.0058	0.4487	0.0229	0.0009	0.0000		0.0037		0.0000		0.0086		0.0009	0.0001
532	Sp-MMMM	SPx4	Vienna et al. 2001	0.0800	0.0700	0.0000	0.1250		0.0000	0.0300	0.0060	0.1573	0.0052	0.0059	0.4600	0.0234	0.0009	0.0000		0.0038		0.0000		0.0088		0.0009	0.0001
533	Sp-HLLL	SPx4	Vienna et al. 2001	0.1100	0.0706	0.0000	0.1260		0.0000	0.0302	0.0061	0.1273	0.0010	0.0059	0.4636	0.0236	0.0009	0.0000		0.0039		0.0000		0.0089		0.0009	0.0001
534	Sp-HLLH	SPx4	Vienna et al. 2001	0.1100	0.0688	0.0000	0.1228		0.0000	0.0295	0.0059	0.1273	0.0200	0.0058	0.4520	0.0231	0.0009	0.0000		0.0038		0.0000		0.0087		0.0009	0.0001
535	Sp-HLHL	SPx4	Vienna et al. 2001	0.1100	0.0700	0.0000	0.1251		0.0000	0.0300	0.0060	0.1273	0.0010	0.0059	0.4602	0.0234	0.0009	0.0000		0.0038		0.0000		0.0088		0.0009	0.0001
536	Sp-HLHH	SPx4	Vienna et al. 2001	0.1100	0.0683	0.0000	0.1219		0.0000	0.0293	0.0059	0.1273	0.0200	0.0058	0.4487	0.0229	0.0009	0.0000		0.0037		0.0000		0.0086		0.0009	0.0001
537	Sp-HLMM	SPx4	Vienna et al. 2001	0.1100	0.0700	0.0000	0.1250		0.0000	0.0300	0.0060	0.1273	0.0052	0.0059	0.4600	0.0234	0.0009	0.0000		0.0038		0.0000		0.0088		0.0009	0.0001
538	Sp-LHLH(b)	SPx4	Vienna et al. 2001	0.0500	0.0688	0.0000	0.1228		0.0000	0.0295	0.0059	0.1873	0.0200	0.0058	0.4520	0.0231	0.0009	0.0000		0.0038		0.0000		0.0087		0.0009	0.0001
539	Sp-MMLL(b)	SPx4	Vienna et al. 2001	0.0800	0.0706	0.0000	0.1260		0.0000	0.0302	0.0061	0.1573	0.0010	0.0059	0.4636	0.0236	0.0009	0.0000		0.0039		0.0000		0.0089		0.0009	0.0001
540	Sp-MMHH(b)	SPx4	Vienna et al. 2001	0.0800	0.0683	0.0000	0.1219		0.0000	0.0293	0.0059	0.1573	0.0200	0.0058	0.4487	0.0229	0.0009	0.0000		0.0037		0.0000		0.0086		0.0009	0.0001
541	Sp-HLLL(b)	SPx4	Vienna et al. 2001	0.1100	0.0706	0.0000	0.1260		0.0000	0.0302	0.0061	0.1273	0.0010	0.0059	0.4636	0.0236	0.0009	0.0000		0.0039		0.0000		0.0089		0.0009	0.0001
542	nom-2	Misc.	Vienna et al. 2001	0.0681	0.0982	0.0086	0.1076	0.0000	0.0024	0.0600	0.0051	0.0913	0.0045	0.0039	0.5011	0.0155	0.0006	0.0003		0.0025		0.0000		0.0057	0.0000	0.0005	0.0000
543	nom-3	Misc.	Vienna et al. 2001	0.0808	0.1093	0.0102	0.1278	0.0000	0.0029	0.0100	0.0060	0.1733	0.0053	0.0046	0.4113	0.0184	0.0007	0.0004		0.0030		0.0000		0.0068	0.0000	0.0007	0.0000
544	nomc-1	Misc.	Vienna et al. 2001	0.0493	0.0500	0.0119	0.1500	0.0000	0.0034	0.0100	0.0071	0.1883	0.0062	0.0019	0.4535	0.0216	0.0008	0.0005		0.0035		0.0000		0.0080	0.0000	0.0008	0.0000
545	nomc-2	Misc.	Vienna et al. 2001	0.0412	0.0588	0.0100	0.1254	0.0000	0.0028	0.0521	0.0059	0.1177	0.0052	0.0015	0.5221	0.0181	0.0007	0.0004		0.0029		0.0000		0.0067	0.0000	0.0006	0.0000
546	c106a-2	Misc.	Vienna et al. 2001	0.1295	0.0500	0.0278	0.1248	0.0000	0.0027	0.0000	0.0182	0.2209	0.0020	0.0095	0.3849	0.0046	0.0010	0.0000		0.0091		0.0000		0.0007	0.0000	0.0000	0.0000
547	c106a-3	Misc.	Vienna et al. 2001	0.1214	0.0500	0.0261	0.1170	0.0000	0.0025	0.0252	0.0171	0.1886	0.0019	0.0089	0.4135	0.0044	0.0009	0.0000		0.0086		0.0000		0.0006	0.0000	0.0000	0.0000
548	c106a-4	Misc.	Vienna et al. 2001	0.0940	0.0831	0.0202	0.0906	0.0000	0.0019	0.0402	0.0132	0.1461	0.0015	0.0069	0.4806	0.0034	0.0007	0.0000		0.0066		0.0000		0.0005	0.0000	0.0000	0.0000
549	c106b-1	Misc.	Vienna et al. 2001	0.1604	0.1853	0.0020	0.0871	0.0000	0.0000	0.0351	0.0005	0.1316	0.0000	0.0105	0.3700	0.0006	0.0017	0.0004		0.0003		0.0000		0.0000	0.0000	0.0000	0.0000
550	c106b-2	Misc.	Vienna et al. 2001	0.1440	0.1094	0.0018	0.0781	0.0000	0.0000	0.0599	0.0005	0.1311	0.0000	0.0094	0.4501	0.0005	0.0015	0.0003		0.0003		0.0000		0.0000	0.0000	0.0000	0.0000
551	az-3	Misc.	Vienna et al. 2001	0.0664	0.0500	0.0031	0.1397	0.0000	0.0032	0.0100	0.0011	0.2114	0.0079	0.0027	0.4296	0.0264	0.0005	0.0006		0.0006		0.0000		0.0102	0.0000	0.0010	0.0000
552	az-5	Misc.	Vienna et al. 2001	0.0554	0.0974	0.0026	0.1164	0.0000	0.0027	0.0149	0.0009	0.1796	0.0060	0.0023	0.4588	0.0220	0.0004	0.0005		0.0005		0.0000		0.0085	0.0000	0.0008	0.0000
553	HG-1-1-7	DWPF PCT Model	Jantzen et al. 1995	0.0535	0.0690	0.0130	0.1271	0.0004	0.0263	0.0434	0.0151	0.0902	0.0084	0.0000	0.5132	0.0015				0.0012					0.0000		
554	HG-1-2-7	DWPF PCT Model	Jantzen et al. 1995	0.0499	0.0672	0.0104	0.1160	0.0004	0.0297	0.0448	0.0147	0.0849	0.0076	0.0004	0.5349	0.0009				0.0007					0.0000		
555	HG-1-3-7	DWPF PCT Model	Jantzen et al. 1995	0.0489	0.0681	0.0108	0.1149	0.0014	0.0254	0.0453	0.0148	0.0866	0.0073	0.0004	0.5394	0.0000				0.0007					0.0000		
556	HG-2-1-7	DWPF PCT Model	Jantzen et al. 1995	0.0502	0.0665	0.0106	0.1183	0.0007	0.0240	0.0449	0.0147	0.0862	0.0076	0.0004	0.5386	0.0000				0.0007					0.0000		
557	HG-2-2-7	DWPF PCT Model	Jantzen et al. 1995	0.0535	0.0594	0.0108	0.1254	0.0007	0.0177	0.0432	0.0135	0.1015	0.0075	0.0007	0.5255	0.0021				0.0009					0.0000		
558	HG-2-3-7	DWPF PCT Model	Jantzen et al. 1995	0.0527	0.0592	0.0108	0.1235	0.0007	0.0177	0.0436	0.0135	0.1021	0.0075	0.0000	0.5308	0.0008				0.0007					0.0000		
559	HG-3-1-7	DWPF PCT Model	Jantzen et al. 1995	0.0549	0.0602	0.0112	0.1226	0.0051	0.0197	0.0426	0.0134	0.0988	0.0078	0.0004	0.5221	0.0017				0.0007					0.0000		
560	HG-3-2-7	DWPF PCT Model	Jantzen et al. 1995	0.0558	0.0611	0.0115	0.1248	0.0074	0.0218	0.0418	0.0132	0.0959	0.0076	0.0002	0.5171	0.0017				0.0009					0.0000		
561	HG-3-3-7	DWPF PCT Model	Jantzen et al. 1995	0.0561	0.0623	0.0120	0.1211	0.0102	0.0227	0.0422	0.0134	0.0941	0.0076	0.0002	0.5182	0.0015				0.0009					0.0000		
562	AH-165 Al-7	DWPF PCT Model	Jantzen et al. 1995	0.1351	0.0740	0.0052	0.0462	0.0024	0.0000	0.0424	0.0067	0.1068	0.0068	0.0000	0.5403	0.0079				0.0000					0.0000		
563	AH-165 AV-7	DWPF PCT Model	Jantzen et al. 1995	0.0519	0.0660	0.0105	0.1111	0.0047	0.0000	0.0504	0.0066	0.1000	0.0102	0.0000	0.5551	0.0077				0.0000					0.0000		
564	AH-165 FE-7	DWPF PCT Model	Jantzen et al. 1995	0.0144	0.0738	0.0142	0.0920	0.0725	0.0000	0.0411	0.0066	0.1085	0.0301	0.0000	0.5275	0.0085				0.0000					0.0000		
565	AH-131 Al-7	DWPF PCT Model	Jantzen et al. 1995	0.1351	0.1082	0.0038	0.0459	0.0009	0.0000	0.0409	0.0138	0.1412	0.0063	0.0000	0.4645	0.0034				0.0000					0.0000		
566	AH-131 AV-7	DWPF PCT Model	Jantzen et al. 1995	0.0444	0.0768	0.0077	0.1124	0.0070	0.0000	0.0430	0.0068	0.0997	0.0106	0.0000	0.5561	0.0088				0.0000					0.0000		
567	AH-131 FE-7	DWPF PCT Model	Jantzen et al. 1995	0.0229	0.0745	0.0103	0.0774	0.0895	0.0000	0.0412	0.0067	0.1108	0.0261	0.0000	0.5224	0.0088				0.0000					0.0000		
568	AH-168 Al-7	DWPF PCT Model	Jantzen et al. 1995	0.0673	0.1374	0.0014	0.0231	0.0013	0.0000	0.0536	0.0089	0.1183	0.0033	0.0000	0.5657	0.0087				0.0000					0.0000		
569	AH-168 AV-7	DWPF PCT Model	Jantzen et al. 1995	0.0563	0.1070	0.0069	0.1062	0.0062	0.0000	0.0428	0.0075	0.1020	0.0103	0.0000	0.5210	0.0071				0.0000					0.0000		
570	AH-168 FE-7	DWPF PCT Model	Jantzen et al. 1995	0.0248	0.1149	0.0136	0.0947	0.0627	0.0000	0.0415	0.0072	0.1089	0.0284	0.0000	0.4867	0.0067				0.0000					0.0000		
571	AH-200 Al-7	DWPF PCT Model	Jantzen et al. 1995	0.1347	0.1026	0.0055	0.0441	0.0007	0.0313	0.0266	0.0125	0.1066	0.0061	0.0000	0.4867	0.0004				0.0000					0.0000		
572	AH-200 AV-7	DWPF PCT Model	Jantzen et al. 1995	0.0517	0.1037	0.0063	0.1155	0.0039	0.0321	0.0270	0.0125	0.0984	0.0103	0.0000	0.4986	0.0002				0.0000					0.0000		
573	AH-200 FE-7	DWPF PCT Model	Jantzen et al. 1995	0.0209	0.1019	0.0093	0.0988	0.0600	0.0318	0.0262	0.0122	0.1070	0.0259	0.0000	0.4784	0.0002				0.0000					0.0000		
574	AH-202 Al-7	DWPF PCT Model	Jantzen et al. 1995	0.1397	0.0746	0.0041	0.0433	0.0009	0.0334	0.0420	0.0129	0.0737	0.0062	0.0000	0.5265	0.0002				0.0000					0.0000		

#	Glass ID	CoO-t	Co2O3-t	Cr2O3-t	Cs2O-t	CuO-t	Dy2O3-t	Eu2O3-t	F-t	Ga2O3-t	Gd2O3-t	HfO2-t	HgO-t	I-t	La2O3-t	MnO2-t	MnO-t	MoO-t	MoO2-t	MoO3-t	Nb2O5-t	Nd2O3-t	NpO2-t	PbO-t	PdO2-t	PdO-t	Pr2O3-t	Pr6O11-t	Rb2O-t	ReO-t
493	SG48		0.0000	0.0010	0.0000	0.0000			0.0000						0.0000		0.0100			0.0000		0.0000		0.0000		0.0000		0.0000	0.0000	
494	SG49		0.0000	0.0010	0.0000	0.0000			0.0000						0.0000		0.0300			0.0000		0.0000		0.0000		0.0000		0.0000	0.0000	
495	SG50		0.0000	0.0030	0.0000	0.0000			0.0000						0.0000		0.0300			0.0000		0.0000		0.0000		0.0000		0.0000	0.0000	
496	SG51		0.0000	0.0030	0.0000	0.0000			0.0000						0.0000		0.0100			0.0000		0.0000		0.0000		0.0000		0.0000	0.0000	
497	SG52a		0.0000	0.0030	0.0000	0.0000			0.0000						0.0000		0.0300			0.0000		0.0000		0.0000		0.0000		0.0000	0.0000	
498	SG52b		0.0000	0.0030	0.0000	0.0000			0.0000						0.0000		0.0300			0.0000		0.0000		0.0000		0.0000		0.0000	0.0000	
499	SG52c		0.0000	0.0030	0.0000	0.0000			0.0000						0.0000		0.0300			0.0000		0.0000		0.0000		0.0000		0.0000	0.0000	
500	SG52d		0.0000	0.0030	0.0000	0.0000			0.0000						0.0000		0.0300			0.0000		0.0000		0.0000		0.0000		0.0000	0.0000	
501	SG52e		0.0000	0.0030	0.0000	0.0000			0.0000						0.0000		0.0300			0.0000		0.0000		0.0000		0.0000		0.0000	0.0000	
502	SG53		0.0000	0.0020	0.0000	0.0000			0.0000						0.0000		0.0200			0.0000		0.0000		0.0000		0.0000		0.0000	0.0000	
503	SP-B-5		0.0008	0.0019	0.0000	0.0003			0.0005						0.0023		0.0031			0.0001		0.0016		0.0015		0.0000		0.0000	0.0000	
504	SP-Ca-1		0.0009	0.0022	0.0000	0.0003			0.0006						0.0027		0.0036			0.0001		0.0018		0.0017		0.0000		0.0000	0.0000	
505	SP-Ca-2		0.0009	0.0021	0.0000	0.0003			0.0006						0.0026		0.0035			0.0001		0.0017		0.0016		0.0000		0.0000	0.0000	
506	SP-Fe-4		0.0008	0.0019	0.0000	0.0003			0.0005						0.0024		0.0032			0.0001		0.0016		0.0015		0.0000		0.0000	0.0000	
507	SP-K-1		0.0009	0.0022	0.0000	0.0003			0.0006						0.0027		0.0036			0.0001		0.0018		0.0017		0.0000		0.0000	0.0000	
508	SP-K-2		0.0009	0.0021	0.0000	0.0003			0.0006						0.0026		0.0035			0.0001		0.0017		0.0016		0.0000		0.0000	0.0000	
509	SP-Li-5		0.0009	0.0022	0.0000	0.0003			0.0006						0.0027		0.0036			0.0001		0.0018		0.0017		0.0000		0.0000	0.0000	
510	SP-Li-6		0.0009	0.0021	0.0000	0.0003			0.0006						0.0026		0.0035			0.0001		0.0017		0.0016		0.0000		0.0000	0.0000	
511	SP-Si-4		0.0012	0.0029	0.0000	0.0004			0.0008						0.0035		0.0047			0.0001		0.0023		0.0022		0.0000		0.0000	0.0000	
512	SP-Ti-1		0.0009	0.0021	0.0000	0.0003			0.0006						0.0026		0.0035			0.0001		0.0018		0.0017		0.0000		0.0000	0.0000	
513	SP-Ti-2		0.0009	0.0021	0.0000	0.0003			0.0006						0.0026		0.0034			0.0001		0.0017		0.0016		0.0000		0.0000	0.0000	
514	SP-Zr-1		0.0009	0.0022	0.0000	0.0003			0.0006						0.0027		0.0036			0.0001		0.0018		0.0017		0.0000		0.0000	0.0000	
515	SP-Ru-1		0.0011	0.0022	0.0000	0.0004			0.0008						0.0035		0.0036			0.0001		0.0023		0.0022		0.0000		0.0000	0.0000	
516	SP-Ru-2		0.0011	0.0022	0.0000	0.0004			0.0008						0.0034		0.0036			0.0001		0.0023		0.0022		0.0000		0.0000	0.0000	
517	SP-Others-1		0.0017	0.0021	0.0000	0.0006			0.0011						0.0050		0.0067			0.0002		0.0033		0.0031		0.0000		0.0000	0.0000	
518	SP3-1(env.D)		0.0016	0.0004	0.0000	0.0005			0.0010						0.0047		0.0062			0.0002		0.0031		0.0029		0.0000		0.0000	0.0000	
519	SP-MC-1		0.0000	0.0000	0.0000	0.0000			0.0000						0.0000		0.0000			0.0000		0.0000		0.0000		0.0000		0.0000	0.0000	
520	SP-MC-2		0.0017	0.0100	0.0000	0.0006			0.0011						0.0050		0.0067			0.0002		0.0033		0.0031		0.0000		0.0000	0.0000	
521	SP-MC-8		0.0017	0.0000	0.0000	0.0006			0.0011						0.0050		0.0067			0.0002		0.0033		0.0031		0.0000		0.0000	0.0000	
522	SP-MC-9		0.0000	0.0100	0.0000	0.0000			0.0000						0.0000		0.0000			0.0000		0.0000		0.0000		0.0000		0.0000	0.0000	
523	Sp-LHLL		0.0012	0.0005	0.0000	0.0004			0.0008						0.0035		0.0036			0.0001		0.0023		0.0022		0.0000		0.0000	0.0000	
524	Sp-LHLH		0.0011	0.0005	0.0000	0.0004			0.0008						0.0034		0.0035			0.0001		0.0023		0.0021		0.0000		0.0000	0.0000	
525	Sp-LHHL		0.0011	0.0060	0.0000	0.0004			0.0008						0.0035		0.0036			0.0001		0.0023		0.0022		0.0000		0.0000	0.0000	
526	Sp-LHHH		0.0011	0.0060	0.0000	0.0004			0.0007						0.0034		0.0035			0.0001		0.0022		0.0021		0.0000		0.0000	0.0000	
527	Sp-LHMM		0.0011	0.0022	0.0000	0.0004			0.0008						0.0035		0.0036			0.0001		0.0023		0.0022		0.0000		0.0000	0.0000	
528	Sp-MMLL		0.0012	0.0005	0.0000	0.0004			0.0008						0.0035		0.0036			0.0001		0.0023		0.0022		0.0000		0.0000	0.0000	
529	Sp-MMLH		0.0011	0.0005	0.0000	0.0004			0.0008						0.0034		0.0035			0.0001		0.0023		0.0021		0.0000		0.0000	0.0000	
530	Sp-MMHL		0.0011	0.0060	0.0000	0.0004			0.0008						0.0035		0.0036			0.0001		0.0023		0.0022		0.0000		0.0000	0.0000	
531	Sp-MMHH		0.0011	0.0060	0.0000	0.0004			0.0007						0.0034		0.0035			0.0001		0.0022		0.0021		0.0000		0.0000	0.0000	
532	Sp-MMMM		0.0011	0.0022	0.0000	0.0004			0.0008						0.0035		0.0036			0.0001		0.0023		0.0022		0.0000		0.0000	0.0000	
533	Sp-HLLL		0.0012	0.0005	0.0000	0.0004			0.0008						0.0035		0.0036			0.0001		0.0023		0.0022		0.0000		0.0000	0.0000	
534	Sp-HLLH		0.0011	0.0005	0.0000	0.0004			0.0008						0.0034		0.0035			0.0001		0.0023		0.0021		0.0000		0.0000	0.0000	
535	Sp-HLHL		0.0011	0.0060	0.0000	0.0004			0.0008						0.0035		0.0036			0.0001		0.0023		0.0022		0.0000		0.0000	0.0000	
536	Sp-HLHH		0.0011	0.0060	0.0000	0.0004			0.0007						0.0034		0.0035			0.0001		0.0022		0.0021		0.0000		0.0000	0.0000	
537	Sp-HLMM		0.0011	0.0022	0.0000	0.0004			0.0008						0.0035		0.0036			0.0001		0.0023		0.0022		0.0000		0.0000	0.0000	
538	Sp-LHLH(b)		0.0011	0.0005	0.0000	0.0004			0.0008						0.0034		0.0035			0.0001		0.0023		0.0021		0.0000		0.0000	0.0000	
539	Sp-MMLL(b)		0.0012	0.0005	0.0000	0.0004			0.0008						0.0035		0.0036			0.0001		0.0023		0.0022		0.0000		0.0000	0.0000	
540	Sp-MMHH(b)		0.0011	0.0060	0.0000	0.0004			0.0007						0.0034		0.0035			0.0001		0.0022		0.0021		0.0000		0.0000	0.0000	
541	Sp-HLLL(b)		0.0012	0.0005	0.0000	0.0004			0.0008						0.0035		0.0036			0.0001		0.0023		0.0022		0.0000		0.0000	0.0000	
542	nom-2		0.0008	0.0018	0.0000	0.0003			0.0005						0.0023		0.0028			0.0001		0.0015		0.0000		0.0000		0.0000	0.0000	
543	nom-3		0.0009	0.0022	0.0000	0.0003			0.0006						0.0027		0.0033			0.0001		0.0018		0.0000		0.0000		0.0000	0.0000	
544	nomc-1		0.0011	0.0023	0.0000	0.0004			0.0007						0.0032		0.0039			0.0001		0.0021		0.0000		0.0000		0.0000	0.0000	
545	nomc-2		0.0009	0.0019	0.0000	0.0003			0.0005						0.0027		0.0033			0.0001		0.0018		0.0000		0.0000		0.0000	0.0000	
546	c106a-2		0.0000	0.0024	0.0000	0.0003			0.0000						0.0000		0.0040			0.0000		0.0000		0.0000		0.0000		0.0000	0.0000	
547	c106a-3		0.0000	0.0023	0.0000	0.0003			0.0000						0.0000		0.0037			0.0000		0.0000		0.0000		0.0000		0.0000	0.0000	
548	c106a-4		0.0000	0.0017	0.0000	0.0002			0.0000						0.0000		0.0029			0.0000		0.0000		0.0000		0.0000		0.0000	0.0000	
549	c106b-1		0.0000	0.0019	0.0000	0.0003			0.0000						0.0000		0.0043			0.0000		0.0000		0.0000		0.0000		0.0000	0.0000	
550	c106b-2		0.0000	0.0017	0.0000	0.0002			0.0000						0.0000		0.0039			0.0000		0.0000		0.0000		0.0000		0.0000	0.0000	
551	az-3		0.0014	0.0022	0.0000	0.0004			0.0007						0.0041		0.0031			0.0001		0.0027		0.0008		0.0000		0.0000	0.0000	
552	az-5		0.0012	0.0018	0.0000	0.0003			0.0006						0.0034		0.0026			0.0001		0.0023		0.0006		0.0000		0.0000	0.0000	
553	HG-1-1-7			0.0035	0.0009	0.0032									0.0000		0.0213			0.0000		0.0000		0.0010						
554	HG-1-2-7			0.0033	0.0009	0.0021									0.0000		0.0222			0.0000		0.0000		0.0021						
555	HG-1-3-7			0.0028	0.0009	0.0021									0.0000		0.0219			0.0000		0.0000		0.0017						
556	HG-2-1-7			0.0033	0.0004	0.0021									0.0000		0.0224			0.0000		0.0000		0.0017						
557	HG-2-2-7			0.0028	0.0004	0.0015									0.0000		0.0239			0.0000		0.0000		0.0024						
558	HG-2-3-7			0.0030	0.0009	0.0013									0.0000		0.0236			0.0000		0.0000		0.0017						
559	HG-3-1-7			0.0033	0.0004	0.0017									0.0000		0.0242			0.0000		0.0000		0.0024						
560	HG-3-2-7			0.0028	0.0004	0.0018									0.0000		0.0252			0.0000		0.0000		0.0024						
561	HG-3-3-7			0.0023	0.0000	0.0018									0.0000		0.0243			0.0000		0.0000		0.0020						
562	AH-165 Al-7			0.0000	0.0000	0.0000									0.0000		0.0264			0.0000		0.0000		0.0000						
563	AH-165 AV-7			0.0000	0.0000	0.0000									0.0000		0.0258			0.0000		0.0000		0.0000						
564	AH-165 FE-7			0.0000	0.0000	0.0000									0.0000		0.0108			0.0000		0.0000		0.0000						
565	AH-131 Al-7			0.0000	0.0000	0.0000									0.0035		0.0251			0.0000		0.0000		0.0000						
566	AH-131 AV-7			0.0000	0.0000	0.0000									0.0000		0.0262			0.0000		0.0000		0.0000						
567	AH-131 FE-7			0.0000	0.0000	0.0000									0.0000		0.0094			0.0000		0.0000		0.0000						
568	AH-168 Al-7			0.0000	0.0000	0.0000									0.0000		0.0110			0.0000		0.0000		0.0000						
569	AH-168 AV-7			0.0000	0.0000	0.0000									0.0000		0.0267			0.0000		0.0000		0.0000						
570	AH-168 FE-7			0.0000	0.0000	0.0000									0.0000		0.0098			0.0000		0.0000		0.0000						
571	AH-200 Al-7			0.0000	0.0000	0.0000									0.0000		0.0250			0.0000		0.0000		0.0000						
572	AH-200 AV-7			0.0000	0.0000	0.0000									0.0000		0.0257			0.0000		0.0000		0.0000						
573	AH-200 FE-7			0.0000	0.0000	0.0000									0.0000		0.0096			0.0000		0.0000		0.0000						
574	AH-202 Al-7			0.0000	0.0000	0.0000									0.0000		0.0253			0.0000		0.0000		0.0000						

#	Glass ID	ReO2-t	Re2O7-t	Rh2O3-t	RhO2-t	RuO2-t	Ru2O3-t	Sb2O3-t	Sb2O5-t	SeO2-t	Sm2O3-t	SnO-t	SnO2-t	SO3-t	SrO-t	Tc2O7-t	TeO2-t	ThO2-t	TiO2-t	Tl2O-t	Tl2O3-t	U3O8-t	UO2-t	UO3-t	V2O5-t	WO3-t	Y2O3-t	ZnO-t	Sum-t	Al2O3-a
493	SG48			0.0000		0.0009		0.0000		0.0000	0.0000			0.0000	0.0000		0.0000		0.0060			0.0000				0.0000	0.0000	0.0000	1.0001	
494	SG49			0.0000		0.0009		0.0000		0.0000	0.0000			0.0000	0.0000		0.0000		0.0015			0.0550				0.0000	0.0000	0.0000	1.0001	
495	SG50			0.0000		0.0009		0.0000		0.0000	0.0000			0.0000	0.0000		0.0000		0.0060			0.0550				0.0000	0.0000	0.0000	1.0000	
496	SG51			0.0000		0.0009		0.0000		0.0000	0.0000			0.0000	0.0000		0.0000		0.0015			0.0000				0.0000	0.0000	0.0000	1.0000	
497	SG52a			0.0000		0.0009		0.0000		0.0000	0.0000			0.0000	0.0000		0.0000		0.0060			0.0000				0.0000	0.0000	0.0000	1.0000	
498	SG52b			0.0000		0.0009		0.0000		0.0000	0.0000			0.0000	0.0000		0.0000		0.0060			0.0000				0.0000	0.0000	0.0000	1.0000	
499	SG52c			0.0000		0.0009		0.0000		0.0000	0.0000			0.0000	0.0000		0.0000		0.0060			0.0000				0.0000	0.0000	0.0000	1.0000	
500	SG52d			0.0000		0.0009		0.0000		0.0000	0.0000			0.0000	0.0000		0.0000		0.0060			0.0000				0.0000	0.0000	0.0000	1.0000	
501	SG52e			0.0000		0.0009		0.0000		0.0000	0.0000			0.0000	0.0000		0.0000		0.0060			0.0000				0.0000	0.0000	0.0000	1.0000	
502	SG53			0.0000		0.0009		0.0000		0.0000	0.0000			0.0000	0.0000		0.0000		0.0037			0.0280				0.0000	0.0000	0.0000	1.0000	
503	SP-B-5			0.0003		0.0003		0.0006		0.0008	0.0000			0.0016	0.0003		0.0000		0.0003			0.0000				0.0000	0.0000	0.0003	1.0000	
504	SP-Ca-1			0.0003		0.0003		0.0007		0.0009	0.0000			0.0019	0.0003		0.0000		0.0003			0.0000				0.0000	0.0000	0.0004	1.0000	
505	SP-Ca-2			0.0003		0.0003		0.0007		0.0009	0.0000			0.0018	0.0003		0.0000		0.0003			0.0000				0.0000	0.0000	0.0004	1.0000	
506	SP-Fe-4			0.0003		0.0003		0.0006		0.0008	0.0000			0.0017	0.0003		0.0000		0.0003			0.0000				0.0000	0.0000	0.0004	1.0000	
507	SP-K-1			0.0003		0.0003		0.0007		0.0009	0.0000			0.0019	0.0003		0.0000		0.0003			0.0000				0.0000	0.0000	0.0004	1.0000	
508	SP-K-2			0.0003		0.0003		0.0007		0.0009	0.0000			0.0018	0.0003		0.0000		0.0003			0.0000				0.0000	0.0000	0.0004	1.0000	
509	SP-Li-5			0.0003		0.0003		0.0007		0.0009	0.0000			0.0019	0.0003		0.0000		0.0003			0.0000				0.0000	0.0000	0.0004	1.0000	
510	SP-Li-6			0.0003		0.0003		0.0007		0.0009	0.0000			0.0018	0.0003		0.0000		0.0003			0.0000				0.0000	0.0000	0.0004	1.0000	
511	SP-Si-4			0.0004		0.0004		0.0009		0.0012	0.0000			0.0025	0.0004		0.0000		0.0004			0.0000				0.0000	0.0000	0.0005	1.0000	
512	SP-Ti-1			0.0003		0.0003		0.0007		0.0009	0.0000			0.0019	0.0003		0.0000		0.0250			0.0000				0.0000	0.0000	0.0004	1.0000	
513	SP-Ti-2			0.0003		0.0003		0.0007		0.0009	0.0000			0.0018	0.0003		0.0000		0.0500			0.0000				0.0000	0.0000	0.0004	1.0000	
514	SP-Zr-1			0.0003		0.0003		0.0007		0.0009	0.0000			0.0019	0.0003		0.0000		0.0003			0.0000				0.0000	0.0000	0.0004	1.0000	
515	SP-Ru-1			0.0004		0.0009		0.0009		0.0011	0.0000			0.0024	0.0004		0.0000		0.0003			0.0000				0.0000	0.0000	0.0005	0.9999	
516	SP-Ru-2			0.0004		0.0012		0.0009		0.0011	0.0000			0.0024	0.0004		0.0000		0.0003			0.0000				0.0000	0.0000	0.0005	0.9999	
517	SP-Others-1			0.0006		0.0005		0.0013		0.0017	0.0000			0.0035	0.0006		0.0000		0.0003			0.0000				0.0000	0.0000	0.0007	1.0000	
518	SP3-1(env.D)			0.0005		0.0005		0.0012		0.0016	0.0000			0.0033	0.0005		0.0000		0.0019			0.0000				0.0000	0.0000	0.0007	1.0000	
519	SP-MC-1			0.0000		0.0000		0.0000		0.0000	0.0000			0.0000	0.0000		0.0000		0.0500			0.0000				0.0000	0.0000	0.0000	1.0000	
520	SP-MC-2			0.0006		0.0005		0.0013		0.0017	0.0000			0.0035	0.0006		0.0000		0.0500			0.0000				0.0000	0.0000	0.0007	1.0000	
521	SP-MC-8			0.0006		0.0005		0.0013		0.0017	0.0000			0.0035	0.0006		0.0000		0.0500			0.0000				0.0000	0.0000	0.0007	1.0000	
522	SP-MC-9			0.0000		0.0000		0.0000		0.0000	0.0000			0.0000	0.0000		0.0000		0.0500			0.0000				0.0000	0.0000	0.0000	1.0000	
523	Sp-LHLL			0.0004		0.0003		0.0009		0.0012	0.0000			0.0025	0.0004		0.0000		0.0003			0.0000				0.0000	0.0000	0.0005	0.9999	
524	Sp-LHLH			0.0004		0.0003		0.0009		0.0011	0.0000			0.0024	0.0004		0.0000		0.0003			0.0000				0.0000	0.0000	0.0005	0.9999	
525	Sp-LHHL			0.0004		0.0003		0.0009		0.0011	0.0000			0.0024	0.0004		0.0000		0.0003			0.0000				0.0000	0.0000	0.0005	0.9999	
526	Sp-LHHH			0.0004		0.0003		0.0009		0.0011	0.0000			0.0024	0.0004		0.0000		0.0003			0.0000				0.0000	0.0000	0.0005	0.9999	
527	Sp-LHMM			0.0004		0.0003		0.0009		0.0011	0.0000			0.0024	0.0004		0.0000		0.0003			0.0000				0.0000	0.0000	0.0005	0.9999	
528	Sp-MMLL			0.0004		0.0003		0.0009		0.0012	0.0000			0.0025	0.0004		0.0000		0.0003			0.0000				0.0000	0.0000	0.0005	0.9999	
529	Sp-MMLH			0.0004		0.0003		0.0009		0.0011	0.0000			0.0024	0.0004		0.0000		0.0003			0.0000				0.0000	0.0000	0.0005	0.9999	
530	Sp-MMHL			0.0004		0.0003		0.0009		0.0011	0.0000			0.0024	0.0004		0.0000		0.0003			0.0000				0.0000	0.0000	0.0005	0.9999	
531	Sp-MMHH			0.0004		0.0003		0.0009		0.0011	0.0000			0.0024	0.0004		0.0000		0.0003			0.0000				0.0000	0.0000	0.0005	0.9999	
532	Sp-MMMM			0.0004		0.0003		0.0009		0.0011	0.0000			0.0024	0.0004		0.0000		0.0003			0.0000				0.0000	0.0000	0.0005	0.9999	
533	Sp-HLLL			0.0004		0.0003		0.0009		0.0012	0.0000			0.0025	0.0004		0.0000		0.0003			0.0000				0.0000	0.0000	0.0005	0.9999	
534	Sp-HLLH			0.0004		0.0003		0.0009		0.0011	0.0000			0.0024	0.0004		0.0000		0.0003			0.0000				0.0000	0.0000	0.0005	0.9999	
535	Sp-HLHL			0.0004		0.0003		0.0009		0.0011	0.0000			0.0024	0.0004		0.0000		0.0003			0.0000				0.0000	0.0000	0.0005	0.9999	
536	Sp-HLHH			0.0004		0.0003		0.0009		0.0011	0.0000			0.0024	0.0004		0.0000		0.0003			0.0000				0.0000	0.0000	0.0005	0.9999	
537	Sp-HLMM			0.0004		0.0003		0.0009		0.0011	0.0000			0.0024	0.0004		0.0000		0.0003			0.0000				0.0000	0.0000	0.0005	0.9999	
538	Sp-LHLH(b)			0.0004		0.0003		0.0009		0.0011	0.0000			0.0024	0.0004		0.0000		0.0003			0.0000				0.0000	0.0000	0.0005	0.9999	
539	Sp-MMLL(b)			0.0004		0.0003		0.0009		0.0012	0.0000			0.0025	0.0004		0.0000		0.0003			0.0000				0.0000	0.0000	0.0005	0.9999	
540	Sp-MMHH(b)			0.0004		0.0003		0.0009		0.0011	0.0000			0.0024	0.0004		0.0000		0.0003			0.0000				0.0000	0.0000	0.0005	0.9999	
541	Sp-HLLL(b)			0.0004		0.0003		0.0009		0.0012	0.0000			0.0025	0.0004		0.0000		0.0003			0.0000				0.0000	0.0000	0.0005	0.9999	
542	nom-2			0.0002		0.0003		0.0006		0.0008	0.0000			0.0016	0.0003		0.0006		0.0002			0.0000				0.0000	0.0000	0.0002	0.9908	
543	nom-3			0.0003		0.0003		0.0007		0.0009	0.0000			0.0019	0.0003		0.0007		0.0003			0.0000				0.0000	0.0000	0.0002	0.9891	
544	nomc-1			0.0003		0.0004		0.0008		0.0011	0.0000			0.0022	0.0004		0.0008		0.0003			0.0000				0.0000	0.0000	0.0002	0.9871	
545	nomc-2			0.0003		0.0003		0.0007		0.0009	0.0000			0.0019	0.0003		0.0007		0.0003			0.0000				0.0000	0.0000	0.0002	0.9892	
546	c106a-2			0.0000		0.0000		0.0000		0.0000	0.0000			0.0000	0.0002		0.0000		0.0000			0.0000				0.0000	0.0000	0.0001	0.9926	
547	c106a-3			0.0000		0.0000		0.0000		0.0000	0.0000			0.0000	0.0002		0.0000		0.0000			0.0000				0.0000	0.0000	0.0001	0.9931	
548	c106a-4			0.0000		0.0000		0.0000		0.0000	0.0000			0.0000	0.0001		0.0000		0.0000			0.0000				0.0000	0.0000	0.0001	0.9946	
549	c106b-1			0.0000		0.0000		0.0026		0.0013	0.0000			0.0000	0.0001		0.0000		0.0004			0.0000				0.0000	0.0000	0.0001	0.9964	
550	c106b-2			0.0000		0.0000		0.0023		0.0012	0.0000			0.0000	0.0001		0.0000		0.0004			0.0000				0.0000	0.0000	0.0001	0.9967	
551	az-3			0.0004		0.0005		0.0000		0.0000	0.0000			0.0029	0.0004		0.0010		0.0004			0.0000				0.0000	0.0000	0.0003	0.9858	
552	az-5			0.0004		0.0004		0.0000		0.0000	0.0000			0.0025	0.0003		0.0008		0.0004			0.0000				0.0000	0.0000	0.0002	0.9876	
553	HG-1-1-7														0.0002				0.0045								0.0000	0.0031	1.0000	0.0544
554	HG-1-2-7														0.0003				0.0027								0.0000	0.0038	1.0000	0.0516
555	HG-1-3-7														0.0003				0.0026								0.0000	0.0037	1.0000	0.0501
556	HG-2-1-7														0.0003				0.0026								0.0000	0.0038	1.0000	0.0515
557	HG-2-2-7														0.0003				0.0022								0.0000	0.0040	1.0000	0.0559
558	HG-2-3-7														0.0003				0.0021								0.0000	0.0038	1.0000	0.0542
559	HG-3-1-7														0.0003				0.0022								0.0000	0.0044	1.0000	0.0562
560	HG-3-2-7														0.0003				0.0023								0.0000	0.0038	1.0000	0.0573
561	HG-3-3-7														0.0003				0.0024								0.0000	0.0042	1.0000	0.0579
562	AH-165 Al-7														0.0000				0.0000								0.0000	0.0000	1.0000	0.1340
563	AH-165 AV-7														0.0000				0.0000								0.0000	0.0000	1.0000	0.0517
564	AH-165 FE-7														0.0000				0.0000								0.0000	0.0000	1.0000	0.0142
565	AH-131 Al-7														0.0000				0.0072								0.0000	0.0000	1.0000	0.1350
566	AH-131 AV-7														0.0000				0.0006								0.0000	0.0000	1.0000	0.0439
567	AH-131 FE-7														0.0000				0.0001								0.0000	0.0000	1.0000	0.0225
568	AH-168 Al-7														0.0000				0.0000								0.0000	0.0000	1.0000	0.0672
569	AH-168 AV-7														0.0000				0.0000								0.0000	0.0000	1.0000	0.0558
570	AH-168 FE-7														0.0000				0.0000								0.0000	0.0000	1.0000	0.0247
571	AH-200 Al-7														0.0000				0.0171								0.0000	0.0000	1.0000	0.1340
572	AH-200 AV-7														0.0000				0.0141								0.0000	0.0000	1.0000	0.0514
573	AH-200 FE-7														0.0000				0.0180								0.0000	0.0000	1.0000	0.0207
574	AH-202 Al-7														0.0000				0.0172								0.0000	0.0000	1.0000	0.1390

#	Glass ID	B2O3-a	CaO-a	Fe2O3-a	FeO-a	K2O-a	Li2O-a	MgO-a	Na2O-a	NiO-a	P2O5-a	SiO2-a	ZrO2-a	Ag2O-a	As2O3-a	As2O5-a	BaO-a	BeO-a	Bi2O3-a	Br-a	CdO-a	Ce2O3-a	CeO2-a	Cl-a	CoO-a	Co2O3-a	Cr2O3-a	Cs2O-a	CuO-a	F-a
493	SG48																													
494	SG49																													
495	SG50																													
496	SG51																													
497	SG52a																													
498	SG52b																													
499	SG52c																													
500	SG52d																													
501	SG52e																													
502	SG53																													
503	SP-B-5																													
504	SP-Ca-1																													
505	SP-Ca-2																													
506	SP-Fe-4																													
507	SP-K-1																													
508	SP-K-2																													
509	SP-Li-5																													
510	SP-Li-6																													
511	SP-Si-4																													
512	SP-Ti-1																													
513	SP-Ti-2																													
514	SP-Zr-1																													
515	SP-Ru-1																													
516	SP-Ru-2																													
517	SP-Others-1																													
518	SP3-1(env.D)																													
519	SP-MC-1																													
520	SP-MC-2																													
521	SP-MC-8																													
522	SP-MC-9																													
523	Sp-LHLL																													
524	Sp-LHLH																													
525	Sp-LHHL																													
526	Sp-LHHH																													
527	Sp-LHMM																													
528	Sp-MMLL																													
529	Sp-MMLH																													
530	Sp-MMHL																													
531	Sp-MMHH																													
532	Sp-MMMM																													
533	Sp-HLLL																													
534	Sp-HLLH																													
535	Sp-HLHL																													
536	Sp-HLHH																													
537	Sp-HLMM																													
538	Sp-LHLH(b)																													
539	Sp-MMLL(b)																													
540	Sp-MMHH(b)																													
541	Sp-HLLL(b)																													
542	nom-2																													
543	nom-3																													
544	nomc-1																													
545	nomc-2																													
546	c106a-2																													
547	c106a-3																													
548	c106a-4																													
549	c106b-1																													
550	c106b-2																													
551	az-3																													
552	az-5																													
553	HG-1-1-7	0.0702	0.0132	0.0905	0.0003	0.0267	0.0442	0.0154	0.0918	0.0086	0.0001	0.5224	0.0016				0.0011										0.0035	0.0007	0.0030	
554	HG-1-2-7	0.0695	0.0108	0.1200	0.0005	0.0307	0.0463	0.0152	0.0878	0.0079	0.0005	0.5532	0.0009				0.0008										0.0035	0.0007	0.0021	
555	HG-1-3-7	0.0697	0.0111	0.1175	0.0015	0.0260	0.0464	0.0151	0.0886	0.0075	0.0005	0.5520					0.0007										0.0028	0.0007	0.0021	
556	HG-2-1-7	0.0683	0.0109	0.1215	0.0007	0.0246	0.0462	0.0151	0.0885	0.0078	0.0004	0.5535					0.0007										0.0034	0.0005	0.0020	
557	HG-2-2-7	0.0619	0.0113	0.1308	0.0007	0.0185	0.0451	0.0140	0.1059	0.0079	0.0006	0.5482	0.0021				0.0009										0.0030	0.0004	0.0014	
558	HG-2-3-7	0.0610	0.0111	0.1273	0.0007	0.0182	0.0449	0.0139	0.1052	0.0077		0.5469	0.0007				0.0008										0.0031	0.0007	0.0013	
559	HG-3-1-7	0.0615	0.0114	0.1254	0.0052	0.0202	0.0436	0.0137	0.1010	0.0080	0.0004	0.5339	0.0018				0.0008										0.0033	0.0003	0.0017	
560	HG-3-2-7	0.0628	0.0118	0.1285	0.0077	0.0224	0.0430	0.0136	0.0986	0.0079	0.0002	0.5318	0.0017				0.0009										0.0029	0.0004	0.0019	
561	HG-3-3-7	0.0643	0.0124	0.1248	0.0105	0.0235	0.0435	0.0138	0.0970	0.0079	0.0002	0.5345	0.0016				0.0009										0.0025	0.0001	0.0019	
562	AH-165 Al-7	0.0734	0.0051	0.0457	0.0024		0.0420	0.0066	0.1060	0.0067		0.5360	0.0079																	
563	AH-165 AV-7	0.0657	0.0104	0.1108	0.0047		0.0502	0.0066	0.0996	0.0101		0.5530	0.0076																	
564	AH-165 FE-7	0.0728	0.0140	0.0907	0.0714		0.0405	0.0065	0.1070	0.0297		0.5200	0.0085																	
565	AH-131 Al-7	0.1080	0.0038	0.0457	0.0009		0.0409	0.0138	0.1410	0.0063		0.4640	0.0034																	
566	AH-131 AV-7	0.0760	0.0076	0.1113	0.0070		0.0425	0.0067	0.0986	0.0104		0.5500	0.0088																	
567	AH-131 FE-7	0.0733	0.0101	0.0761	0.0881		0.0406	0.0066	0.1090	0.0256		0.5140	0.0087																	
568	AH-168 Al-7	0.1370	0.0014	0.0231	0.0014		0.0534	0.0089	0.1180	0.0033		0.5640	0.0087																	
569	AH-168 AV-7	0.1060	0.0068	0.1051	0.0061		0.0424	0.0074	0.1010	0.0102		0.5160	0.0069																	
570	AH-168 FE-7	0.1140	0.0135	0.0939	0.0622		0.0412	0.0071	0.1080	0.0282		0.4830	0.0067																	
571	AH-200 Al-7	0.1020	0.0054	0.0439	0.0007	0.0312	0.0265	0.0125	0.1060	0.0061		0.4840	0.0003																	
572	AH-200 AV-7	0.1030	0.0063	0.1147	0.0039	0.0318	0.0268	0.0124	0.0977	0.0102		0.4950	0.0002																	
573	AH-200 FE-7	0.1010	0.0092	0.0980	0.0594	0.0315	0.0259	0.0121	0.1060	0.0257		0.4740	0.0002																	
574	AH-202 Al-7	0.0742	0.0041	0.0431	0.0008	0.0332	0.0418	0.0128	0.0734	0.0062		0.5240	0.0003																	

#	Glass ID	Ga2O3-a	Gd2O3-a	I-a	La2O3-a	MnO2-a	MnO-a	MoO-a	MoO3-a	Nb2O5-a	Nd2O3-a	NpO2-a	PbO-a	PdO2-a	PdO-a	Pr2O3-a	Pr6O11-a	PuO2-a	Rb2O-a	ReO-a	ReO2-a	Re2O7-a	Rh2O3-a	RhO2-a	RuO2-a	Sb2O3-a	Sb2O5-a	SeO2-a
493	SG48																											
494	SG49																											
495	SG50																											
496	SG51																											
497	SG52a																											
498	SG52b																											
499	SG52c																											
500	SG52d																											
501	SG52e																											
502	SG53																											
503	SP-B-5																											
504	SP-Ca-1																											
505	SP-Ca-2																											
506	SP-Fe-4																											
507	SP-K-1																											
508	SP-K-2																											
509	SP-Li-5																											
510	SP-Li-6																											
511	SP-Si-4																											
512	SP-Ti-1																											
513	SP-Ti-2																											
514	SP-Zr-1																											
515	SP-Ru-1																											
516	SP-Ru-2																											
517	SP-Others-1																											
518	SP3-1(env.D)																											
519	SP-MC-1																											
520	SP-MC-2																											
521	SP-MC-8																											
522	SP-MC-9																											
523	Sp-LHLL																											
524	Sp-LHLH																											
525	Sp-LHHL																											
526	Sp-LHHH																											
527	Sp-LHMM																											
528	Sp-MMLL																											
529	Sp-MMLH																											
530	Sp-MMHL																											
531	Sp-MMHH																											
532	Sp-MMMM																											
533	Sp-HLLL																											
534	Sp-HLLH																											
535	Sp-HLHL																											
536	Sp-HLHH																											
537	Sp-HLMM																											
538	Sp-LHLH(b)																											
539	Sp-MMLL(b)																											
540	Sp-MMHH(b)																											
541	Sp-HLLL(b)																											
542	nom-2																											
543	nom-3																											
544	nomc-1																											
545	nomc-2																											
546	c106a-2																											
547	c106a-3																											
548	c106a-4																											
549	c106b-1																											
550	c106b-2																											
551	az-3																											
552	az-5																											
553	HG-1-1-7						0.0217						0.0011															
554	HG-1-2-7						0.0229						0.0020															
555	HG-1-3-7						0.0225						0.0018															
556	HG-2-1-7						0.0230						0.0019															
557	HG-2-2-7						0.0249						0.0025															
558	HG-2-3-7						0.0243						0.0019															
559	HG-3-1-7						0.0248						0.0023															
560	HG-3-2-7						0.0259						0.0023															
561	HG-3-3-7						0.0250						0.0022															
562	AH-165 AI-7						0.0262																					
563	AH-165 AV-7						0.0257																					
564	AH-165 FE-7						0.0107																					
565	AH-131 AI-7				0.0036		0.0251																					
566	AH-131 AV-7						0.0259																					
567	AH-131 FE-7						0.0093																					
568	AH-168 AI-7						0.0109																					
569	AH-168 AV-7						0.0264																					
570	AH-168 FE-7						0.0098																					
571	AH-200 AI-7						0.0249																					
572	AH-200 AV-7						0.0255																					
573	AH-200 FE-7						0.0095																					
574	AH-202 AI-7						0.0251																					

#	Glass ID	Sm2O3-a	SnO-a	SnO2-a	SO3-a	SrO-a	Tc2O7-a	TeO2-a	ThO2-a	TiO2-a	Tl2O-a	Tl2O3-a	U3O8-a	UO2-a	UO3-a	V2O5-a	WO3-a	Y2O3-a	ZnO-a	Sum-a	T_M (°C)	$T_{L,G}$ (°C)	$T_{L,U}$ (°C)	$T_{1\%}$ (°C)	Primary Phase	$C_{650°C}$	$C_{700°C}$	$C_{750°C}$
493	SG48																			0.0000	1356		862		clinopyroxene			
494	SG49																			0.0000	1315		877		clinopyroxene			
495	SG50																			0.0000	1320		1285		spinel			
496	SG51																			0.0000	1326		1033		RuO2, spinel			
497	SG52a																			0.0000	1142		869		RuO2, spinel			
498	SG52b																			0.0000	1142		883		RuO2, spinel			
499	SG52c																			0.0000	1142		882		RuO2, spinel			
500	SG52d																			0.0000	1142		883		RuO2, spinel			
501	SG52e																			0.0000	1142		891		RuO2, spinel			
502	SG53																			0.0000	1284		1082		spinel			
503	SP-B-5																			0.0000			1029		spinel			
504	SP-Ca-1																			0.0000			1039		spinel			
505	SP-Ca-2																			0.0000			1035		spinel			
506	SP-Fe-4																			0.0000			1268		spinel			
507	SP-K-1																			0.0000			1021		spinel			
508	SP-K-2																			0.0000			997		spinel			
509	SP-Li-5																			0.0000			1035					
510	SP-Li-6																			0.0000			1032					
511	SP-Si-4																			0.0000			1265		spinel			
512	SP-Ti-1																			0.0000			1061		spinel			
513	SP-Ti-2																			0.0000			1070		spinel			
514	SP-Zr-1																			0.0000			1070		spinel			
515	SP-Ru-1																			0.0000			1065		spinel			
516	SP-Ru-2																			0.0000			1076		spinel			
517	SP-Others-1																			0.0000			1090		spinel			
518	SP3-1(env.D)																			0.0000			1093		spinel			
519	SP-MC-1																			0.0000			1133		spinel			
520	SP-MC-2																			0.0000			1008		spinel			
521	SP-MC-8																			0.0000			1197		spinel			
522	SP-MC-9																			0.0000			1304		spinel			
523	Sp-LHLL																			0.0000			893		spinel			
524	Sp-LHLH																			0.0000			1063		spinel			
525	Sp-LHHL																			0.0000			914		spinel			
526	Sp-LHHH																			0.0000			1085		spinel			
527	Sp-LHMM																			0.0000			935		spinel			
528	Sp-MMLL																			0.0000			1036		spinel			
529	Sp-MMLH																			0.0000			1129		spinel			
530	Sp-MMHL																			0.0000			1066		spinel			
531	Sp-MMHH																			0.0000			1295		spinel			
532	Sp-MMMM																			0.0000			1038		spinel			
533	Sp-HLLL																			0.0000			1068		spinel			
534	Sp-HLLH																			0.0000			1232		spinel			
535	Sp-HLHL																			0.0000			1273		spinel			
536	Sp-HLHH																			0.0000			1366		spinel			
537	Sp-HLMM																			0.0000			1228		spinel			
538	Sp-LHLH(b)																			0.0000			1102		triangle shaped spinels			
539	Sp-MMLL(b)																			0.0000			1033		spinel			
540	Sp-MMHH(b)																			0.0000			1288		spinel			
541	Sp-HLLL(b)																			0.0000			1089		spinel			
542	nom-2																			0.0000			1009		spinel			
543	nom-3																			0.0000			1047		spinel			
544	nomc-1																			0.0000			1005		spinel			
545	nomc-2																			0.0000			998		spinel			
546	c106a-2																			0.0000			1004		spinel			
547	c106a-3																			0.0000			1029		spinel			
548	c106a-4																			0.0000			885		spinel			
549	c106b-1																			0.0000			986		spinel			
550	c106b-2																			0.0000			894		spinel			
551	az-3																			0.0000			1048		spinel			
552	az-5																			0.0000			953		spinel			
553	HG-1-1-7					0.0001				0.0046									0.0031	0.9783								
554	HG-1-2-7					0.0003				0.0028									0.0039	1.0339								
555	HG-1-3-7					0.0003				0.0026									0.0037	1.0232								
556	HG-2-1-7					0.0003				0.0026									0.0039	1.0273								
557	HG-2-2-7					0.0003				0.0023									0.0042	1.0428								
558	HG-2-3-7					0.0003				0.0022									0.0039	1.0303								
559	HG-3-1-7					0.0003				0.0023									0.0044	1.0225								
560	HG-3-2-7					0.0003				0.0024									0.0040	1.0283								
561	HG-3-3-7					0.0003				0.0025									0.0043	1.0316								
562	AH-165 Al-7																			0.9920								
563	AH-165 AV-7																			0.9961								
564	AH-165 FE-7																			0.9860								
565	AH-131 Al-7									0.0072										0.9987								
566	AH-131 AV-7									0.0006										0.9893								
567	AH-131 FE-7									0.0001										0.9840								
568	AH-168 Al-7																			0.9973								
569	AH-168 AV-7																			0.9901								
570	AH-168 FE-7																			0.9923								
571	AH-200 Al-7									0.0170										0.9945								
572	AH-200 AV-7									0.0141										0.9930								
573	AH-200 FE-7									0.0178										0.9910								
574	AH-202 Al-7									0.0171										0.9951								

#	Glass ID	$C_{800°C}$	$C_{850°C}$	$C_{900°C}$	$C_{950°C}$	$C_{1000°C}$	$C_{1050°C}$	$C_{1100°C}$	$C_{1150°C}$	$C_{1200°C}$	Quenched Visual/OM	Quenched XRD	CCC XRD	ρ (g/cm³)	Fulc Visc A	Fulc Visc B	Fulc Visc To	Arrh Visc E	Arrh Visc F	T1 (°C)	V1 (Pa·s)
493	SG48																				
494	SG49																				
495	SG50																				
496	SG51																				
497	SG52a																				
498	SG52b																				
499	SG52c																				
500	SG52d																				
501	SG52e																				
502	SG53																				
503	SP-B-5																				
504	SP-Ca-1																				
505	SP-Ca-2																				
506	SP-Fe-4																				
507	SP-K-1																				
508	SP-K-2																				
509	SP-Li-5																				
510	SP-Li-6																				
511	SP-Si-4																				
512	SP-Ti-1																				
513	SP-Ti-2																				
514	SP-Zr-1																				
515	SP-Ru-1																				
516	SP-Ru-2																				
517	SP-Others-1																				
518	SP3-1(env.D)																				
519	SP-MC-1																				
520	SP-MC-2																				
521	SP-MC-8																				
522	SP-MC-9																				
523	Sp-LHLL																				
524	Sp-LHLH																				
525	Sp-LHHL																				
526	Sp-LHHH																				
527	Sp-LHMM																				
528	Sp-MMLL																				
529	Sp-MMLH																				
530	Sp-MMHL																				
531	Sp-MMHH																				
532	Sp-MMMM																				
533	Sp-HLLL																				
534	Sp-HLLH																				
535	Sp-HLHL																				
536	Sp-HLHH																				
537	Sp-HLMM																				
538	Sp-LHLH(b)																				
539	Sp-MMLL(b)																				
540	Sp-MMHH(b)																				
541	Sp-HLLL(b)																				
542	nom-2																				
543	nom-3																				
544	nomc-1																				
545	nomc-2																				
546	c106a-2																				
547	c106a-3																				
548	c106a-4																				
549	c106b-1																				
550	c106b-2																				
551	az-3																				
552	az-5																				
553	HG-1-1-7																				
554	HG-1-2-7																				
555	HG-1-3-7																				
556	HG-2-1-7																				
557	HG-2-2-7																				
558	HG-2-3-7																				
559	HG-3-1-7																				
560	HG-3-2-7																				
561	HG-3-3-7																				
562	AH-165 Al-7																				
563	AH-165 AV-7																				
564	AH-165 FE-7																				
565	AH-131 Al-7																				
566	AH-131 AV-7																				
567	AH-131 FE-7																				
568	AH-168 Al-7																				
569	AH-168 AV-7																				
570	AH-168 FE-7																				
571	AH-200 Al-7																				
572	AH-200 AV-7																				
573	AH-200 FE-7																				
574	AH-202 Al-7																				

#	Glass ID	T2 (°C)	V2 (Pa·s)	T3 (°C)	V3 (Pa·s)	T4 (°C)	V4 (Pa·s)	T5 (°C)	V5 (Pa·s)	T6 (°C)	V6 (Pa·s)	T7 (°C)	V7 (Pa·s)	T8 (°C)	V8 (Pa·s)	T9 (°C)	V9 (Pa·s)	T10 (°C)	V10 (Pa·s)	TCLP Ag	TCLP As	TCLP Ba	TCLP Cd	TCLP Cr	TCLP Ni	TCLP Pb
493	SG48																									
494	SG49																									
495	SG50																									
496	SG51																									
497	SG52a																									
498	SG52b																									
499	SG52c																									
500	SG52d																									
501	SG52e																									
502	SG53																									
503	SP-B-5																									
504	SP-Ca-1																									
505	SP-Ca-2																									
506	SP-Fe-4																									
507	SP-K-1																									
508	SP-K-2																									
509	SP-Li-5																									
510	SP-Li-6																									
511	SP-Si-4																									
512	SP-Ti-1																									
513	SP-Ti-2																									
514	SP-Zr-1																									
515	SP-Ru-1																									
516	SP-Ru-2																									
517	SP-Others-1																									
518	SP3-1(env.D)																									
519	SP-MC-1																									
520	SP-MC-2																									
521	SP-MC-8																									
522	SP-MC-9																									
523	Sp-LHLL																									
524	Sp-LHLH																									
525	Sp-LHHL																									
526	Sp-LHHH																									
527	Sp-LHMM																									
528	Sp-MMLL																									
529	Sp-MMLH																									
530	Sp-MMHL																									
531	Sp-MMHH																									
532	Sp-MMMM																									
533	Sp-HLLL																									
534	Sp-HLLH																									
535	Sp-HLHL																									
536	Sp-HLHH																									
537	Sp-HLMM																									
538	Sp-LHLH(b)																									
539	Sp-MMLL(b)																									
540	Sp-MMHH(b)																									
541	Sp-HLLL(b)																									
542	nom-2																									
543	nom-3																									
544	nomc-1																									
545	nomc-2																									
546	c106a-2																									
547	c106a-3																									
548	c106a-4																									
549	c106b-1																									
550	c106b-2																									
551	az-3																									
552	az-5																									
553	HG-1-1-7																									
554	HG-1-2-7																									
555	HG-1-3-7																									
556	HG-2-1-7																									
557	HG-2-2-7																									
558	HG-2-3-7																									
559	HG-3-1-7																									
560	HG-3-2-7																									
561	HG-3-3-7																									
562	AH-165 Al-7																									
563	AH-165 AV-7																									
564	AH-165 FE-7																									
565	AH-131 Al-7																									
566	AH-131 AV-7																									
567	AH-131 FE-7																									
568	AH-168 Al-7																									
569	AH-168 AV-7																									
570	AH-168 FE-7																									
571	AH-200 Al-7																									
572	AH-200 AV-7																									
573	AH-200 FE-7																									
574	AH-202 Al-7																									

#	Glass ID	TCLP Se	TCLP Zn	TCLP Al	TCLP B	TCLP Sb	TCLP Tl	TCLP V	Q PCT B (g/m²)	Q PCT Li (g/m²)	Q PCT Na (g/m²)	Q PCT Si (g/m²)	Q PCT pH	CCC PCT B (g/m²)	CCC PCT Li (g/m²)	CCC PCT Na (g/m²)	CCC PCT Si (g/m²)	CCC PCT pH	T1 (°C)
493	SG48																		
494	SG49																		
495	SG50																		
496	SG51																		
497	SG52a																		
498	SG52b																		
499	SG52c																		
500	SG52d																		
501	SG52e																		
502	SG53																		
503	SP-B-5																		
504	SP-Ca-1																		
505	SP-Ca-2																		
506	SP-Fe-4																		
507	SP-K-1																		
508	SP-K-2																		
509	SP-Li-5																		
510	SP-Li-6																		
511	SP-Si-4																		
512	SP-Ti-1																		
513	SP-Ti-2																		
514	SP-Zr-1																		
515	SP-Ru-1																		
516	SP-Ru-2																		
517	SP-Others-1																		
518	SP3-1(env.D)																		
519	SP-MC-1																		
520	SP-MC-2																		
521	SP-MC-8																		
522	SP-MC-9																		
523	Sp-LHLL																		
524	Sp-LHLH																		
525	Sp-LHHL																		
526	Sp-LHHH																		
527	Sp-LHMM																		
528	Sp-MMLL																		
529	Sp-MMLH																		
530	Sp-MMHL																		
531	Sp-MMHH																		
532	Sp-MMMM																		
533	Sp-HLLL																		
534	Sp-HLLH																		
535	Sp-HLHL																		
536	Sp-HLHH																		
537	Sp-HLMM																		
538	Sp-LHLH(b)																		
539	Sp-MMLL(b)																		
540	Sp-MMHH(b)																		
541	Sp-HLLL(b)																		
542	nom-2																		
543	nom-3																		
544	nomc-1																		
545	nomc-2																		
546	c106a-2																		
547	c106a-3																		
548	c106a-4																		
549	c106b-1																		
550	c106b-2																		
551	az-3																		
552	az-5																		
553	HG-1-1-7								0.340	0.330	0.335	0.190	10.430						
554	HG-1-2-7								0.365	0.335	0.345	0.195	10.390						
555	HG-1-3-7								0.340	0.310	0.325	0.185	10.390						
556	HG-2-1-7								0.345	0.320	0.335	0.185	10.440						
557	HG-2-2-7								0.385	0.365	0.400	0.205	10.730						
558	HG-2-3-7								0.395	0.360	0.395	0.210	10.710						
559	HG-3-1-7								0.375	0.360	0.385	0.200	10.730						
560	HG-3-2-7								0.390	0.365	0.385	0.200	10.710						
561	HG-3-3-7								0.365	0.340	0.370	0.190	10.680						
562	AH-165 Al-7								0.260	0.315	0.180	0.145	9.920						
563	AH-165 AV-7								0.320	0.330	0.265	0.185	10.050						
564	AH-165 FE-7								2.380	1.965	2.090	0.840	10.530						
565	AH-131 Al-7								0.360	0.350	0.345	0.180	10.210						
566	AH-131 AV-7								0.340	0.365	0.305	0.195	9.850						
567	AH-131 FE-7								1.790	1.600	1.545	0.770	10.220						
568	AH-168 Al-7								5.125	4.320	3.350	0.980	10.270						
569	AH-168 AV-7								0.400	0.375	0.295	0.175	9.720						
570	AH-168 FE-7								2.565	2.210	1.950	0.630	10.110						
571	AH-200 Al-7								0.230	0.285	0.220	0.300	9.680						
572	AH-200 AV-7								0.290	0.310	0.295	0.140	9.620						
573	AH-200 FE-7								2.550	2.190	2.190	0.615	10.150						
574	AH-202 Al-7								0.175	0.240	0.145	0.120	9.690						

#	Glass ID	EC1 (S/cm)	T2 (°C)	EC2 (S/cm)	T3 (°C)	EC3 (S/cm)	T4 (°C)	EC4 (S/cm)	T5 (°C)	EC5 (S/cm)	T6 (°C)	EC6 (S/cm)	A	B	To
493	SG48														
494	SG49														
495	SG50														
496	SG51														
497	SG52a														
498	SG52b														
499	SG52c														
500	SG52d														
501	SG52e														
502	SG53														
503	SP-B-5														
504	SP-Ca-1														
505	SP-Ca-2														
506	SP-Fe-4														
507	SP-K-1														
508	SP-K-2														
509	SP-Li-5														
510	SP-Li-6														
511	SP-Si-4														
512	SP-Ti-1														
513	SP-Ti-2														
514	SP-Zr-1														
515	SP-Ru-1														
516	SP-Ru-2														
517	SP-Others-1														
518	SP3-1(env.D)														
519	SP-MC-1														
520	SP-MC-2														
521	SP-MC-8														
522	SP-MC-9														
523	Sp-LHLL														
524	Sp-LHLH														
525	Sp-LHHL														
526	Sp-LHHH														
527	Sp-LHMM														
528	Sp-MMLL														
529	Sp-MMLH														
530	Sp-MMHL														
531	Sp-MMHH														
532	Sp-MMMM														
533	Sp-HLLL														
534	Sp-HLLH														
535	Sp-HLHL														
536	Sp-HLHH														
537	Sp-HLMM														
538	Sp-LHLH(b)														
539	Sp-MMLL(b)														
540	Sp-MMHH(b)														
541	Sp-HLLL(b)														
542	nom-2														
543	nom-3														
544	nomc-1														
545	nomc-2														
546	c106a-2														
547	c106a-3														
548	c106a-4														
549	c106b-1														
550	c106b-2														
551	az-3														
552	az-5														
553	HG-1-1-7														
554	HG-1-2-7														
555	HG-1-3-7														
556	HG-2-1-7														
557	HG-2-2-7														
558	HG-2-3-7														
559	HG-3-1-7														
560	HG-3-2-7														
561	HG-3-3-7														
562	AH-165 AI-7														
563	AH-165 AV-7														
564	AH-165 FE-7														
565	AH-131 AI-7														
566	AH-131 AV-7														
567	AH-131 FE-7														
568	AH-168 AI-7														
569	AH-168 AV-7														
570	AH-168 FE-7														
571	AH-200 AI-7														
572	AH-200 AV-7														
573	AH-200 FE-7														
574	AH-202 AI-7														

#	Glass ID	Study	Reference	Al2O3-t	B2O3-t	CaO-t	Fe2O3-t	FeO-t	K2O-t	Li2O-t	MgO-t	Na2O-t	NiO-t	P2O5-t	SiO2-t	ZrO2-t	Ag2O-t	As2O3-t	As2O5-t	BaO-t	BeO-t	Bi2O3-t	Br-t	CdO-t	Ce2O3-t	CeO2-t	Cl-t
575	AH-202-AV-7	DWPF PCT Model	Jantzen et al. 1995	0.0498	0.0748	0.0072	0.1161	0.0031	0.0334	0.0429	0.0131	0.0658	0.0101	0.0000	0.5437	0.0002				0.0000					0.0000		
576	AH-202 FE-7	DWPF PCT Model	Jantzen et al. 1995	0.0137	0.0710	0.0096	0.0966	0.0630	0.0328	0.0428	0.0127	0.0764	0.0274	0.0000	0.5270	0.0002				0.0000					0.0000		
577	AH-1-7	DWPF PCT Model	Jantzen et al. 1995	0.0697	0.1029	0.0096	0.1200	0.0000	0.0331	0.0447	0.0066	0.1189	0.0094	0.0000	0.4406	0.0067				0.0000					0.0000		
578	AH-2-7	DWPF PCT Model	Jantzen et al. 1995	0.0657	0.1332	0.0065	0.1143	0.0000	0.0311	0.0377	0.0058	0.1031	0.0093	0.0000	0.4463	0.0063				0.0000					0.0000		
579	AH-4-7	DWPF PCT Model	Jantzen et al. 1995	0.0471	0.0709	0.0100	0.1103	0.0000	0.0317	0.0411	0.0073	0.0993	0.0098	0.0000	0.5368	0.0000				0.0000					0.0000		
580	AH-5-7	DWPF PCT Model	Jantzen et al. 1995	0.0552	0.0700	0.0067	0.1149	0.0000	0.0318	0.0380	0.0061	0.0931	0.0097	0.0000	0.5346	0.0002				0.0000					0.0000		
581	AH-6-7	DWPF PCT Model	Jantzen et al. 1995	0.0560	0.0940	0.0068	0.1188	0.0000	0.0316	0.0462	0.0061	0.1058	0.0094	0.0000	0.4763	0.0067				0.0000					0.0000		
582	AH-7-7	DWPF PCT Model	Jantzen et al. 1995	0.0629	0.1153	0.0064	0.1133	0.0000	0.0316	0.0316	0.0059	0.0927	0.0095	0.0000	0.4915	0.0002				0.0000					0.0000		
583	AH-8-7	DWPF PCT Model	Jantzen et al. 1995	0.0590	0.1015	0.0069	0.1165	0.0000	0.0309	0.0319	0.0121	0.0981	0.0098	0.0000	0.4922	0.0000				0.0000					0.0000		
584	AH-9-7	DWPF PCT Model	Jantzen et al. 1995	0.0608	0.0881	0.0069	0.1166	0.0000	0.0315	0.0349	0.0058	0.0926	0.0098	0.0000	0.5120	0.0000				0.0000					0.0000		
585	AH-10-7	DWPF PCT Model	Jantzen et al. 1995	0.0517	0.0764	0.0068	0.1136	0.0000	0.0311	0.0447	0.0112	0.0687	0.0097	0.0000	0.5453	0.0000				0.0000					0.0000		
586	AH-11-7	DWPF PCT Model	Jantzen et al. 1995	0.0576	0.1214	0.0065	0.1113	0.0000	0.0303	0.0366	0.0112	0.0649	0.0094	0.0000	0.5099	0.0000				0.0000					0.0000		
587	AH-12-7	DWPF PCT Model	Jantzen et al. 1995	0.0608	0.0881	0.0069	0.1166	0.0000	0.0315	0.0349	0.0058	0.0926	0.0098	0.0000	0.5121	0.0000				0.0000					0.0000		
588	AH-13-7	DWPF PCT Model	Jantzen et al. 1995	0.0660	0.0653	0.0127	0.1386	0.0000	0.0311	0.0338	0.0050	0.0896	0.0116	0.0000	0.4989	0.0002				0.0000					0.0000		
589	AH-14-7	DWPF PCT Model	Jantzen et al. 1995	0.0715	0.0832	0.0126	0.1402	0.0000	0.0311	0.0398	0.0054	0.0985	0.0114	0.0000	0.4521	0.0058				0.0000					0.0000		
590	AH-15-7	DWPF PCT Model	Jantzen et al. 1995	0.0696	0.0932	0.0128	0.1378	0.0000	0.0314	0.0284	0.0104	0.0953	0.0114	0.0000	0.4619	0.0000				0.0000					0.0000		
591	AH-16-7	DWPF PCT Model	Jantzen et al. 1995	0.0643	0.0728	0.0127	0.1354	0.0000	0.0310	0.0411	0.0101	0.0661	0.0111	0.0000	0.5077	0.0000				0.0000					0.0000		
592	AH-17-7	DWPF PCT Model	Jantzen et al. 1995	0.0578	0.0820	0.0066	0.1151	0.0000	0.0309	0.0473	0.0058	0.0667	0.0092	0.0000	0.5298	0.0066				0.0000					0.0000		
593	SFRIT1	DWPF PCT Model	Jantzen et al. 1995	0.0462	0.0855	0.0148	0.1428	0.0000	0.0271	0.0326	0.0085	0.1158	0.0111	0.0000	0.4813	0.0011				0.0009					0.0000		
594	SFRIT2	DWPF PCT Model	Jantzen et al. 1995	0.0462	0.0855	0.0148	0.1428	0.0000	0.0271	0.0326	0.0085	0.1158	0.0111	0.0000	0.4813	0.0011				0.0009					0.0000		
595	SFRIT3	DWPF PCT Model	Jantzen et al. 1995	0.0462	0.0855	0.0148	0.1428	0.0000	0.0271	0.0326	0.0085	0.1158	0.0111	0.0000	0.4813	0.0011				0.0009					0.0000		
596	202P w/o Mn-7	DWPF PCT Model	Jantzen et al. 1995	0.0429	0.0858	0.0121	0.1068	0.0000	0.0571	0.0341	0.0291	0.0917	0.0070	0.0000	0.5106	0.0000				0.0019					0.0000		
597	202G w/o Mn-7	DWPF PCT Model	Jantzen et al. 1995	0.0461	0.0603	0.0130	0.1209	0.0000	0.0274	0.0377	0.0318	0.0824	0.0067	0.0000	0.5602	0.0000				0.0017					0.0000		
598	200R-7	DWPF PCT Model	Jantzen et al. 1995	0.0478	0.0979	0.0152	0.1272	0.0000	0.0362	0.0311	0.0129	0.1375	0.0055	0.0000	0.4666	0.0000				0.0000					0.0000		
599	NBS SRM 623-7	DWPF PCT Model	Jantzen et al. 1995	0.0630	0.1071	0.0070	0.0000	0.0000	0.0061	0.0000	0.0000	0.0641	0.0000	0.0000	0.7306	0.0000				0.0221					0.0000		
600	165 CGW STD-7	DWPF PCT Model	Jantzen et al. 1995	0.0420	0.0673	0.0154	0.1296	0.0000	0.0000	0.0502	0.0103	0.1047	0.0097	0.0000	0.5401	0.0050				0.0000					0.0000		
601	ARM-1-7 (4/88)	DWPF PCT Model	Jantzen et al. 1995	0.0558	0.1128	0.0223	0.0000	0.0000	0.0000	0.0507	0.0000	0.0966	0.0000	0.0065	0.4645	0.0179				0.0066					0.0273		
602	ARM-1-7 (5/89)	DWPF PCT Model	Jantzen et al. 1995	0.0558	0.1128	0.0223	0.0000	0.0000	0.0000	0.0507	0.0000	0.0966	0.0000	0.0065	0.4645	0.0179				0.0066					0.0273		
603	ARM-1-7 (7/90)	DWPF PCT Model	Jantzen et al. 1995	0.0558	0.1128	0.0223	0.0000	0.0000	0.0000	0.0507	0.0000	0.0966	0.0000	0.0065	0.4645	0.0179				0.0066					0.0273		
604	ARM-1-7 (12/90)	DWPF PCT Model	Jantzen et al. 1995	0.0558	0.1128	0.0223	0.0000	0.0000	0.0000	0.0507	0.0000	0.0966	0.0000	0.0065	0.4645	0.0179				0.0066					0.0273		
605	ARM-1-7 (5/91)	DWPF PCT Model	Jantzen et al. 1995	0.0558	0.1128	0.0223	0.0000	0.0000	0.0000	0.0507	0.0000	0.0966	0.0000	0.0065	0.4645	0.0179				0.0066					0.0273		
606	ARM-1-7 (10/91)	DWPF PCT Model	Jantzen et al. 1995	0.0558	0.1128	0.0223	0.0000	0.0000	0.0000	0.0507	0.0000	0.0966	0.0000	0.0065	0.4645	0.0179				0.0066					0.0273		
607	ARM-1-7 (10/92)	DWPF PCT Model	Jantzen et al. 1995	0.0558	0.1128	0.0223	0.0000	0.0000	0.0000	0.0507	0.0000	0.0966	0.0000	0.0065	0.4645	0.0179				0.0066					0.0273		
608	ARM-1-7 (4/93)	DWPF PCT Model	Jantzen et al. 1995	0.0558	0.1128	0.0223	0.0000	0.0000	0.0000	0.0507	0.0000	0.0966	0.0000	0.0065	0.4645	0.0179				0.0066					0.0273		
609	ARM-1-7 (6/93)	DWPF PCT Model	Jantzen et al. 1995	0.0558	0.1128	0.0223	0.0000	0.0000	0.0000	0.0507	0.0000	0.0966	0.0000	0.0065	0.4645	0.0179				0.0066					0.0273		
610	ARM-1-7 (8/93)	DWPF PCT Model	Jantzen et al. 1995	0.0558	0.1128	0.0223	0.0000	0.0000	0.0000	0.0507	0.0000	0.0966	0.0000	0.0065	0.4645	0.0179				0.0066					0.0273		
611	ARM-1-7	DWPF PCT Model	Jantzen et al. 1995	0.0558	0.1128	0.0223	0.0000	0.0000	0.0000	0.0507	0.0000	0.0966	0.0000	0.0065	0.4645	0.0179				0.0066					0.0273		
612	T-ARM-1	DWPF PCT Model	Jantzen et al. 1995	0.0558	0.1128	0.0223	0.0000	0.0000	0.0000	0.0507	0.0000	0.0966	0.0000	0.0065	0.4645	0.0179				0.0066					0.0273		
613	SS-ARM-1	DWPF PCT Model	Jantzen et al. 1995	0.0558	0.1128	0.0223	0.0000	0.0000	0.0000	0.0507	0.0000	0.0966	0.0000	0.0065	0.4645	0.0179				0.0066					0.0273		
614	SS-ARM-1	DWPF PCT Model	Jantzen et al. 1995	0.0558	0.1128	0.0223	0.0000	0.0000	0.0000	0.0507	0.0000	0.0966	0.0000	0.0065	0.4645	0.0179				0.0066					0.0273		
615	EA-1-7	DWPF PCT Model	Jantzen et al. 1995	0.0370	0.1130	0.0112	0.0738	0.0145	0.0005	0.0426	0.0172	0.1681	0.0057	0.0000	0.4873	0.0045				0.0000					0.0000		
616	EA-1-7	DWPF PCT Model	Jantzen et al. 1995	0.0370	0.1130	0.0112	0.0738	0.0145	0.0005	0.0426	0.0172	0.1681	0.0057	0.0000	0.4873	0.0045				0.0000					0.0000		
617	EA-2-7	DWPF PCT Model	Jantzen et al. 1995	0.0370	0.1130	0.0112	0.0738	0.0145	0.0005	0.0426	0.0172	0.1681	0.0057	0.0000	0.4873	0.0045				0.0000					0.0000		
618	EA-7	DWPF PCT Model	Jantzen et al. 1995	0.0370	0.1130	0.0112	0.0738	0.0145	0.0005	0.0426	0.0172	0.1681	0.0057	0.0000	0.4873	0.0045				0.0000					0.0000		
619	T-EA	DWPF PCT Model	Jantzen et al. 1995	0.0370	0.1130	0.0112	0.0738	0.0145	0.0005	0.0426	0.0172	0.1681	0.0057	0.0000	0.4873	0.0045				0.0000					0.0000		
620	SS-EA-19	DWPF PCT Model	Jantzen et al. 1995	0.0370	0.1130	0.0112	0.0738	0.0145	0.0005	0.0426	0.0172	0.1681	0.0057	0.0000	0.4873	0.0045				0.0000					0.0000		
621	SS-EA-15	DWPF PCT Model	Jantzen et al. 1995	0.0370	0.1130	0.0112	0.0738	0.0145	0.0005	0.0426	0.0172	0.1681	0.0057	0.0000	0.4873	0.0045				0.0000					0.0000		
622	SS-EA-1-7	DWPF PCT Model	Jantzen et al. 1995	0.0370	0.1130	0.0112	0.0738	0.0145	0.0005	0.0426	0.0172	0.1681	0.0057	0.0000	0.4873	0.0045				0.0000					0.0000		
623	SS-EA-2-7	DWPF PCT Model	Jantzen et al. 1995	0.0370	0.1130	0.0112	0.0738	0.0145	0.0005	0.0426	0.0172	0.1681	0.0057	0.0000	0.4873	0.0045				0.0000					0.0000		
624	SRS-SEA-A-7	DWPF PCT Model	Jantzen et al. 1995	0.0370	0.1130	0.0112	0.0738	0.0145	0.0005	0.0426	0.0172	0.1681	0.0057	0.0000	0.4873	0.0045				0.0000					0.0000		
625	SRS-SEA-B-7	DWPF PCT Model	Jantzen et al. 1995	0.0370	0.1130	0.0112	0.0738	0.0145	0.0005	0.0426	0.0172	0.1681	0.0057	0.0000	0.4873	0.0045				0.0000					0.0000		
626	CUASEA-A-7	DWPF PCT Model	Jantzen et al. 1995	0.0370	0.1130	0.0112	0.0738	0.0145	0.0005	0.0426	0.0172	0.1681	0.0057	0.0000	0.4873	0.0045				0.0000					0.0000		
627	CUASEA-B-7	DWPF PCT Model	Jantzen et al. 1995	0.0370	0.1130	0.0112	0.0738	0.0145	0.0005	0.0426	0.0172	0.1681	0.0057	0.0000	0.4873	0.0045				0.0000					0.0000		
628	131-TDS-EA-7	DWPF PCT Model	Jantzen et al. 1995	0.0571	0.1259	0.0091	0.1418	0.0000	0.0004	0.0479	0.0152	0.1447	0.0143	0.0000	0.3947	0.0043				0.0000					0.0000		
629	131-TDS-3A-SOPER-7	DWPF PCT Model	Jantzen et al. 1995	0.0548	0.1073	0.0091	0.1133	0.0000	0.0004	0.0418	0.0140	0.1361	0.0153	0.0000	0.4590	0.0034				0.0000					0.0000		
630	BLEND 1-7	DWPF PCT Model	Jantzen et al. 1995	0.0418	0.0809	0.0104	0.1095	0.0000	0.0370	0.0446	0.0142	0.0917	0.0090	0.0000	0.5215	0.0013				0.0019					0.0000		
631	BLEND 1-7 (2)	DWPF PCT Model	Jantzen et al. 1995	0.0418	0.0809	0.0104	0.1095	0.0000	0.0370	0.0446	0.0142	0.0917	0.0090	0.0000	0.5215	0.0013				0.0019					0.0000		
632	BLEND 1.6-7	DWPF PCT Model	Jantzen et al. 1995	0.0418	0.0809	0.0104	0.1095	0.0000	0.0370	0.0446	0.0142	0.0917	0.0090	0.0000	0.5215	0.0013				0.0019					0.0000		
633	BATCH 1-7	DWPF PCT Model	Jantzen et al. 1995	0.0491	0.0784	0.0123	0.1292	0.0000	0.0336	0.0446	0.0143	0.0907	0.0075	0.0000	0.5056	0.0009				0.0014					0.0000		
634	BATCH 1-7 (2)	DWPF PCT Model	Jantzen et al. 1995	0.0491	0.0784	0.0123	0.1292	0.0000	0.0336	0.0446	0.0143	0.0907	0.0075	0.0000	0.5056	0.0009				0.0014					0.0000		
635	BATCH 1-1.6	DWPF PCT Model	Jantzen et al. 1995	0.0491	0.0784	0.0123	0.1292	0.0000	0.0336	0.0446	0.0143	0.0907	0.0075	0.0000	0.5056	0.0009				0.0014					0.0000		
636	BATCH 2-7	DWPF PCT Model	Jantzen et al. 1995	0.0465	0.0791	0.0108	0.1115	0.0000	0.0340	0.0451	0.0142	0.0924	0.0090	0.0000	0.5229	0.0017				0.0017					0.0000		
637	BATCH 2-7 (2)	DWPF PCT Model	Jantzen et al. 1995	0.0465	0.0791	0.0108	0.1115	0.0000	0.0340	0.0451	0.0142	0.0924	0.0090	0.0000	0.5229	0.0017				0.0017					0.0000		
638	BATCH 2-1.6	DWPF PCT Model	Jantzen et al. 1995	0.0465	0.0791	0.0108	0.1115	0.0000	0.0340	0.0451	0.0142	0.0924	0.0090	0.0000	0.5229	0.0017				0.0017					0.0000		
639	BATCH 3-7	DWPF PCT Model	Jantzen et al. 1995	0.0346	0.0775	0.0100	0.1181	0.0000	0.0343	0.0455	0.0143	0.0908	0.0106	0.0000	0.5303	0.0011				0.0019					0.0000		
640	BATCH 3-7 (2)	DWPF PCT Model	Jantzen et al. 1995	0.0346	0.0775	0.0100	0.1181	0.0000	0.0343	0.0455	0.0143	0.0908	0.0106	0.0000	0.5303	0.0011				0.0019					0.0000		
641	BATCH 3-7 (3)	DWPF PCT Model	Jantzen et al. 1995	0.0346	0.0775	0.0100	0.1181	0.0000	0.0343	0.0455	0.0143	0.0908	0.0106	0.0000	0.5303	0.0011				0.0019					0.0000		
642	BATCH 4-7	DWPF PCT Model	Jantzen et al. 1995	0.0345	0.0819	0.0085	0.1180	0.0000	0.0388	0.0432	0.0144	0.0922	0.0107	0.0000	0.5042	0.0023				0.0026					0.0000		
643	BATCH 4-7 (2)	DWPF PCT Model	Jantzen et al. 1995	0.0345	0.0819	0.0085	0.1180	0.0000	0.0388	0.0432	0.0144	0.0922	0.0107	0.0000	0.5042	0.0023				0.0026					0.0000		
644	BATCH 4-7 (3)	DWPF PCT Model	Jantzen et al. 1995	0.0345	0.0819	0.0085	0.1180	0.0000	0.0388	0.0432	0.0144	0.0922	0.0107	0.0000	0.5042	0.0023				0.0026					0.0000		
645	HM-1-7	DWPF PCT Model	Jantzen et al. 1995	0.0715	0.0703	0.0101	0.0779	0.0000	0.0222	0.0462	0.0149	0.0856	0.0041	0.0000	0.5582	0.0033				0.0012					0.0000		
646	HM-1-7 (2)	DWPF PCT Model	Jantzen et al. 1995	0.0715	0.0703	0.0101	0.0779	0.0000	0.0222	0.0462	0.0149	0.0856	0.0041	0.0000	0.5582	0.0033				0.0012					0.0000		
647	HM-1.6-7	DWPF PCT Model	Jantzen et al. 1995	0.0715	0.0703	0.0101	0.0779	0.0000	0.0222	0.0462	0.0149	0.0856	0.0041	0.0000	0.5582	0.0033				0.0012					0.0000		
648	PUREX 1-7	DWPF PCT Model	Jantzen et al. 1995	0.0300	0.1039	0.0110	0.1333	0.0000	0.0343	0.0324	0.0142	0.1270	0.0120	0.0000	0.4681	0.0004				0.0021					0.0000		
649	PUREX 1-7 (2)	DWPF PCT Model	Jantzen et al. 1995	0.0300	0.1039	0.0110	0.1333	0.0000	0.0343	0.0324	0.0142	0.1270	0.0120	0.0000	0.4681	0.0004				0.0021					0.0000		
650	PUREX 1.6-7	DWPF PCT Model	Jantzen et al. 1995	0.0300	0.1039	0.0110	0.1333	0.0000	0.0343	0.0324	0.0142	0.1270	0.0120	0.0000	0.4681	0.0004				0.0021					0.0000		
651	PUREX SRSS 1.6	DWPF PCT Model	Jantzen et al. 1995	0.0300	0.1039	0.0110	0.1333	0.0000	0.0343	0.0324	0.0142	0.1270	0.0120	0.0000	0.4681	0.0004				0.0021					0.0000		
652	PUREX SRST-4.0	DWPF PCT Model	Jantzen et al. 1995	0.0300	0.1039	0.0110	0.1333	0.0000	0.0343	0.0324	0.0142	0.1270	0.0120	0.0000	0.4681	0.0004				0.0021					0.0000		
653	PUREX CUA	DWPF PCT Model	Jantzen et al. 1995	0.0300	0.1039	0.0110	0.1333	0.0000	0.0343	0.0324	0.0142	0.1270	0.0120	0.0000	0.4681	0.0004				0.0021					0.0000		
654	BLEND 1-3457	DWPF PCT Model	Jantzen et al. 1995	0.0539	0.0703	0.0112	0.1290	0.0005	0.0256	0.0429	0.0131	0.1025	0.0084	0.0000	0.5131	0.0000				0.0009					0.0000		
655	BLEND 1-3479	DWPF PCT Model	Jantzen et al. 1995	0.0538	0.0708	0.0109	0.1270	0.0016	0.0262	0.0431	0.0129	0.1016	0.0087	0.0000	0.5140	0.0000				0.0009					0.0000		
656	BLEND 1-3498	DWPF PCT Model	Jantzen et al. 1995	0.0538	0.0711	0.0111	0.1297	0.0009	0.0277	0.0423	0.0128	0.1100	0.0093	0.0000	0.5013	0.0000				0.0009					0.0000		

#	Glass ID	CoO-t	Co2O3-t	Cr2O3-t	Cs2O-t	CuO-t	Dy2O3-t	Eu2O3-t	F-t	Ga2O3-t	Gd2O3-t	HfO2-t	HgO-t	I-t	La2O3-t	MnO2-t	MnO-t	MoO-t	MoO2-t	MoO3-t	Nb2O5-t	Nd2O3-t	NpO2-t	PbO-t	PdO2-t	PdO-t	Pr2O3-t	Pr6O11-t	Rb2O-t	ReO-t
575	AH-202-AV-7			0.0000	0.0000	0.0000									0.0000		0.0261			0.0000		0.0000		0.0000						
576	AH-202 FE-7			0.0000	0.0000	0.0000									0.0000		0.0095			0.0000		0.0000		0.0000						
577	AH-1-7			0.0002	0.0008	0.0000									0.0000		0.0231			0.0000		0.0000		0.0000						
578	AH-2-7			0.0002	0.0004	0.0000									0.0000		0.0267			0.0000		0.0000		0.0000						
579	AH-4-7			0.0005	0.0004	0.0000									0.0000		0.0213			0.0000		0.0000		0.0000						
580	AH-5-7			0.0000	0.0000	0.0000									0.0000		0.0265			0.0000		0.0000		0.0000						
581	AH-6-7			0.0000	0.0004	0.0000									0.0000		0.0274			0.0000		0.0000		0.0000						
582	AH-7-7			0.0000	0.0000	0.0000									0.0000		0.0262			0.0000		0.0000		0.0000						
583	AH-8-7			0.0002	0.0004	0.0000									0.0000		0.0269			0.0000		0.0000		0.0000						
584	AH-9-7			0.0002	0.0004	0.0000									0.0000		0.0266			0.0000		0.0000		0.0000						
585	AH-10-7			0.0000	0.0004	0.0000									0.0000		0.0269			0.0000		0.0000		0.0000						
586	AH-11-7			0.0002	0.0004	0.0000									0.0000		0.0266			0.0000		0.0000		0.0000						
587	AH-12-7			0.0000	0.0004	0.0000									0.0000		0.0266			0.0000		0.0000		0.0000						
588	AH-13-7			0.0000	0.0004	0.0000									0.0000		0.0331			0.0000		0.0000		0.0000						
589	AH-14-7			0.0000	0.0008	0.0000									0.0000		0.0337			0.0000		0.0000		0.0000						
590	AH-15-7			0.0002	0.0004	0.0000									0.0000		0.0330			0.0000		0.0000		0.0000						
591	AH-16-7			0.0007	0.0004	0.0000									0.0000		0.0326			0.0000		0.0000		0.0000						
592	AH-17-7			0.0009	0.0004	0.0000									0.0000		0.0273			0.0000		0.0000		0.0000						
593	SFRIT1			0.0009	0.0000	0.0000									0.0000		0.0195			0.0000		0.0000		0.0000						
594	SFRIT2			0.0009	0.0000	0.0000									0.0000		0.0195			0.0000		0.0000		0.0000						
595	SFRIT3			0.0009	0.0000	0.0000									0.0000		0.0195			0.0000		0.0000		0.0000						
596	202P w/o Mn-7			0.0007	0.0013	0.0066									0.0000		0.0000			0.0000		0.0000		0.0000						
597	202G w/o Mn-7			0.0007	0.0004	0.0040									0.0000		0.0000			0.0000		0.0000		0.0000						
598	200R-7			0.0000	0.0000	0.0000									0.0000		0.0220			0.0000		0.0000		0.0000						
599	NBS SRM 623-7			0.0000	0.0000	0.0000									0.0000		0.0000			0.0000		0.0000		0.0000						
600	165 CGW STD-7			0.0000	0.0000	0.0000									0.0000		0.0257			0.0000		0.0000		0.0000						
601	ARM-1-7 (4/88)			0.0000	0.0117	0.0000									0.0000		0.0000			0.0167		0.0594		0.0000						
602	ARM-1-7 (5/89)			0.0000	0.0117	0.0000									0.0000		0.0000			0.0167		0.0594		0.0000						
603	ARM-1-7 (7/90)			0.0000	0.0117	0.0000									0.0000		0.0000			0.0167		0.0594		0.0000						
604	ARM-1-7 (12/90)			0.0000	0.0117	0.0000									0.0000		0.0000			0.0167		0.0594		0.0000						
605	ARM-1-7 (5/91)			0.0000	0.0117	0.0000									0.0000		0.0000			0.0167		0.0594		0.0000						
606	ARM-1-7 (10/91)			0.0000	0.0117	0.0000									0.0000		0.0000			0.0167		0.0594		0.0000						
607	ARM-1-7 (10/92)			0.0000	0.0117	0.0000									0.0000		0.0000			0.0167		0.0594		0.0000						
608	ARM-1-7 (4/93)			0.0000	0.0117	0.0000									0.0000		0.0000			0.0167		0.0594		0.0000						
609	ARM-1-7 (6/93)			0.0000	0.0117	0.0000									0.0000		0.0000			0.0167		0.0594		0.0000						
610	ARM-1-7 (8/93)			0.0000	0.0117	0.0000									0.0000		0.0000			0.0167		0.0594		0.0000						
611	ARM-1-7			0.0000	0.0117	0.0000									0.0000		0.0000			0.0167		0.0594		0.0000						
612	T-ARM-1			0.0000	0.0117	0.0000									0.0000		0.0000			0.0167		0.0594		0.0000						
613	SS-ARM-1			0.0000	0.0117	0.0000									0.0000		0.0000			0.0167		0.0594		0.0000						
614	SS-ARM-1			0.0000	0.0117	0.0000									0.0000		0.0000			0.0167		0.0594		0.0000						
615	EA-1-7			0.0000	0.0000	0.0000									0.0042		0.0134			0.0000		0.0000		0.0000						
616	EA-1-7			0.0000	0.0000	0.0000									0.0042		0.0134			0.0000		0.0000		0.0000						
617	EA-2-7			0.0000	0.0000	0.0000									0.0042		0.0134			0.0000		0.0000		0.0000						
618	EA-7			0.0000	0.0000	0.0000									0.0042		0.0134			0.0000		0.0000		0.0000						
619	T-EA			0.0000	0.0000	0.0000									0.0042		0.0134			0.0000		0.0000		0.0000						
620	SS-EA-19			0.0000	0.0000	0.0000									0.0042		0.0134			0.0000		0.0000		0.0000						
621	SS-EA-15			0.0000	0.0000	0.0000									0.0042		0.0134			0.0000		0.0000		0.0000						
622	SS-EA-1-7			0.0000	0.0000	0.0000									0.0042		0.0134			0.0000		0.0000		0.0000						
623	SS-EA-2-7			0.0000	0.0000	0.0000									0.0042		0.0134			0.0000		0.0000		0.0000						
624	SRS-SEA-A-7			0.0000	0.0000	0.0000									0.0042		0.0134			0.0000		0.0000		0.0000						
625	SRS-SEA-B-7			0.0000	0.0000	0.0000									0.0042		0.0134			0.0000		0.0000		0.0000						
626	CUASEA-A-7			0.0000	0.0000	0.0000									0.0042		0.0134			0.0000		0.0000		0.0000						
627	CUASEA-B-7			0.0000	0.0000	0.0000									0.0042		0.0134			0.0000		0.0000		0.0000						
628	131-TDS-EA-7			0.0005	0.0000	0.0000									0.0034		0.0314			0.0000		0.0000		0.0000						
629	131-TDS-3A-SOPER-7			0.0012	0.0000	0.0000									0.0035		0.0334			0.0000		0.0000		0.0000						
630	BLEND 1-7			0.0014	0.0009	0.0044									0.0000		0.0168			0.0016		0.0021		0.0000						
631	BLEND 1-7 (2)			0.0014	0.0009	0.0044									0.0000		0.0168			0.0016		0.0021		0.0000						
632	BLEND 1.6-7			0.0014	0.0009	0.0044									0.0000		0.0168			0.0016		0.0021		0.0000						
633	BATCH 1-7			0.0012	0.0004	0.0040									0.0000		0.0173			0.0011		0.0015		0.0000						
634	BATCH 1-7 (2)			0.0012	0.0004	0.0040									0.0000		0.0173			0.0011		0.0015		0.0000						
635	BATCH 1-1.6			0.0012	0.0004	0.0040									0.0000		0.0173			0.0011		0.0015		0.0000						
636	BATCH 2-7			0.0014	0.0000	0.0042									0.0000		0.0141			0.0018		0.0026		0.0000						
637	BATCH 2-7 (2)			0.0014	0.0000	0.0042									0.0000		0.0141			0.0018		0.0026		0.0000						
638	BATCH 2-1.6			0.0014	0.0000	0.0042									0.0000		0.0141			0.0018		0.0026		0.0000						
639	BATCH 3-7			0.0014	0.0004	0.0041									0.0000		0.0153			0.0011		0.0016		0.0000						
640	BATCH 3-7 (2)			0.0014	0.0004	0.0041									0.0000		0.0153			0.0011		0.0016		0.0000						
641	BATCH 3-7 (3)			0.0014	0.0004	0.0041									0.0000		0.0153			0.0011		0.0016		0.0000						
642	BATCH 4-7			0.0014	0.0009	0.0045									0.0000		0.0255			0.0020		0.0041		0.0000						
643	BATCH 4-7 (2)			0.0014	0.0009	0.0045									0.0000		0.0255			0.0020		0.0041		0.0000						
644	BATCH 4-7 (3)			0.0014	0.0009	0.0045									0.0000		0.0255			0.0020		0.0041		0.0000						
645	HM-1-7			0.0010	0.0004	0.0025									0.0000		0.0176			0.0023		0.0053		0.0000						
646	HM-1-7 (2)			0.0010	0.0004	0.0025									0.0000		0.0176			0.0023		0.0053		0.0000						
647	HM-1.6-7			0.0010	0.0004	0.0025									0.0000		0.0176			0.0023		0.0053		0.0000						
648	PUREX 1-7			0.0016	0.0004	0.0042									0.0000		0.0170			0.0009		0.0005		0.0000						
649	PUREX 1-7 (2)			0.0016	0.0004	0.0042									0.0000		0.0170			0.0009		0.0005		0.0000						
650	PUREX 1.6-7			0.0016	0.0004	0.0042									0.0000		0.0170			0.0009		0.0005		0.0000						
651	PUREX SRSS 1.6			0.0016	0.0004	0.0042									0.0000		0.0170			0.0009		0.0005		0.0000						
652	PUREX SRST-4.0			0.0016	0.0004	0.0042									0.0000		0.0170			0.0009		0.0005		0.0000						
653	PUREX CUA			0.0016	0.0004	0.0042									0.0000		0.0170			0.0009		0.0005		0.0000						
654	BLEND 1-3457			0.0023	0.0000	0.0022									0.0000		0.0216			0.0000		0.0000		0.0000						
655	BLEND 1-3479			0.0023	0.0000	0.0018									0.0000		0.0220			0.0000		0.0000		0.0000						
656	BLEND 1-3498			0.0023	0.0000	0.0019									0.0000		0.0228			0.0000		0.0000		0.0000						

#	Glass ID	ReO2-t	Re2O7-t	Rh2O3-t	RhO2-t	RuO2-t	Ru2O3-t	Sb2O3-t	Sb2O5-t	SeO2-t	Sm2O3-t	SnO-t	SnO2-t	SO3-t	SrO-t	Tc2O7-t	TeO2-t	ThO2-t	TiO2-t	Tl2O-t	Tl2O3-t	U3O8-t	UO2-t	UO3-t	V2O5-t	WO3-t	Y2O3-t	ZnO-t	Sum-t	Al2O3-a
575	AH-202-AV-7														0.0000				0.0138								0.0000	0.0000	1.0000	0.0496
576	AH-202 FE-7														0.0000				0.0172								0.0000	0.0000	1.0000	0.0136
577	AH-1-7														0.0003				0.0133								0.0000	0.0000	1.0000	0.0698
578	AH-2-7														0.0005				0.0130								0.0000	0.0000	1.0000	0.0655
579	AH-4-7														0.0005				0.0130								0.0000	0.0000	1.0000	0.0469
580	AH-5-7														0.0000				0.0132								0.0000	0.0000	1.0000	0.0548
581	AH-6-7														0.0005				0.0141								0.0000	0.0000	1.0000	0.0556
582	AH-7-7														0.0000				0.0129								0.0000	0.0000	1.0000	0.0627
583	AH-8-7														0.0005				0.0132								0.0000	0.0000	1.0000	0.0588
584	AH-9-7														0.0005				0.0134								0.0000	0.0000	1.0000	0.0604
585	AH-10-7														0.0005				0.0130								0.0000	0.0000	1.0000	0.0514
586	AH-11-7														0.0005				0.0131								0.0000	0.0000	1.0000	0.0570
587	AH-12-7														0.0005				0.0134								0.0000	0.0000	1.0000	0.0604
588	AH-13-7														0.0006				0.0131								0.0000	0.0000	1.0000	0.0648
589	AH-14-7														0.0006				0.0133								0.0000	0.0000	1.0000	0.0708
590	AH-15-7														0.0006				0.0136								0.0000	0.0000	1.0000	0.0687
591	AH-16-7														0.0008				0.0132								0.0000	0.0000	1.0000	0.0636
592	AH-17-7														0.0003				0.0132								0.0000	0.0000	1.0000	0.0572
593	SFRIT1														0.0000				0.0119								0.0000	0.0000	1.0000	0.0460
594	SFRIT2														0.0000				0.0119								0.0000	0.0000	1.0000	
595	SFRIT3														0.0000				0.0119								0.0000	0.0000	1.0000	
596	202P w/o Mn-7														0.0000				0.0124								0.0000	0.0000	1.0000	0.0430
597	202G w/o Mn-7														0.0000				0.0068								0.0000	0.0000	1.0000	0.0469
598	200R-7														0.0000				0.0000								0.0000	0.0000	1.0000	0.0462
599	NBS SRM 623-7														0.0000				0.0000								0.0000	0.0000	1.0000	0.0630
600	165 CGW STD-7														0.0000				0.0000								0.0000	0.0000	1.0000	0.0419
601	ARM-1-7 (4/88)														0.0045				0.0321								0.0000	0.0146	1.0000	0.0559
602	ARM-1-7 (5/89)														0.0045				0.0321								0.0000	0.0146	1.0000	
603	ARM-1-7 (7/90)														0.0045				0.0321								0.0000	0.0146	1.0000	
604	ARM-1-7 (12/90)														0.0045				0.0321								0.0000	0.0146	1.0000	
605	ARM-1-7 (5/91)														0.0045				0.0321								0.0000	0.0146	1.0000	
606	ARM-1-7 (10/91)														0.0045				0.0321								0.0000	0.0146	1.0000	
607	ARM-1-7 (10/92)														0.0045				0.0321								0.0000	0.0146	1.0000	
608	ARM-1-7 (4/93)														0.0045				0.0321								0.0000	0.0146	1.0000	
609	ARM-1-7 (6/93)														0.0045				0.0321								0.0000	0.0146	1.0000	
610	ARM-1-7 (8/93)														0.0045				0.0321								0.0000	0.0146	1.0000	
611	ARM-1-7														0.0045				0.0321								0.0000	0.0146	1.0000	
612	T-ARM-1														0.0045				0.0321								0.0000	0.0146	1.0000	
613	SS-ARM-1														0.0045				0.0321								0.0000	0.0146	1.0000	
614	SS-ARM-1														0.0045				0.0321								0.0000	0.0146	1.0000	
615	EA-1-7														0.0000				0.0070								0.0000	0.0000	1.0000	0.0370
616	EA-1-7														0.0000				0.0070								0.0000	0.0000	1.0000	
617	EA-2-7														0.0000				0.0070								0.0000	0.0000	1.0000	
618	EA-7														0.0000				0.0070								0.0000	0.0000	1.0000	
619	T-EA														0.0000				0.0070								0.0000	0.0000	1.0000	
620	SS-EA-19														0.0000				0.0070								0.0000	0.0000	1.0000	
621	SS-EA-15														0.0000				0.0070								0.0000	0.0000	1.0000	
622	SS-EA-1-7														0.0000				0.0070								0.0000	0.0000	1.0000	
623	SS-EA-2-7														0.0000				0.0070								0.0000	0.0000	1.0000	
624	SRS-SEA-A-7														0.0000				0.0070								0.0000	0.0000	1.0000	
625	SRS-SEA-B-7														0.0000				0.0070								0.0000	0.0000	1.0000	
626	CUASEA-A-7														0.0000				0.0070								0.0000	0.0000	1.0000	
627	CUASEA-B-7														0.0000				0.0070								0.0000	0.0000	1.0000	
628	131-TDS-EA-7														0.0000				0.0092								0.0000	0.0000	1.0000	0.0577
629	131-TDS-3A-SOPER-7														0.0000				0.0074								0.0000	0.0000	1.0000	0.0551
630	BLEND 1-7														0.0000				0.0090								0.0000	0.0000	1.0000	0.0416
631	BLEND 1-7 (2)														0.0000				0.0090								0.0000	0.0000	1.0000	
632	BLEND 1.6-7														0.0000				0.0090								0.0000	0.0000	1.0000	
633	BATCH 1-7														0.0000				0.0068								0.0000	0.0000	1.0000	0.0488
634	BATCH 1-7 (2)														0.0000				0.0068								0.0000	0.0000	1.0000	
635	BATCH 1-1.6														0.0000				0.0068								0.0000	0.0000	1.0000	
636	BATCH 2-7														0.0000				0.0069								0.0000	0.0000	1.0000	0.0463
637	BATCH 2-7 (2)														0.0000				0.0069								0.0000	0.0000	1.0000	
638	BATCH 2-1.6														0.0000				0.0069								0.0000	0.0000	1.0000	
639	BATCH 3-7														0.0000				0.0069								0.0000	0.0000	1.0000	0.0344
640	BATCH 3-7 (2)														0.0000				0.0069								0.0000	0.0000	1.0000	
641	BATCH 3-7 (3)														0.0000				0.0069								0.0000	0.0000	1.0000	
642	BATCH 4-7														0.0000				0.0104								0.0000	0.0000	1.0000	0.0343
643	BATCH 4-7 (2)														0.0000				0.0104								0.0000	0.0000	1.0000	
644	BATCH 4-7 (3)														0.0000				0.0104								0.0000	0.0000	1.0000	
645	HM-1-7														0.0000				0.0056								0.0000	0.0000	1.0000	0.0715
646	HM-1-7 (2)														0.0000				0.0056								0.0000	0.0000	1.0000	
647	HM-1.6-7														0.0000				0.0056								0.0000	0.0000	1.0000	
648	PUREX 1-7														0.0000				0.0068								0.0000	0.0000	1.0000	0.0299
649	PUREX 1-7 (2)														0.0000				0.0068								0.0000	0.0000	1.0000	
650	PUREX 1.6-7														0.0000				0.0068								0.0000	0.0000	1.0000	
651	PUREX SRSS 1.6														0.0000				0.0068								0.0000	0.0000	1.0000	
652	PUREX SRST-4.0														0.0000				0.0068								0.0000	0.0000	1.0000	
653	PUREX CUA														0.0000				0.0068								0.0000	0.0000	1.0000	
654	BLEND 1-3457														0.0000				0.0024								0.0000	0.0000	1.0000	0.0518
655	BLEND 1-3479														0.0000				0.0023								0.0000	0.0000	1.0000	0.0515
656	BLEND 1-3498														0.0000				0.0021								0.0000	0.0000	1.0000	0.0516

#	Glass ID	B2O3-a	CaO-a	Fe2O3-a	FeO-a	K2O-a	Li2O-a	MgO-a	Na2O-a	NiO-a	P2O5-a	SiO2-a	ZrO2-a	Ag2O-a	As2O3-a	As2O5-a	BaO-a	BeO-a	Bi2O3-a	Br-a	CdO-a	Ce2O3-a	CeO2-a	Cl-a	CoO-a	Co2O3-a	Cr2O3-a	Cs2O-a	CuO-a	F-a
575	AH-202-AV-7	0.0744	0.0072	0.1156	0.0031	0.0333	0.0427	0.0130	0.0655	0.0100		0.5410	0.0003																	
576	AH-202 FE-7	0.0708	0.0096	0.0962	0.0628	0.0328	0.0427	0.0126	0.0762	0.0273		0.5255	0.0002																	
577	AH-1-7	0.1030	0.0096	0.1200		0.0331	0.0447	0.0066	0.1190	0.0094		0.4408	0.0066														0.0003	0.0007		
578	AH-2-7	0.1330	0.0064	0.1140		0.0311	0.0376	0.0058	0.1030	0.0093		0.4455	0.0063														0.0002	0.0005		
579	AH-4-7	0.0706	0.0100	0.1100		0.0316	0.0410	0.0073	0.0989	0.0097		0.5348	0.0001														0.0005	0.0006		
580	AH-5-7	0.0695	0.0066	0.1140		0.0316	0.0377	0.0060	0.0924	0.0096		0.5308	0.0001																	
581	AH-6-7	0.0933	0.0068	0.1180		0.0314	0.0459	0.0060	0.1050	0.0094		0.4730	0.0067															0.0006		
582	AH-7-7	0.1150	0.0064	0.1130		0.0315	0.0315	0.0059	0.0924	0.0095		0.4900	0.0002																	
583	AH-8-7	0.1010	0.0069	0.1160		0.0308	0.0317	0.0120	0.0976	0.0097		0.4900	0.0001														0.0002	0.0004		
584	AH-9-7	0.0875	0.0069	0.1160		0.0313	0.0347	0.0058	0.0920	0.0097		0.5088	0.0001														0.0001	0.0006		
585	AH-10-7	0.0759	0.0068	0.1130		0.0309	0.0444	0.0111	0.0683	0.0096		0.5420	0.0001														0.0001	0.0006		
586	AH-11-7	0.1200	0.0065	0.1100		0.0299	0.0362	0.0111	0.0642	0.0093		0.5040	0.0001														0.0001	0.0006		
587	AH-12-7	0.0875	0.0069	0.1160		0.0313	0.0347	0.0058	0.0920	0.0097		0.5090	0.0001															0.0006		
588	AH-13-7	0.0641	0.0125	0.1360		0.0306	0.0332	0.0049	0.0880	0.0114		0.4900	0.0003														0.0001	0.0005		
589	AH-14-7	0.0825	0.0125	0.1390		0.0308	0.0394	0.0053	0.0976	0.0113		0.4480	0.0058														0.0001	0.0006		
590	AH-15-7	0.0920	0.0127	0.1360		0.0310	0.0280	0.0102	0.0941	0.0113		0.4560	0.0001														0.0001	0.0005		
591	AH-16-7	0.0720	0.0126	0.1340		0.0306	0.0406	0.0100	0.0654	0.0110		0.5020	0.0001														0.0008	0.0003		
592	AH-17-7	0.0812	0.0065	0.1140		0.0306	0.0469	0.0058	0.0661	0.0092		0.5250	0.0066														0.0009	0.0006		
593	SFRIT1	0.0851	0.0147	0.1420		0.0270	0.0325	0.0084	0.1153	0.0111		0.4790	0.0011														0.0009			
594	SFRIT2																													
595	SFRIT3																													
596	202P w/o Mn-7	0.0860	0.0122	0.1070		0.0573	0.0342	0.0292	0.0920	0.0070		0.5120															0.0007	0.0015	0.0063	
597	202G w/o Mn-7	0.0613	0.0132	0.1230		0.0278	0.0383	0.0324	0.0838	0.0068		0.5700															0.0008	0.0005	0.0038	
598	200R-7	0.0946	0.0147	0.1230		0.0349	0.0301	0.0125	0.1329	0.0053		0.4510																		
599	NBS SRM 623-7	0.1070	0.0070			0.0060			0.0640			0.7300					0.0220													
600	165 CGW STD-7	0.0671	0.0154	0.1292			0.0500	0.0102	0.1044	0.0097		0.5384	0.0050																	
601	ARM-1-7 (4/88)	0.1130	0.0223				0.0508		0.0967		0.0065	0.4650	0.0180				0.0066					0.0144						0.0116		
602	ARM-1-7 (5/89)																													
603	ARM-1-7 (7/90)																													
604	ARM-1-7 (12/90)																													
605	ARM-1-7 (5/91)																													
606	ARM-1-7 (10/91)																													
607	ARM-1-7 (10/92)																													
608	ARM-1-7 (4/93)																													
609	ARM-1-7 (6/93)																													
610	ARM-1-7 (8/93)																													
611	ARM-1-7																													
612	T-ARM-1																													
613	SS-ARM-1																													
614	SS-ARM-1																													
615	EA-1-7	0.1130	0.0112	0.0738	0.0145	0.0004	0.0426	0.0172	0.1680	0.0057		0.4873	0.0046																	
616	EA-1-7																													
617	EA-2-7																													
618	EA-7																													
619	T-EA																													
620	SS-EA-19																													
621	SS-EA-15																													
622	SS-EA-1-7																													
623	SS-EA-2-7																													
624	SRS-SEA-A-7																													
625	SRS-SEA-B-7																													
626	CUASEA-A-7																													
627	CUASEA-B-7																													
628	131-TDS-EA-7	0.1270	0.0092	0.1430		0.0004	0.0483	0.0153	0.1460	0.0144		0.3980	0.0043														0.0004			
629	131-TDS-3A-SOPER-7	0.1080	0.0092	0.1140		0.0004	0.0421	0.0141	0.1370	0.0153		0.4620	0.0034														0.0012			
630	BLEND 1-7	0.0805	0.0103	0.1091		0.0368	0.0444	0.0141	0.0913	0.0089		0.5190	0.0014				0.0018										0.0013	0.0008	0.0042	
631	BLEND 1-7 (2)																													
632	BLEND 1.6-7																													
633	BATCH 1-7	0.0778	0.0122	0.1284		0.0333	0.0443	0.0142	0.0900	0.0075		0.5020	0.0010				0.0015										0.0011	0.0006	0.0038	
634	BATCH 1-7 (2)																													
635	BATCH 1-1.6																													
636	BATCH 2-7	0.0788	0.0108	0.1112		0.0338	0.0450	0.0142	0.0921	0.0090		0.5210	0.0017				0.0016										0.0013	0.0002	0.0040	
637	BATCH 2-7 (2)																													
638	BATCH 2-1.6																													
639	BATCH 3-7	0.0769	0.0099	0.1171		0.0340	0.0451	0.0142	0.0901	0.0105		0.5260	0.0012				0.0018										0.0014	0.0006	0.0038	
640	BATCH 3-7 (2)																													
641	BATCH 3-7 (3)																													
642	BATCH 4-7	0.0814	0.0084	0.1171		0.0386	0.0429	0.0143	0.0916	0.0106		0.5010	0.0022				0.0025										0.0014	0.0009	0.0043	
643	BATCH 4-7 (2)																													
644	BATCH 4-7 (3)																													
645	HM-1-7	0.0703	0.0101	0.0778		0.0221	0.0462	0.0149	0.0856	0.0041		0.5580	0.0033				0.0011										0.0009	0.0006	0.0024	
646	HM-1-7 (2)																													
647	HM-1.6-7																													
648	PUREX 1-7	0.1033	0.0109	0.1325		0.0341	0.0322	0.0141	0.1262	0.0119		0.4650	0.0005				0.0020										0.0015	0.0006	0.0040	
649	PUREX 1-7 (2)																													
650	PUREX 1.6-7																													
651	PUREX SRSS 1.6																													
652	PUREX SRST-4.0																													
653	PUREX CUA																													
654	BLEND 1-3457	0.0676	0.0108	0.1241	0.0006	0.0247	0.0412	0.0126	0.0987	0.0081		0.4935					0.0009										0.0023		0.0020	
655	BLEND 1-3479	0.0678	0.0104	0.1216	0.0016	0.0251	0.0413	0.0124	0.0974	0.0083		0.4925					0.0010										0.0022		0.0017	
656	BLEND 1-3498	0.0682	0.0107	0.1243	0.0008	0.0265	0.0406	0.0122	0.1054	0.0089		0.4806					0.0010										0.0023		0.0019	

#	Glass ID	Ga2O3-a	Gd2O3-a	I-a	La2O3-a	MnO2-a	MnO-a	MoO-a	MoO3-a	Nb2O5-a	Nd2O3-a	NpO2-a	PbO-a	PdO2-a	PdO-a	Pr2O3-a	Pr6O11-a	PuO2-a	Rb2O-a	ReO-a	ReO2-a	Re2O7-a	Rh2O3-a	RhO2-a	RuO2-a	Sb2O3-a	Sb2O5-a	SeO2-a
575	AH-202-AV-7						0.0259																					
576	AH-202 FE-7						0.0095																					
577	AH-1-7						0.0231																					
578	AH-2-7						0.0267																					
579	AH-4-7						0.0212																					
580	AH-5-7						0.0264																					
581	AH-6-7						0.0272																					
582	AH-7-7						0.0262																					
583	AH-8-7						0.0268																					
584	AH-9-7						0.0264																					
585	AH-10-7						0.0267																					
586	AH-11-7						0.0263																					
587	AH-12-7						0.0264																					
588	AH-13-7						0.0325																					
589	AH-14-7						0.0334																					
590	AH-15-7						0.0326																					
591	AH-16-7						0.0322																					
592	AH-17-7						0.0271																					
593	SFRIT1						0.0193						0.0010															
594	SFRIT2																											
595	SFRIT3																											
596	202P w/o Mn-7												0.0020															
597	202G w/o Mn-7												0.0016															
598	200R-7						0.0213																					
599	NBS SRM 623-7																											
600	165 CGW STD-7						0.0256																					
601	ARM-1-7 (4/88)								0.0167		0.0596																	
602	ARM-1-7 (5/89)																											
603	ARM-1-7 (7/90)																											
604	ARM-1-7 (12/90)																											
605	ARM-1-7 (5/91)																											
606	ARM-1-7 (10/91)																											
607	ARM-1-7 (10/92)																											
608	ARM-1-7 (4/93)																											
609	ARM-1-7 (6/93)																											
610	ARM-1-7 (8/93)																											
611	ARM-1-7																											
612	T-ARM-1																											
613	SS-ARM-1																											
614	SS-ARM-1																											
615	EA-1-7				0.0042		0.0134																					
616	EA-1-7																											
617	EA-2-7																											
618	EA-7																											
619	T-EA																											
620	SS-EA-19																											
621	SS-EA-15																											
622	SS-EA-1-7																											
623	SS-EA-2-7																											
624	SRS-SEA-A-7																											
625	SRS-SEA-B-7																											
626	CUASEA-A-7																											
627	CUASEA-B-7																											
628	131-TDS-EA-7				0.0037		0.0317																					
629	131-TDS-3A-SOPER-7				0.0035		0.0336																					
630	BLEND 1-7						0.0167		0.0015		0.0022																	
631	BLEND 1-7 (2)																											
632	BLEND 1.6-7																											
633	BATCH 1-7						0.0172		0.0011		0.0015																	
634	BATCH 1-7 (2)																											
635	BATCH 1-1.6																											
636	BATCH 2-7						0.0141		0.0017		0.0026																	
637	BATCH 2-7 (2)																											
638	BATCH 2-1.6																											
639	BATCH 3-7						0.0153		0.0012		0.0017																	
640	BATCH 3-7 (2)																											
641	BATCH 3-7 (3)																											
642	BATCH 4-7						0.0254		0.0020		0.0039																	
643	BATCH 4-7 (2)																											
644	BATCH 4-7 (3)																											
645	HM-1-7						0.0175		0.0022		0.0055																	
646	HM-1-7 (2)																											
647	HM-1.6-7																											
648	PUREX 1-7						0.0169		0.0008		0.0006																	
649	PUREX 1-7 (2)																											
650	PUREX 1.6-7																											
651	PUREX SRSS 1.6																											
652	PUREX SRST-4.0																											
653	PUREX CUA																											
654	BLEND 1-3457						0.0207																					
655	BLEND 1-3479						0.0211																					
656	BLEND 1-3498						0.0219																					

#	Glass ID	Sm2O3-a	SnO-a	SnO2-a	SO3-a	SrO-a	Tc2O7-a	TeO2-a	ThO2-a	TiO2-a	Tl2O-a	Tl2O3-a	U3O8-a	UO2-a	UO3-a	V2O5-a	WO3-a	Y2O3-a	ZnO-a	Sum-a	T_M (°C)	$T_{L,G}$ (°C)	$T_{L,U}$ (°C)	$T_{1\%}$ (°C)	Primary Phase	$C_{650°C}$	$C_{700°C}$	$C_{750°C}$
575	AH-202-AV-7									0.0137										0.9953								
576	AH-202 FE-7									0.0172										0.9970								
577	AH-1-7					0.0004				0.0133										1.0004								
578	AH-2-7					0.0004				0.0130										0.9983								
579	AH-4-7					0.0005				0.0130										0.9967								
580	AH-5-7									0.0131										0.9926								
581	AH-6-7					0.0004				0.0140										0.9933								
582	AH-7-7									0.0129										0.9972								
583	AH-8-7					0.0005				0.0132										0.9957								
584	AH-9-7					0.0005				0.0133										0.9941								
585	AH-10-7					0.0005				0.0130										0.9944								
586	AH-11-7					0.0004				0.0129										0.9886								
587	AH-12-7					0.0005				0.0133										0.9942								
588	AH-13-7					0.0005				0.0129										0.9823								
589	AH-14-7					0.0007				0.0132										0.9910								
590	AH-15-7					0.0006				0.0134										0.9873								
591	AH-16-7					0.0007				0.0130										0.9889								
592	AH-17-7					0.0003				0.0130										0.9910								
593	SFRIT1									0.0118										0.9952								
594	SFRIT2																			0.0000								
595	SFRIT3																			0.0000								
596	202P w/o Mn-7									0.0124										1.0028								
597	202G w/o Mn-7									0.0070										1.0172								
598	200R-7												0.0004							0.9669								
599	NBS SRM 623-7																			0.9990								
600	165 CGW STD-7																			0.9969								
601	ARM-1-7 (4/88)					0.0045				0.0321									0.0146	0.9883								
602	ARM-1-7 (5/89)																			0.0000								
603	ARM-1-7 (7/90)																			0.0000								
604	ARM-1-7 (12/90)																			0.0000								
605	ARM-1-7 (5/91)																			0.0000								
606	ARM-1-7 (10/91)																			0.0000								
607	ARM-1-7 (10/92)																			0.0000								
608	ARM-1-7 (4/93)																			0.0000								
609	ARM-1-7 (6/93)																			0.0000								
610	ARM-1-7 (8/93)																			0.0000								
611	ARM-1-7																			0.0000								
612	T-ARM-1																			0.0000								
613	SS-ARM-1																			0.0000								
614	SS-ARM-1																			0.0000								
615	EA-1-7									0.0070										0.9999								
616	EA-1-7																			0.0000								
617	EA-2-7																			0.0000								
618	EA-7																			0.0000								
619	T-EA																			0.0000								
620	SS-EA-19																			0.0000								
621	SS-EA-15																			0.0000								
622	SS-EA-1-7																			0.0000								
623	SS-EA-2-7																			0.0000								
624	SRS-SEA-A-7																			0.0000								
625	SRS-SEA-B-7																			0.0000								
626	CUASEA-A-7																			0.0000								
627	CUASEA-B-7																			0.0000								
628	131-TDS-EA-7					0.0001				0.0093										1.0088								
629	131-TDS-3A-SOPER-7									0.0074										1.0063								
630	BLEND 1-7									0.0089										0.9948								
631	BLEND 1-7 (2)																			0.0000								
632	BLEND 1.6-7																			0.0000								
633	BATCH 1-7									0.0068										0.9931								
634	BATCH 1-7 (2)																			0.0000								
635	BATCH 1-1.6																			0.0000								
636	BATCH 2-7									0.0069										0.9963								
637	BATCH 2-7 (2)																			0.0000								
638	BATCH 2-1.6																			0.0000								
639	BATCH 3-7									0.0068										0.9920								
640	BATCH 3-7 (2)																			0.0000								
641	BATCH 3-7 (3)																			0.0000								
642	BATCH 4-7									0.0103										0.9931								
643	BATCH 4-7 (2)																			0.0000								
644	BATCH 4-7 (3)																			0.0000								
645	HM-1-7									0.0056										0.9997								
646	HM-1-7 (2)																			0.0000								
647	HM-1.6-7																			0.0000								
648	PUREX 1-7									0.0068										0.9938								
649	PUREX 1-7 (2)																			0.0000								
650	PUREX 1.6-7																			0.0000								
651	PUREX SRSS 1.6																			0.0000								
652	PUREX SRST-4.0																			0.0000								
653	PUREX CUA																			0.0000								
654	BLEND 1-3457									0.0024										0.9620								
655	BLEND 1-3479									0.0022										0.9581								
656	BLEND 1-3498									0.0019										0.9588								

#	Glass ID	$C_{800°C}$	$C_{850°C}$	$C_{900°C}$	$C_{950°C}$	$C_{1000°C}$	$C_{1050°C}$	$C_{1100°C}$	$C_{1150°C}$	$C_{1200°C}$	Quenched Visual/OM	Quenched XRD	CCC XRD	ρ (g/cm³)	Fulc Visc A	Fulc Visc B	Fulc Visc To	Arrh Visc E	Arrh Visc F	T1 (°C)	V1 (Pa·s)
575	AH-202-AV-7																				
576	AH-202 FE-7																				
577	AH-1-7																				
578	AH-2-7																				
579	AH-4-7																				
580	AH-5-7																				
581	AH-6-7																				
582	AH-7-7																				
583	AH-8-7																				
584	AH-9-7																				
585	AH-10-7																				
586	AH-11-7																				
587	AH-12-7																				
588	AH-13-7																				
589	AH-14-7																				
590	AH-15-7																				
591	AH-16-7																				
592	AH-17-7																				
593	SFRIT1																				
594	SFRIT2																				
595	SFRIT3																				
596	202P w/o Mn-7																				
597	202G w/o Mn-7																				
598	200R-7																				
599	NBS SRM 623-7																				
600	165 CGW STD-7																				
601	ARM-1-7 (4/88)																				
602	ARM-1-7 (5/89)																				
603	ARM-1-7 (7/90)																				
604	ARM-1-7 (12/90)																				
605	ARM-1-7 (5/91)																				
606	ARM-1-7 (10/91)																				
607	ARM-1-7 (10/92)																				
608	ARM-1-7 (4/93)																				
609	ARM-1-7 (6/93)																				
610	ARM-1-7 (8/93)																				
611	ARM-1-7																				
612	T-ARM-1																				
613	SS-ARM-1																				
614	SS-ARM-1																				
615	EA-1-7																				
616	EA-1-7																				
617	EA-2-7																				
618	EA-7																				
619	T-EA																				
620	SS-EA-19																				
621	SS-EA-15																				
622	SS-EA-1-7																				
623	SS-EA-2-7																				
624	SRS-SEA-A-7																				
625	SRS-SEA-B-7																				
626	CUASEA-A-7																				
627	CUASEA-B-7																				
628	131-TDS-EA-7																				
629	131-TDS-3A-SOPER-7																				
630	BLEND 1-7																				
631	BLEND 1-7 (2)																				
632	BLEND 1.6-7																				
633	BATCH 1-7																				
634	BATCH 1-7 (2)																				
635	BATCH 1-1.6																				
636	BATCH 2-7																				
637	BATCH 2-7 (2)																				
638	BATCH 2-1.6																				
639	BATCH 3-7																				
640	BATCH 3-7 (2)																				
641	BATCH 3-7 (3)																				
642	BATCH 4-7																				
643	BATCH 4-7 (2)																				
644	BATCH 4-7 (3)																				
645	HM-1-7																				
646	HM-1-7 (2)																				
647	HM-1.6-7																				
648	PUREX 1-7																				
649	PUREX 1-7 (2)																				
650	PUREX 1.6-7																				
651	PUREX SRSS 1.6																				
652	PUREX SRST-4.0																				
653	PUREX CUA																				
654	BLEND 1-3457																				
655	BLEND 1-3479																				
656	BLEND 1-3498																				

#	Glass ID	T2 (°C)	V2 (Pa·s)	T3 (°C)	V3 (Pa·s)	T4 (°C)	V4 (Pa·s)	T5 (°C)	V5 (Pa·s)	T6 (°C)	V6 (Pa·s)	T7 (°C)	V7 (Pa·s)	T8 (°C)	V8 (Pa·s)	T9 (°C)	V9 (Pa·s)	T10 (°C)	V10 (Pa·s)	TCLP Ag	TCLP As	TCLP Ba	TCLP Cd	TCLP Cr	TCLP Ni	TCLP Pb
575	AH-202-AV-7																									
576	AH-202 FE-7																									
577	AH-1-7																									
578	AH-2-7																									
579	AH-4-7																									
580	AH-5-7																									
581	AH-6-7																									
582	AH-7-7																									
583	AH-8-7																									
584	AH-9-7																									
585	AH-10-7																									
586	AH-11-7																									
587	AH-12-7																									
588	AH-13-7																									
589	AH-14-7																									
590	AH-15-7																									
591	AH-16-7																									
592	AH-17-7																									
593	SFRIT1																									
594	SFRIT2																									
595	SFRIT3																									
596	202P w/o Mn-7																									
597	202G w/o Mn-7																									
598	200R-7																									
599	NBS SRM 623-7																									
600	165 CGW STD-7																									
601	ARM-1-7 (4/88)																									
602	ARM-1-7 (5/89)																									
603	ARM-1-7 (7/90)																									
604	ARM-1-7 (12/90)																									
605	ARM-1-7 (5/91)																									
606	ARM-1-7 (10/91)																									
607	ARM-1-7 (10/92)																									
608	ARM-1-7 (4/93)																									
609	ARM-1-7 (6/93)																									
610	ARM-1-7 (8/93)																									
611	ARM-1-7																									
612	T-ARM-1																									
613	SS-ARM-1																									
614	SS-ARM-1																									
615	EA-1-7																									
616	EA-1-7																									
617	EA-2-7																									
618	EA-7																									
619	T-EA																									
620	SS-EA-19																									
621	SS-EA-15																									
622	SS-EA-1-7																									
623	SS-EA-2-7																									
624	SRS-SEA-A-7																									
625	SRS-SEA-B-7																									
626	CUASEA-A-7																									
627	CUASEA-B-7																									
628	131-TDS-EA-7																									
629	131-TDS-3A-SOPER-7																									
630	BLEND 1-7																									
631	BLEND 1-7 (2)																									
632	BLEND 1.6-7																									
633	BATCH 1-7																									
634	BATCH 1-7 (2)																									
635	BATCH 1-1.6																									
636	BATCH 2-7																									
637	BATCH 2-7 (2)																									
638	BATCH 2-1.6																									
639	BATCH 3-7																									
640	BATCH 3-7 (2)																									
641	BATCH 3-7 (3)																									
642	BATCH 4-7																									
643	BATCH 4-7 (2)																									
644	BATCH 4-7 (3)																									
645	HM-1-7																									
646	HM-1-7 (2)																									
647	HM-1.6-7																									
648	PUREX 1-7																									
649	PUREX 1-7 (2)																									
650	PUREX 1.6-7																									
651	PUREX SRSS 1.6																									
652	PUREX SRST-4.0																									
653	PUREX CUA																									
654	BLEND 1-3457																									
655	BLEND 1-3479																									
656	BLEND 1-3498																									

#	Glass ID	TCLP Se	TCLP Zn	TCLP Al	TCLP B	TCLP Sb	TCLP Tl	TCLP V	Q PCT B (g/m²)	Q PCT Li (g/m²)	Q PCT Na (g/m²)	Q PCT Si (g/m²)	Q PCT pH	CCC PCT B (g/m²)	CCC PCT Li (g/m²)	CCC PCT Na (g/m²)	CCC PCT Si (g/m²)	CCC PCT pH	T1 (°C)
575	AH-202-AV-7								0.260	0.295	0.255	0.165	9.680						
576	AH-202 FE-7								1.580	1.275	1.355	0.555	10.120						
577	AH-1-7								0.290	0.355	0.365	0.220	10.610						
578	AH-2-7								0.475	0.475	0.435	0.120	9.950						
579	AH-4-7								0.265	0.305	0.315	0.190	10.430						
580	AH-5-7								0.210	0.260	0.245	0.150	10.350						
581	AH-6-7								0.345	0.365	0.350	0.195	10.610						
582	AH-7-7								0.220	0.245	0.225	0.125	9.970						
583	AH-8-7								0.250	0.275	0.245	0.150	10.050						
584	AH-9-7								0.220	0.255	0.230	0.140	10.190						
585	AH-10-7								0.215	0.260	0.215	0.155	10.060						
586	AH-11-7								0.235	0.285	0.225	0.135	9.800						
587	AH-12-7								0.425	0.305	0.365	0.095	10.120						
588	AH-13-7								0.215	0.260	0.235	0.145	10.330						
589	AH-14-7								0.260	0.290	0.305	0.155	10.660						
590	AH-15-7								0.215	0.240	0.225	0.120	10.180						
591	AH-16-7								0.210	0.240	0.220	0.140	10.120						
592	AH-17-7								0.180	0.225	0.185	0.145	10.090						
593	SFRIT1								0.375	0.345	0.355	0.095	9.740						
594	SFRIT2								0.365	0.350	0.350	0.175	10.090						
595	SFRIT3								0.380	0.410	0.435	0.215	10.210						
596	202P w/o Mn-7								0.320	0.255	0.370	0.195	9.950						
597	202G w/o Mn-7								0.195	0.195	0.260	0.175	9.790						
598	200R-7								0.575	0.485	0.505	0.230	10.540						
599	NBS SRM 623-7								0.055	0.005	0.075	0.045	8.480						
600	165 CGW STD-7								0.420	0.365	0.410	0.265	10.320						
601	ARM-1-7 (4/88)								0.290	0.375	0.345	0.175	10.130						
602	ARM-1-7 (5/89)								0.295	0.280	0.235	0.160	9.640						
603	ARM-1-7 (7/90)								0.240	0.285	0.255	0.140	10.220						
604	ARM-1-7 (12/90)								0.250	0.295	0.260	0.140	10.520						
605	ARM-1-7 (5/91)								0.270	0.315	0.270	0.145	10.420						
606	ARM-1-7 (10/91)								0.255	0.300	0.270	0.140	10.330						
607	ARM-1-7 (10/92)								0.220	0.250	0.225	0.130	10.160						
608	ARM-1-7 (4/93)								0.240	0.290	0.250	0.135	9.900						
609	ARM-1-7 (6/93)								0.235	0.260	0.240	0.130	9.890						
610	ARM-1-7 (8/93)								0.205	0.235	0.215	0.120	10.240						
611	ARM-1-7								0.255	0.300	0.255	0.135	9.380						
612	T-ARM-1								0.245	0.300	0.265	0.135	10.320						
613	SS-ARM-1								0.265	0.315	0.275	0.145	10.320						
614	SS-ARM-1								0.270	0.320	0.280	0.145	10.360						
615	EA-1-7								7.000	3.925	5.760	2.330	11.800						
616	EA-1-7								8.395	5.345	7.245	2.330	11.800						
617	EA-2-7								7.605	4.715	6.390	2.005	11.870						
618	EA-7								8.860	4.945	6.945	2.040	12.010						
619	T-EA								7.375	4.260	5.910	1.710	11.890						
620	SS-EA-19								8.205	4.560	6.545	1.750	11.920						
621	SS-EA-15								8.395	4.870	6.800	1.855	11.950						
622	SS-EA-1-7								9.250	5.140	7.165	2.090	11.780						
623	SS-EA-2-7								8.880	4.885	6.860	2.005	11.750						
624	SRS-SEA-A-7								8.225	4.670	6.425	1.895	11.780						
625	SRS-SEA-B-7								8.495	4.560	6.755	1.960	11.780						
626	CUASEA-A-7								8.425	4.835	6.475	1.935	11.770						
627	CUASEA-B-7								8.230	4.605	6.710	1.965	11.770						
628	131-TDS-EA-7								2.215	1.925	2.140	1.190	10.590						
629	131-TDS-3A-SOPER-7								1.405	1.225	1.150	0.445	10.570						
630	BLEND 1-7								0.360	0.405	0.390	0.205	10.220						
631	BLEND 1-7 (2)								0.390	0.400	0.395	0.210	10.450						
632	BLEND 1.6-7								0.360	0.380	0.375	0.210	10.170						
633	BATCH 1-7								0.365	0.405	0.400	0.210	10.310						
634	BATCH 1-7 (2)								0.365	0.380	0.375	0.205	10.470						
635	BATCH 1-1.6								0.355	0.380	0.370	0.215	10.190						
636	BATCH 2-7								0.330	0.385	0.365	0.200	10.180						
637	BATCH 2-7 (2)								0.335	0.360	0.345	0.200	10.420						
638	BATCH 2-1.6								0.320	0.355	0.335	0.200	10.090						
639	BATCH 3-7								0.430	0.450	0.445	0.230	10.310						
640	BATCH 3-7 (2)								0.445	0.425	0.425	0.235	10.370						
641	BATCH 3-7 (3)								0.425	0.425	0.415	0.240	10.110						
642	BATCH 4-7								0.485	0.500	0.500	0.250	10.200						
643	BATCH 4-7 (2)								0.450	0.445	0.435	0.230	10.430						
644	BATCH 4-7 (3)								0.470	0.470	0.470	0.250	10.240						
645	HM-1-7								0.230	0.310	0.245	0.150	10.090						
646	HM-1-7 (2)								0.230	0.285	0.230	0.150	10.280						
647	HM-1.6-7								0.215	0.280	0.220	0.155	9.870						
648	PUREX 1-7								1.095	0.930	1.045	0.405	10.600						
649	PUREX 1-7 (2)								0.985	0.825	0.880	0.360	10.640						
650	PUREX 1.6-7								2.230	1.625	2.130	0.585	10.880						
651	PUREX SRSS 1.6								1.190	1.020	1.040	0.430	10.630						
652	PUREX SRST-4.0								1.130	0.980	0.995	0.425	10.620						
653	PUREX CUA								1.425	1.185	1.210	0.480	10.750						
654	BLEND 1-3457								0.300	0.335	0.325	0.190	10.220						
655	BLEND 1-3479								0.290	0.320	0.315	0.185	10.260						
656	BLEND 1-3498								0.315	0.350	0.335	0.195	10.310						

#	Glass ID	EC1 (S/cm)	T2 (°C)	EC2 (S/cm)	T3 (°C)	EC3 (S/cm)	T4 (°C)	EC4 (S/cm)	T5 (°C)	EC5 (S/cm)	T6 (°C)	EC6 (S/cm)	A	B	To
575	AH-202-AV-7														
576	AH-202 FE-7														
577	AH-1-7														
578	AH-2-7														
579	AH-4-7														
580	AH-5-7														
581	AH-6-7														
582	AH-7-7														
583	AH-8-7														
584	AH-9-7														
585	AH-10-7														
586	AH-11-7														
587	AH-12-7														
588	AH-13-7														
589	AH-14-7														
590	AH-15-7														
591	AH-16-7														
592	AH-17-7														
593	SFRIT1														
594	SFRIT2														
595	SFRIT3														
596	202P w/o Mn-7														
597	202G w/o Mn-7														
598	200R-7														
599	NBS SRM 623-7														
600	165 CGW STD-7														
601	ARM-1-7 (4/88)														
602	ARM-1-7 (5/89)														
603	ARM-1-7 (7/90)														
604	ARM-1-7 (12/90)														
605	ARM-1-7 (5/91)														
606	ARM-1-7 (10/91)														
607	ARM-1-7 (10/92)														
608	ARM-1-7 (4/93)														
609	ARM-1-7 (6/93)														
610	ARM-1-7 (8/93)														
611	ARM-1-7														
612	T-ARM-1														
613	SS-ARM-1														
614	SS-ARM-1														
615	EA-1-7														
616	EA-1-7														
617	EA-2-7														
618	EA-7														
619	T-EA														
620	SS-EA-19														
621	SS-EA-15														
622	SS-EA-1-7														
623	SS-EA-2-7														
624	SRS-SEA-A-7														
625	SRS-SEA-B-7														
626	CUASEA-A-7														
627	CUASEA-B-7														
628	131-TDS-EA-7														
629	131-TDS-3A-SOPER-7														
630	BLEND 1-7														
631	BLEND 1-7 (2)														
632	BLEND 1.6-7														
633	BATCH 1-7														
634	BATCH 1-7 (2)														
635	BATCH 1-1.6														
636	BATCH 2-7														
637	BATCH 2-7 (2)														
638	BATCH 2-1.6														
639	BATCH 3-7														
640	BATCH 3-7 (2)														
641	BATCH 3-7 (3)														
642	BATCH 4-7														
643	BATCH 4-7 (2)														
644	BATCH 4-7 (3)														
645	HM-1-7														
646	HM-1-7 (2)														
647	HM-1.6-7														
648	PUREX 1-7														
649	PUREX 1-7 (2)														
650	PUREX 1.6-7														
651	PUREX SRSS 1.6														
652	PUREX SRST-4.0														
653	PUREX CUA														
654	BLEND 1-3457														
655	BLEND 1-3479														
656	BLEND 1-3498														

#	Glass ID	Study	Reference	Al2O3-t	B2O3-t	CaO-t	Fe2O3-t	FeO-t	K2O-t	Li2O-t	MgO-t	Na2O-t	NiO-t	P2O5-t	SiO2-t	ZrO2-t	Ag2O-t	As2O3-t	As2O5-t	BaO-t	BeO-t	Bi2O3-t	Br-t	CdO-t	Ce2O3-t	CeO2-t	Cl-t
657	BLEND 1-3510	DWPF PCT Model	Jantzen et al. 1995	0.0544	0.0705	0.0111	0.1313	0.0009	0.0303	0.0421	0.0127	0.1091	0.0091	0.0000	0.4986	0.0000				0.0009					0.0000		
658	BLEND 1-3526	DWPF PCT Model	Jantzen et al. 1995	0.0517	0.0730	0.0109	0.1264	0.0010	0.0298	0.0428	0.0127	0.1105	0.0098	0.0000	0.5025	0.0000				0.0009					0.0000		
659	BLEND 2-3611	DWPF PCT Model	Jantzen et al. 1995	0.0523	0.0684	0.0099	0.1232	0.0000	0.0242	0.0433	0.0134	0.1039	0.0098	0.0000	0.5230	0.0000				0.0009					0.0000		
660	BLEND 2-3622	DWPF PCT Model	Jantzen et al. 1995	0.0508	0.0700	0.0092	0.1201	0.0000	0.0241	0.0438	0.0133	0.1044	0.0097	0.0000	0.5264	0.0000				0.0009					0.0000		
661	BLEND 2-3635	DWPF PCT Model	Jantzen et al. 1995	0.0512	0.0696	0.0093	0.1174	0.0000	0.0247	0.0440	0.0134	0.1051	0.0095	0.0000	0.5276	0.0000				0.0009					0.0000		
662	BLEND 2-3654	DWPF PCT Model	Jantzen et al. 1995	0.0499	0.0694	0.0090	0.1181	0.0000	0.0250	0.0436	0.0132	0.1073	0.0098	0.0000	0.5264	0.0000				0.0009					0.0000		
663	BLEND 2-3666	DWPF PCT Model	Jantzen et al. 1995	0.0502	0.0701	0.0090	0.1191	0.0000	0.0238	0.0442	0.0135	0.1061	0.0097	0.0000	0.5256	0.0000				0.0009					0.0000		
664	BLEND 2-3676	DWPF PCT Model	Jantzen et al. 1995	0.0494	0.0707	0.0087	0.1169	0.0000	0.0235	0.0445	0.0134	0.1058	0.0096	0.0000	0.5296	0.0000				0.0009					0.0000		
665	BLEND 3-3768	DWPF PCT Model	Jantzen et al. 1995	0.0509	0.0710	0.0092	0.1176	0.0011	0.0234	0.0450	0.0141	0.1069	0.0098	0.0000	0.5198	0.0006				0.0012					0.0000		
666	BLEND 3-3789	DWPF PCT Model	Jantzen et al. 1995	0.0542	0.0719	0.0104	0.1254	0.0011	0.0254	0.0438	0.0143	0.1067	0.0101	0.0000	0.5041	0.0004				0.0014					0.0000		
667	BLEND 3-3793	DWPF PCT Model	Jantzen et al. 1995	0.0562	0.0721	0.0111	0.1307	0.0010	0.0267	0.0427	0.0142	0.1069	0.0101	0.0000	0.4946	0.0004				0.0014					0.0000		
668	BLEND 3-3802B	DWPF PCT Model	Jantzen et al. 1995	0.0561	0.0717	0.0108	0.1304	0.0025	0.0277	0.0428	0.0143	0.1032	0.0099	0.0000	0.4971	0.0004				0.0014					0.0000		
669	HM 1-3824	DWPF PCT Model	Jantzen et al. 1995	0.0576	0.0696	0.0094	0.1091	0.0022	0.0194	0.0458	0.0163	0.0993	0.0079	0.0000	0.5327	0.0002				0.0010					0.0000		
670	HM 1-3829	DWPF PCT Model	Jantzen et al. 1995	0.0615	0.0680	0.0092	0.1102	0.0019	0.0170	0.0457	0.0164	0.0953	0.0079	0.0000	0.5348	0.0004				0.0010					0.0000		
671	HM 1-3851	DWPF PCT Model	Jantzen et al. 1995	0.0624	0.0669	0.0094	0.1073	0.0018	0.0145	0.0456	0.0166	0.1012	0.0078	0.0000	0.5342	0.0004				0.0010					0.0000		
672	HM 1-3855	DWPF PCT Model	Jantzen et al. 1995	0.0664	0.0662	0.0086	0.0990	0.0021	0.0139	0.0461	0.0165	0.1021	0.0069	0.0000	0.5397	0.0002				0.0010					0.0000		
673	HM-2-1 (3979C)	DWPF PCT Model	Jantzen et al. 1995	0.0750	0.0664	0.0075	0.0992	0.0000	0.0159	0.0439	0.0154	0.1017	0.0068	0.0000	0.5289	0.0008				0.0009					0.0000		
674	HM-2-2 (4099A)	DWPF PCT Model	Jantzen et al. 1995	0.0769	0.0666	0.0072	0.0989	0.0000	0.0182	0.0435	0.0151	0.1037	0.0066	0.0000	0.5235	0.0006				0.0009					0.0000		
675	HM-2-3 (4120B)	DWPF PCT Model	Jantzen et al. 1995	0.0748	0.0674	0.0070	0.0938	0.0000	0.0194	0.0463	0.0153	0.1052	0.0060	0.0000	0.5270	0.0008				0.0010					0.0000		
676	HM-3-1 (4176)	DWPF PCT Model	Jantzen et al. 1995	0.0774	0.0646	0.0068	0.0951	0.0000	0.0217	0.0416	0.0148	0.1082	0.0058	0.0000	0.5281	0.0006				0.0007					0.0000		
677	HM-3-2 (4225)	DWPF PCT Model	Jantzen et al. 1995	0.0858	0.0669	0.0074	0.1001	0.0000	0.0221	0.0426	0.0154	0.1057	0.0059	0.0000	0.5093	0.0006				0.0009					0.0000		
678	HM-3-3 (4357)	DWPF PCT Model	Jantzen et al. 1995	0.0907	0.0670	0.0078	0.1041	0.0000	0.0226	0.0421	0.0158	0.1008	0.0060	0.0000	0.5027	0.0008				0.0009					0.0000		
679	HM-4-1 (5260)	DWPF PCT Model	Jantzen et al. 1995	0.0528	0.0996	0.0050	0.0845	0.0000	0.0235	0.0446	0.0088	0.0946	0.0062	0.0000	0.5414	0.0119				0.0005					0.0000		
680	HM-4-2 (5641)	DWPF PCT Model	Jantzen et al. 1995	0.0626	0.0919	0.0050	0.0794	0.0000	0.0269	0.0431	0.0105	0.0928	0.0098	0.0002	0.5396	0.0069				0.0005					0.0000		
681	HM-4-3 (5748)	DWPF PCT Model	Jantzen et al. 1995	0.0566	0.0880	0.0049	0.0727	0.0000	0.0279	0.0444	0.0117	0.0934	0.0052	0.0000	0.5631	0.0045				0.0005					0.0000		
682	PX 1-1 (4643)	DWPF PCT Model	Jantzen et al. 1995	0.0533	0.0742	0.0148	0.1071	0.0000	0.0293	0.0436	0.0148	0.0991	0.0162	0.0000	0.5003	0.0008				0.0019					0.0000		
683	PX 1-2 (4726)	DWPF PCT Model	Jantzen et al. 1995	0.0490	0.0726	0.0148	0.1103	0.0000	0.0299	0.0428	0.0142	0.0989	0.0169	0.0002	0.4995	0.0008				0.0019					0.0000		
684	PX 1-3 (4776)	DWPF PCT Model	Jantzen et al. 1995	0.0435	0.0727	0.0133	0.0999	0.0000	0.0277	0.0450	0.0147	0.0958	0.0157	0.0000	0.5256	0.0008				0.0017					0.0000		
685	PX 2-1 (4455)	DWPF PCT Model	Jantzen et al. 1995	0.0846	0.0682	0.0079	0.0946	0.0000	0.0214	0.0431	0.0158	0.1038	0.0063	0.0000	0.5153	0.0006				0.0009					0.0000		
686	PX 2-2 (4509)	DWPF PCT Model	Jantzen et al. 1995	0.0696	0.0719	0.0114	0.1100	0.0000	0.0248	0.0432	0.0155	0.0955	0.0118	0.0000	0.5020	0.0006				0.0014					0.0000		
687	PX 2-3 (4566)	DWPF PCT Model	Jantzen et al. 1995	0.0601	0.0744	0.0146	0.1095	0.0000	0.0303	0.0431	0.0151	0.0989	0.0152	0.0000	0.4907	0.0008				0.0019					0.0000		
688	PX 3-1 (5780)	DWPF PCT Model	Jantzen et al. 1995	0.0409	0.0793	0.0066	0.0875	0.0000	0.0234	0.0463	0.0138	0.0851	0.0071	0.0002	0.5762	0.0070				0.0005					0.0000		
689	PX 3-2 (5818)	DWPF PCT Model	Jantzen et al. 1995	0.0374	0.0770	0.0070	0.0953	0.0000	0.0221	0.0464	0.0142	0.0817	0.0076	0.0002	0.5765	0.0070				0.0007					0.0000		
690	PX 3-3 (5880)	DWPF PCT Model	Jantzen et al. 1995	0.0310	0.0729	0.0072	0.0989	0.0000	0.0229	0.0474	0.0149	0.0886	0.0085	0.0000	0.5723	0.0089				0.0007					0.0000		
691	PX 4-1 (6390)	DWPF PCT Model	Jantzen et al. 1995	0.0291	0.0819	0.0085	0.1063	0.0000	0.0268	0.0501	0.0169	0.0898	0.0096	0.0007	0.5423	0.0085				0.0007					0.0000		
692	PX 4-2 (6434)	DWPF PCT Model	Jantzen et al. 1995	0.0264	0.0819	0.0092	0.1079	0.0000	0.0279	0.0489	0.0170	0.0886	0.0100	0.0004	0.5433	0.0083				0.0007					0.0000		
693	PX 4-3 (6458)	DWPF PCT Model	Jantzen et al. 1995	0.0262	0.0824	0.0091	0.1082	0.0003	0.0272	0.0494	0.0173	0.0850	0.0101	0.0007	0.5454	0.0077				0.0010					0.0000		
694	PX 5-1 (6787)	DWPF PCT Model	Jantzen et al. 1995	0.0338	0.0823	0.0083	0.0970	0.0000	0.0230	0.0498	0.0172	0.0854	0.0114	0.0000	0.5548	0.0066				0.0010					0.0000		
695	PX 5-2 (6795)	DWPF PCT Model	Jantzen et al. 1995	0.0358	0.0798	0.0092	0.1124	0.0000	0.0286	0.0447	0.0155	0.1164	0.0135	0.0000	0.4998	0.0095				0.0009					0.0000		
696	PX 5-3 (6812)	DWPF PCT Model	Jantzen et al. 1995	0.0342	0.0801	0.0096	0.1197	0.0000	0.0333	0.0432	0.0149	0.1323	0.0131	0.0000	0.4761	0.0075				0.0009					0.0000		
697	PX 5-4 (6820)	DWPF PCT Model	Jantzen et al. 1995	0.0322	0.0795	0.0094	0.1138	0.0000	0.0329	0.0446	0.0151	0.1330	0.0129	0.0000	0.4838	0.0072				0.0009					0.0000		
698	PX 5-5 (6839)	DWPF PCT Model	Jantzen et al. 1995	0.0304	0.0775	0.0093	0.1092	0.0000	0.0330	0.0437	0.0152	0.1373	0.0123	0.0000	0.4881	0.0093				0.0009					0.0000		
699	PX 5-6 (6862)	DWPF PCT Model	Jantzen et al. 1995	0.0283	0.0806	0.0083	0.0955	0.0000	0.0287	0.0463	0.0157	0.1291	0.0116	0.0000	0.5166	0.0081				0.0007					0.0000		
700	PX 5-7 (6871)	DWPF PCT Model	Jantzen et al. 1995	0.0265	0.0839	0.0080	0.0914	0.0000	0.0278	0.0470	0.0159	0.1316	0.0104	0.0000	0.5201	0.0078				0.0007					0.0000		
701	PX 5-8 (6884)	DWPF PCT Model	Jantzen et al. 1995	0.0279	0.0948	0.0082	0.0948	0.0000	0.0303	0.0443	0.0152	0.1365	0.0120	0.0000	0.4971	0.0079				0.0007					0.0000		
702	PX 5-9 (6960)	DWPF PCT Model	Jantzen et al. 1995	0.0268	0.1087	0.0076	0.0916	0.0000	0.0294	0.0438	0.0145	0.1364	0.0112	0.0000	0.4928	0.0075				0.0007					0.0000		
703	PX 5-10 (6972)	DWPF PCT Model	Jantzen et al. 1995	0.0266	0.1095	0.0075	0.0872	0.0000	0.0279	0.0439	0.0145	0.1354	0.0111	0.0000	0.5000	0.0072				0.0007					0.0000		
704	PX 6-1 (7340)	DWPF PCT Model	Jantzen et al. 1995	0.0207	0.0863	0.0084	0.0991	0.0000	0.0281	0.0487	0.0159	0.1090	0.0114	0.0000	0.5336	0.0101				0.0007					0.0000		
705	BATCH 1 STUDY-6-7	DWPF PCT Model	Jantzen et al. 1995	0.0256	0.1144	0.0053	0.0260	0.0163	0.0771	0.0467	0.0137	0.0912	0.0028	0.0002	0.5432	0.0016				0.0020					0.0000		
706	BATCH 1 STUDY-10B-7	DWPF PCT Model	Jantzen et al. 1995	0.0270	0.0990	0.0016	0.0278	0.0156	0.0421	0.0526	0.0160	0.0823	0.0026	0.0000	0.6038	0.0020				0.0015					0.0000		
707	BATCH 1 STUDY-15-7	DWPF PCT Model	Jantzen et al. 1995	0.0256	0.0810	0.0056	0.0320	0.0112	0.0225	0.0563	0.0170	0.0723	0.0027	0.0000	0.6528	0.0019				0.0010					0.0000		
708	H-GLAS-0112	DWPF PCT Model	Jantzen et al. 1995	0.0407	0.0826	0.0133	0.0984	0.0000	0.0159	0.0462	0.0136	0.0938	0.0145	0.0007	0.5295	0.0062				0.0017					0.0000		
709	H-GLAS-0130	DWPF PCT Model	Jantzen et al. 1995	0.0386	0.0945	0.0126	0.0945	0.0006	0.0162	0.0471	0.0116	0.0887	0.0131	0.0009	0.5374	0.0062				0.0014					0.0000		
710	H-GLAS-0162	DWPF PCT Model	Jantzen et al. 1995	0.0324	0.1161	0.0078	0.0859	0.0002	0.0082	0.0479	0.0069	0.0799	0.0100	0.0009	0.5458	0.0261				0.0010					0.0000		
711	H-GLAS-0244	DWPF PCT Model	Jantzen et al. 1995	0.0435	0.0940	0.0100	0.1102	0.0004	0.0144	0.0453	0.0100	0.0928	0.0091	0.0007	0.5236	0.0133				0.0009					0.0000		
712	H-GLAS-0254	DWPF PCT Model	Jantzen et al. 1995	0.0319	0.1216	0.0068	0.0827	0.0000	0.0066	0.0486	0.0059	0.0769	0.0092	0.0011	0.5529	0.0283				0.0010					0.0000		
713	H-GLAS-0278	DWPF PCT Model	Jantzen et al. 1995	0.0322	0.1187	0.0057	0.0889	0.0000	0.0060	0.0472	0.0054	0.0763	0.0085	0.0009	0.5543	0.0293				0.0007					0.0000		
714	H-GLAS-0293	DWPF PCT Model	Jantzen et al. 1995	0.0292	0.1229	0.0056	0.0938	0.0006	0.0063	0.0480	0.0050	0.0813	0.0085	0.0011	0.5559	0.0158				0.0007					0.0000		
715	H-GLAS-0308	DWPF PCT Model	Jantzen et al. 1995	0.0310	0.1264	0.0058	0.0841	0.0002	0.0051	0.0503	0.0046	0.0791	0.0101	0.0011	0.5417	0.0323				0.0007					0.0000		
716	H-GLAS-0334	DWPF PCT Model	Jantzen et al. 1995	0.0306	0.1296	0.0052	0.0968	0.0000	0.0047	0.0492	0.0043	0.0805	0.0093	0.0009	0.5457	0.0175				0.0007					0.0000		
717	H-GLAS-0352	DWPF PCT Model	Jantzen et al. 1995	0.0290	0.1318	0.0047	0.0931	0.0000	0.0041	0.0494	0.0034	0.0791	0.0095	0.0009	0.5356	0.0353				0.0007					0.0000		
718	H-GLAS-0387	DWPF PCT Model	Jantzen et al. 1995	0.0283	0.1360	0.0040	0.0805	0.0000	0.0032	0.0499	0.0029	0.0764	0.0080	0.0009	0.5496	0.0371				0.0007					0.0000		
719	H-GLAS-0421	DWPF PCT Model	Jantzen et al. 1995	0.0303	0.1376	0.0043	0.0891	0.0000	0.0030	0.0508	0.0028	0.0797	0.0085	0.0009	0.5510	0.0191				0.0007					0.0000		
720	H-GLAS-0466	DWPF PCT Model	Jantzen et al. 1995	0.0285	0.1373	0.0039	0.0921	0.0000	0.0032	0.0502	0.0024	0.0789	0.0075	0.0009	0.5345	0.0379				0.0007					0.0000		
721	FRIT-202-CLEAR	DWPF PCT Model	Jantzen et al. 1995	0.0039	0.0776	0.0010	0.0000	0.0000	0.0012	0.0656	0.0189	0.0576	0.0000	0.0000	0.7654	0.0000				0.0000					0.0000		
722	FRIT-202-INT	DWPF PCT Model	Jantzen et al. 1995	0.0039	0.0776	0.0010	0.0000	0.0000	0.0012	0.0656	0.0189	0.0576	0.0000	0.0000	0.7654	0.0000				0.0000					0.0000		
723	FRIT-202-WHITE	DWPF PCT Model	Jantzen et al. 1995	0.0039	0.0776	0.0010	0.0000	0.0000	0.0012	0.0656	0.0189	0.0576	0.0000	0.0000	0.7654	0.0000				0.0000					0.0000		
724	FRIT-165-7	DWPF PCT Model	Jantzen et al. 1995	0.0000	0.0939	0.0000	0.0000	0.0000	0.0000	0.0701	0.0100	0.1224	0.0000	0.0000	0.6937	0.0099				0.0000					0.0000		
725	FRIT-131-7	DWPF PCT Model	Jantzen et al. 1995	0.0036	0.1511	0.0009	0.0005	0.0000	0.0019	0.0539	0.0178	0.1977	0.0010	0.0000	0.5473	0.0048				0.0000					0.0000		
726	MG 9-7	DWPF PCT Model	Jantzen et al. 1995	0.0020	0.0563	0.0925	0.0000	0.0000	0.0000	0.0000	0.0000	0.2597	0.0000	0.0000	0.5894	0.0000				0.0000					0.0000		
727	MG 18-7	DWPF PCT Model	Jantzen et al. 1995	0.0094	0.1610	0.0933	0.0000	0.0000	0.0000	0.0000	0.0000	0.2585	0.0000	0.0000	0.4779	0.0000				0.0000					0.0000		
728	MG 25-7	DWPF PCT Model	Jantzen et al. 1995	0.1296	0.1371	0.0301	0.0823	0.0116	0.0000	0.0000	0.0000	0.1547	0.0000	0.0000	0.4545	0.0000				0.0000					0.0000		
729	MG 28-7	DWPF PCT Model	Jantzen et al. 1995	0.1463	0.0923	0.0000	0.1119	0.0215	0.0000	0.0000	0.0000	0.1685	0.0000	0.0000	0.4594	0.0000				0.0000					0.0000		
730	PBG3/Ce	Plutonium Vitrification	Bulkley and Vienna 1997	0.0500	0.0600	0.0490	0.0160		0.0300	0.0400	0.0200	0.1000	0.0050	0.0030	0.4500	0.0300				0.0022						0.0450	0.0050
731	PBG3/0x	Plutonium Vitrification	Bulkley and Vienna 1997	0.0500	0.0600	0.0490	0.0160		0.0300	0.0400	0.0200	0.1000	0.0050	0.0030	0.4500	0.0300				0.0022						0.0450	0.0050
732	PBG3-.5C	Plutonium Vitrification	Bulkley and Vienna 1997	0.0500	0.0600	0.0490	0.0160		0.0300	0.0400	0.0200	0.1000	0.0050	0.0030	0.4500	0.0300				0.0022						0.0450	0.0050
733	SRC-Al-1	Plutonium Vitrification	Bulkley and Vienna 1997	0.0000	0.0632	0.0516	0.0168		0.0316	0.0421	0.0211	0.1053	0.0053	0.0032	0.4737	0.0316				0.0023						0.0474	0.0053
734	SRC-Al-2	Plutonium Vitrification	Bulkley and Vienna 1997	0.1000	0.0568	0.0464	0.0152		0.0284	0.0379	0.0189	0.0947	0.0047	0.0028	0.4263	0.0284				0.0021						0.0426	0.0047
735	SRC-B-1	Plutonium Vitrification	Bulkley and Vienna 1997	0.0532	0.0000	0.0521	0.0170		0.0319	0.0426	0.0213	0.1064	0.0053	0.0032	0.4787	0.0319				0.0023						0.0479	0.0053
736	SRC-B-2	Plutonium Vitrification	Bulkley and Vienna 1997	0.0511	0.0400	0.0500	0.0163		0.0306	0.0409	0.0204	0.1021	0.0051	0.0031	0.4596	0.0306				0.0022						0.0460	0.0051
737	SRC-B-3	Plutonium Vitrification	Bulkley and Vienna 1997	0.0468	0.1200	0.0459	0.0150		0.0281	0.0374	0.0187	0.0936	0.0047	0.0028	0.4213	0.0281				0.0021						0.0421	0.0047
738	SRC-Ca-1	Plutonium Vitrification	Bulkley and Vienna 1997	0.0526	0.0631	0.0000	0.0168		0.0315	0.0421	0.0210	0.1052	0.0053	0.0032	0.4732	0.0315				0.0023						0.0473	0.0053

#	Glass ID	CoO-t	Co2O3-t	Cr2O3-t	Cs2O-t	CuO-t	Dy2O3-t	Eu2O3-t	F-t	Ga2O3-t	Gd2O3-t	HfO2-t	HgO-t	I-t	La2O3-t	MnO2-t	MnO-t	MoO-t	MoO2-t	MoO3-t	Nb2O5-t	Nd2O3-t	NpO2-t	PbO-t	PdO2-t	PdO-t	Pr2O3-t	Pr6O11-t	Rb2O-t	ReO-t
657	BLEND 1-3510			0.0023	0.0000	0.0019									0.0000		0.0229			0.0000		0.0000		0.0000						
658	BLEND 1-3526			0.0021	0.0000	0.0018									0.0000		0.0223			0.0000		0.0000		0.0000						
659	BLEND 2-3611			0.0026	0.0000	0.0017									0.0000		0.0218			0.0000		0.0000		0.0000						
660	BLEND 2-3622			0.0023	0.0000	0.0017									0.0000		0.0218			0.0000		0.0000		0.0000						
661	BLEND 2-3635			0.0023	0.0000	0.0017									0.0000		0.0216			0.0000		0.0000		0.0000						
662	BLEND 2-3654			0.0023	0.0000	0.0017									0.0000		0.0218			0.0000		0.0000		0.0000						
663	BLEND 2-3666			0.0026	0.0000	0.0017									0.0000		0.0220			0.0000		0.0000		0.0000						
664	BLEND 2-3676			0.0024	0.0000	0.0017									0.0000		0.0215			0.0000		0.0000		0.0000						
665	BLEND 3-3768			0.0031	0.0000	0.0020									0.0000		0.0230			0.0000		0.0000		0.0000						
666	BLEND 3-3789			0.0026	0.0000	0.0021									0.0000		0.0250			0.0000		0.0000		0.0000						
667	BLEND 3-3793			0.0025	0.0000	0.0023									0.0000		0.0258			0.0000		0.0000		0.0000						
668	BLEND 3-3802B			0.0025	0.0000	0.0022									0.0000		0.0258			0.0000		0.0000		0.0000						
669	HM 1-3824			0.0024	0.0000	0.0015									0.0000		0.0247			0.0000		0.0000		0.0000						
670	HM 1-3829			0.0024	0.0000	0.0015									0.0000		0.0260			0.0000		0.0000		0.0000						
671	HM 1-3851			0.0024	0.0000	0.0015									0.0000		0.0261			0.0000		0.0000		0.0000						
672	HM 1-3855			0.0021	0.0000	0.0014									0.0000		0.0269			0.0000		0.0000		0.0000						
673	HM-2-1 (3979C)			0.0049	0.0000	0.0014									0.0000		0.0273			0.0000		0.0000		0.0007						
674	HM-2-2 (4099A)			0.0047	0.0000	0.0015									0.0000		0.0275			0.0000		0.0000		0.0007						
675	HM-2-3 (4120B)			0.0040	0.0000	0.0014									0.0000		0.0266			0.0000		0.0000		0.0007						
676	HM-3-1 (4176)			0.0040	0.0000	0.0015									0.0000		0.0256			0.0000		0.0000		0.0003						
677	HM-3-2 (4225)			0.0040	0.0000	0.0016									0.0000		0.0280			0.0000		0.0000		0.0003						
678	HM-3-3 (4357)			0.0042	0.0000	0.0016									0.0000		0.0293			0.0000		0.0000		0.0003						
679	HM-4-1 (5260)			0.0045	0.0000	0.0010									0.0000		0.0150			0.0007		0.0000		0.0010						
680	HM-4-2 (5641)			0.0066	0.0000	0.0020									0.0000		0.0165			0.0004		0.0000		0.0007						
681	HM-4-3 (5748)			0.0038	0.0000	0.0019									0.0000		0.0165			0.0002		0.0000		0.0004						
682	PX 1-1 (4643)			0.0047	0.0000	0.0031									0.0000		0.0315			0.0000		0.0000		0.0017						
683	PX 1-2 (4726)			0.0054	0.0000	0.0032									0.0000		0.0322			0.0000		0.0000		0.0017						
684	PX 1-3 (4776)			0.0052	0.0000	0.0028									0.0000		0.0284			0.0000		0.0000		0.0017						
685	PX 2-1 (4455)			0.0040	0.0000	0.0016									0.0000		0.0281			0.0000		0.0000		0.0003						
686	PX 2-2 (4509)			0.0047	0.0000	0.0023									0.0000		0.0304			0.0000		0.0000		0.0010						
687	PX 2-3 (4566)			0.0047	0.0000	0.0028									0.0000		0.0326			0.0000		0.0000		0.0014						
688	PX 3-1 (5780)			0.0034	0.0000	0.0019									0.0000		0.0167			0.0000		0.0000		0.0004						
689	PX 3-2 (5818)			0.0034	0.0000	0.0019									0.0000		0.0168			0.0002		0.0000		0.0007						
690	PX 3-3 (5880)			0.0031	0.0000	0.0019									0.0000		0.0164			0.0000		0.0000		0.0007						
691	PX 4-1 (6390)			0.0036	0.0000	0.0029									0.0000		0.0173			0.0000		0.0000		0.0011						
692	PX 4-2 (6434)			0.0036	0.0000	0.0034									0.0000		0.0172			0.0000		0.0000		0.0010						
693	PX 4-3 (6458)			0.0038	0.0000	0.0035									0.0000		0.0172			0.0002		0.0000		0.0011						
694	PX 5-1 (6787)			0.0041	0.0004	0.0030									0.0000		0.0159			0.0000		0.0005		0.0014						
695	PX 5-2 (6795)			0.0037	0.0004	0.0039									0.0000		0.0180			0.0000		0.0016		0.0017						
696	PX 5-3 (6812)			0.0035	0.0009	0.0044									0.0000		0.0194			0.0000		0.0010		0.0014						
697	PX 5-4 (6820)			0.0042	0.0009	0.0043									0.0000		0.0185			0.0000		0.0010		0.0014						
698	PX 5-5 (6839)			0.0038	0.0004	0.0042									0.0000		0.0185			0.0000		0.0010		0.0014						
699	PX 5-6 (6862)			0.0043	0.0004	0.0036									0.0000		0.0163			0.0000		0.0011		0.0011						
700	PX 5-7 (6871)			0.0034	0.0004	0.0036									0.0000		0.0158			0.0000		0.0011		0.0011						
701	PX 5-8 (6884)			0.0050	0.0004	0.0037									0.0000		0.0161			0.0000		0.0005		0.0010						
702	PX 5-9 (6960)			0.0040	0.0004	0.0036									0.0000		0.0154			0.0000		0.0011		0.0010						
703	PX 5-10 (6972)			0.0045	0.0004	0.0035									0.0000		0.0149			0.0000		0.0011		0.0011						
704	PX 6-1 (7340)			0.0038	0.0000	0.0028									0.0000		0.0172			0.0002		0.0000		0.0014						
705	BATCH 1 STUDY-6-7			0.0005	0.0018	0.0078									0.0000		0.0076			0.0000		0.0000		0.0004						
706	BATCH 1 STUDY-10B-7			0.0005	0.0014	0.0035									0.0000		0.0074			0.0000		0.0022		0.0000						
707	BATCH 1 STUDY-15-7			0.0003	0.0005	0.0021									0.0000		0.0072			0.0000		0.0022		0.0000						
708	H-GLAS-0112			0.0045	0.0000	0.0026									0.0005		0.0255			0.0002		0.0000		0.0021						
709	H-GLAS-0130			0.0043	0.0000	0.0022									0.0000		0.0214			0.0007		0.0000		0.0021						
710	H-GLAS-0162			0.0043	0.0000	0.0014									0.0025		0.0129			0.0011		0.0000		0.0017						
711	H-GLAS-0244			0.0037	0.0000	0.0017									0.0010		0.0179			0.0007		0.0000		0.0017						
712	H-GLAS-0254			0.0038	0.0000	0.0011									0.0025		0.0113			0.0011		0.0000		0.0017						
713	H-GLAS-0278			0.0038	0.0000	0.0012									0.0025		0.0099			0.0013		0.0000		0.0017						
714	H-GLAS-0293			0.0038	0.0000	0.0010									0.0025		0.0100			0.0013		0.0000		0.0017						
715	H-GLAS-0308			0.0052	0.0000	0.0010									0.0025		0.0097			0.0016		0.0000		0.0017						
716	H-GLAS-0334			0.0045	0.0000	0.0007									0.0025		0.0091			0.0016		0.0000		0.0017						
717	H-GLAS-0352			0.0040	0.0000	0.0007									0.0025		0.0079			0.0016		0.0000		0.0017						
718	H-GLAS-0387			0.0040	0.0000	0.0006									0.0020		0.0070			0.0016		0.0000		0.0017						
719	H-GLAS-0421			0.0045	0.0000	0.0006									0.0020		0.0070			0.0016		0.0000		0.0017						
720	H-GLAS-0466			0.0038	0.0000	0.0007									0.0025		0.0066			0.0018		0.0000		0.0021						
721	FRIT-202-CLEAR			0.0000	0.0089	0.0000									0.0000		0.0000			0.0000		0.0000		0.0000						
722	FRIT-202-INT			0.0000	0.0089	0.0000									0.0000		0.0000			0.0000		0.0000		0.0000						
723	FRIT-202-WHITE			0.0000	0.0089	0.0000									0.0000		0.0000			0.0000		0.0000		0.0000						
724	FRIT-165-7			0.0000	0.0000	0.0000									0.0000		0.0000			0.0000		0.0000		0.0000						
725	FRIT-131-7			0.0000	0.0000	0.0000									0.0000		0.0015			0.0000		0.0052		0.0000						
726	MG 9-7			0.0000	0.0000	0.0000									0.0000		0.0000			0.0000		0.0000		0.0000						
727	MG 18-7			0.0000	0.0000	0.0000									0.0000		0.0000			0.0000		0.0000		0.0000						
728	MG 25-7			0.0000	0.0000	0.0000									0.0000		0.0000			0.0000		0.0000		0.0000						
729	MG 28-7			0.0000	0.0000	0.0000									0.0000		0.0000			0.0000		0.0000		0.0000						
730	PBG3/Ce			0.0040	0.0100	0.0004			0.0010		0.0450									0.0064		0.0080		0.0100						
731	PBG3/0x			0.0040	0.0100	0.0004			0.0010		0.0450									0.0064		0.0080		0.0100						
732	PBG3-.5C			0.0040	0.0100	0.0004			0.0010		0.0450									0.0064		0.0080		0.0100						
733	SRC-Al-1			0.0042	0.0105	0.0004			0.0011		0.0474									0.0067		0.0084		0.0105						
734	SRC-Al-2			0.0038	0.0095	0.0004			0.0009		0.0426									0.0061		0.0076		0.0095						
735	SRC-B-1			0.0043	0.0106	0.0004			0.0011		0.0479									0.0068		0.0085		0.0106						
736	SRC-B-2			0.0041	0.0102	0.0004			0.0010		0.0460									0.0065		0.0082		0.0102						
737	SRC-B-3			0.0037	0.0094	0.0004			0.0009		0.0421									0.0060		0.0075		0.0094						
738	SRC-Ca-1			0.0042	0.0105	0.0004			0.0011		0.0473									0.0067		0.0084		0.0105						

#	Glass ID	ReO2-t	Re2O7-t	Rh2O3-t	RhO2-t	RuO2-t	Ru2O3-t	Sb2O3-t	Sb2O5-t	SeO2-t	Sm2O3-t	SnO-t	SnO2-t	SO3-t	SrO-t	Tc2O7-t	TeO2-t	ThO2-t	TiO2-t	Tl2O-t	Tl2O3-t	U3O8-t	UO2-t	UO3-t	V2O5-t	WO3-t	Y2O3-t	ZnO-t	Sum-t	Al2O3-a
657	BLEND 1-3510														0.0000				0.0019								0.0000	0.0000	1.0000	0.0521
658	BLEND 1-3526														0.0000				0.0018								0.0000	0.0000	1.0000	0.0489
659	BLEND 2-3611														0.0000				0.0017								0.0000	0.0000	1.0000	0.0502
660	BLEND 2-3622														0.0000				0.0016								0.0000	0.0000	1.0000	0.0489
661	BLEND 2-3635														0.0000				0.0017								0.0000	0.0000	1.0000	0.0489
662	BLEND 2-3654														0.0000				0.0015								0.0000	0.0000	1.0000	0.0472
663	BLEND 2-3666														0.0000				0.0015								0.0000	0.0000	1.0000	0.0480
664	BLEND 2-3676														0.0000				0.0015								0.0000	0.0000	1.0000	0.0473
665	BLEND 3-3768														0.0000				0.0014								0.0000	0.0000	1.0000	0.0489
666	BLEND 3-3789														0.0000				0.0013								0.0000	0.0000	1.0000	0.0528
667	BLEND 3-3793														0.0000				0.0012								0.0000	0.0000	1.0000	0.0546
668	BLEND 3-3802B														0.0000				0.0012								0.0000	0.0000	1.0000	0.0539
669	HM 1-3824														0.0000				0.0009								0.0000	0.0000	1.0000	0.0558
670	HM 1-3829														0.0000				0.0010								0.0000	0.0000	1.0000	0.0600
671	HM 1-3851														0.0000				0.0009								0.0000	0.0000	1.0000	0.0608
672	HM 1-3855														0.0000				0.0009								0.0000	0.0000	1.0000	0.0650
673	HM-2-1 (3979C)														0.0014				0.0009								0.0000	0.0010	1.0000	0.0766
674	HM-2-2 (4099A)														0.0016				0.0012								0.0000	0.0010	1.0000	0.0782
675	HM-2-3 (4120B)														0.0015				0.0010								0.0000	0.0009	1.0000	0.0754
676	HM-3-1 (4176)														0.0014				0.0010								0.0000	0.0009	1.0000	0.0749
677	HM-3-2 (4225)														0.0014				0.0010								0.0000	0.0009	1.0000	0.0838
678	HM-3-3 (4357)														0.0016				0.0010								0.0000	0.0009	1.0000	0.0896
679	HM-4-1 (5260)														0.0008				0.0025								0.0000	0.0011	1.0000	0.0533
680	HM-4-2 (5641)														0.0008				0.0026								0.0000	0.0011	1.0000	0.0648
681	HM-4-3 (5748)														0.0008				0.0025								0.0000	0.0010	1.0000	0.0587
682	PX 1-1 (4643)														0.0003				0.0017								0.0000	0.0016	1.0000	0.0523
683	PX 1-2 (4726)														0.0003				0.0037								0.0000	0.0017	1.0000	0.0496
684	PX 1-3 (4776)														0.0002				0.0036								0.0000	0.0016	1.0000	0.0434
685	PX 2-1 (4455)														0.0014				0.0010								0.0000	0.0010	1.0000	0.0852
686	PX 2-2 (4509)														0.0008				0.0017								0.0000	0.0014	1.0000	0.0697
687	PX 2-3 (4566)														0.0005				0.0022								0.0000	0.0015	1.0000	0.0599
688	PX 3-1 (5780)														0.0005				0.0023								0.0000	0.0010	1.0000	0.0423
689	PX 3-2 (5818)														0.0005				0.0023								0.0000	0.0012	1.0000	0.0392
690	PX 3-3 (5880)														0.0003				0.0020								0.0000	0.0013	1.0000	0.0294
691	PX 4-1 (6390)														0.0002				0.0026								0.0000	0.0013	1.0000	0.0281
692	PX 4-2 (6434)														0.0002				0.0028								0.0000	0.0013	1.0000	0.0257
693	PX 4-3 (6458)														0.0002				0.0029								0.0000	0.0013	1.0000	0.0256
694	PX 5-1 (6787)														0.0002				0.0029								0.0000	0.0009	1.0000	0.0331
695	PX 5-2 (6795)														0.0003				0.0030								0.0000	0.0011	1.0000	0.0347
696	PX 5-3 (6812)														0.0003				0.0031								0.0000	0.0011	1.0000	0.0326
697	PX 5-4 (6820)														0.0003				0.0028								0.0000	0.0011	1.0000	0.0305
698	PX 5-5 (6839)														0.0003				0.0028								0.0000	0.0011	1.0000	0.0299
699	PX 5-6 (6862)														0.0002				0.0025								0.0000	0.0010	1.0000	0.0277
700	PX 5-7 (6871)														0.0002				0.0024								0.0000	0.0009	1.0000	0.0258
701	PX 5-8 (6884)														0.0002				0.0024								0.0000	0.0009	1.0000	0.0274
702	PX 5-9 (6960)														0.0002				0.0022								0.0000	0.0009	1.0000	0.0262
703	PX 5-10 (6972)														0.0000				0.0021								0.0000	0.0009	1.0000	0.0262
704	PX 6-1 (7340)														0.0000				0.0015								0.0000	0.0010	1.0000	0.0207
705	BATCH 1 STUDY-6-7														0.0002				0.0153								0.0000	0.0003	1.0000	0.0613
706	BATCH 1 STUDY-10B-7														0.0000				0.0104								0.0000	0.0005	1.0000	0.0265
707	BATCH 1 STUDY-15-7														0.0000				0.0052								0.0000	0.0005	1.0000	0.0254
708	H-GLAS-0112														0.0003				0.0039								0.0000	0.0033	1.0000	0.0392
709	H-GLAS-0130														0.0003				0.0028								0.0000	0.0028	1.0000	0.0372
710	H-GLAS-0162														0.0003				0.0021								0.0000	0.0044	1.0000	0.0308
711	H-GLAS-0244														0.0003				0.0020								0.0000	0.0029	1.0000	0.0417
712	H-GLAS-0254														0.0003				0.0019								0.0000	0.0027	1.0000	0.0311
713	H-GLAS-0278														0.0003				0.0017								0.0000	0.0033	1.0000	0.0306
714	H-GLAS-0293														0.0003				0.0017								0.0000	0.0028	1.0000	0.0271
715	H-GLAS-0308														0.0003				0.0017								0.0000	0.0034	1.0000	0.0299
716	H-GLAS-0334														0.0003				0.0016								0.0000	0.0030	1.0000	0.0293
717	H-GLAS-0352														0.0003				0.0016								0.0000	0.0030	1.0000	0.0281
718	H-GLAS-0387														0.0003				0.0015								0.0000	0.0034	1.0000	0.0270
719	H-GLAS-0421														0.0003				0.0015								0.0000	0.0028	1.0000	0.0282
720	H-GLAS-0466														0.0003				0.0016								0.0000	0.0026	1.0000	0.0275
721	FRIT-202-CLEAR														0.0000				0.0000								0.0000	0.0000	1.0000	0.0040
722	FRIT-202-INT														0.0000				0.0000								0.0000	0.0000	1.0000	
723	FRIT-202-WHITE														0.0000				0.0000								0.0000	0.0000	1.0000	
724	FRIT-165-7														0.0000				0.0000								0.0000	0.0000	1.0000	
725	FRIT-131-7														0.0000				0.0099								0.0029	0.0000	1.0000	0.0035
726	MG 9-7														0.0000				0.0000								0.0000	0.0000	1.0000	
727	MG 18-7														0.0000				0.0000								0.0000	0.0000	1.0000	
728	MG 25-7														0.0000				0.0000								0.0000	0.0000	1.0000	
729	MG 28-7														0.0000				0.0000								0.0000	0.0000	1.0000	
730	PBG3/Ce																		0.0100										1.0000	
731	PBG3/0x																		0.0100										1.0000	
732	PBG3-.5C																		0.0100										1.0000	
733	SRC-Al-1																		0.0105										1.0002	
734	SRC-Al-2																		0.0095										0.9998	
735	SRC-B-1																		0.0106										0.9999	
736	SRC-B-2																		0.0102										0.9999	
737	SRC-B-3																		0.0094										1.0001	
738	SRC-Ca-1																		0.0105										1.0000	

#	Glass ID	B2O3-a	CaO-a	Fe2O3-a	FeO-a	K2O-a	Li2O-a	MgO-a	Na2O-a	NiO-a	P2O5-a	SiO2-a	ZrO2-a	Ag2O-a	As2O3-a	As2O5-a	BaO-a	BeO-a	Bi2O3-a	Br-a	CdO-a	Ce2O3-a	CeO2-a	Cl-a	CoO-a	Co2O3-a	Cr2O3-a	Cs2O-a	CuO-a	F-a
657	BLEND 1-3510	0.0674	0.0106	0.1256	0.0008	0.0291	0.0403	0.0122	0.1044	0.0087		0.4772					0.0010										0.0022		0.0019	
658	BLEND 1-3526	0.0689	0.0103	0.1194	0.0010	0.0281	0.0404	0.0121	0.1043	0.0093		0.4745					0.0009										0.0020		0.0017	
659	BLEND 2-3611	0.0656	0.0095	0.1182		0.0232	0.0415	0.0128	0.0997	0.0094		0.5019					0.0010										0.0026		0.0017	
660	BLEND 2-3622	0.0675	0.0089	0.1158		0.0232	0.0422	0.0128	0.1007	0.0093		0.5078					0.0010										0.0023		0.0015	
661	BLEND 2-3635	0.0666	0.0089	0.1123		0.0236	0.0421	0.0128	0.1005	0.0091		0.5045					0.0010										0.0023		0.0015	
662	BLEND 2-3654	0.0656	0.0085	0.1115		0.0237	0.0412	0.0125	0.1005	0.0093		0.4977					0.0010										0.0023		0.0015	
663	BLEND 2-3666	0.0670	0.0086	0.1137		0.0228	0.0422	0.0129	0.1013	0.0092		0.5021					0.0010										0.0025		0.0015	
664	BLEND 2-3676	0.0676	0.0083	0.1119		0.0225	0.0426	0.0128	0.1012	0.0092		0.5066					0.0010										0.0022		0.0015	
665	BLEND 3-3768	0.0683	0.0088	0.1131	0.0011	0.0225	0.0433	0.0136	0.1028	0.0094		0.5000	0.0005				0.0012										0.0028		0.0019	
666	BLEND 3-3789	0.0702	0.0101	0.1223	0.0011	0.0248	0.0427	0.0139	0.1041	0.0098		0.4918	0.0004				0.0013										0.0025		0.0019	
667	BLEND 3-3793	0.0701	0.0108	0.1269	0.0010	0.0260	0.0415	0.0138	0.1039	0.0098		0.4804	0.0003				0.0014										0.0025		0.0021	
668	BLEND 3-3802B	0.0688	0.0104	0.1253	0.0024	0.0266	0.0411	0.0137	0.0992	0.0095		0.4775	0.0004				0.0013										0.0025		0.0020	
669	HM 1-3824	0.0674	0.0091	0.1057	0.0021	0.0188	0.0444	0.0158	0.0962	0.0077		0.5160	0.0002				0.0010										0.0022		0.0015	
670	HM 1-3829	0.0662	0.0090	0.1073	0.0018	0.0166	0.0445	0.0160	0.0929	0.0077		0.5213	0.0004				0.0010										0.0023		0.0013	
671	HM 1-3851	0.0651	0.0091	0.1045	0.0017	0.0142	0.0444	0.0162	0.0985	0.0076		0.5200	0.0003				0.0010										0.0023		0.0013	
672	HM 1-3855	0.0649	0.0084	0.0971	0.0021	0.0136	0.0452	0.0162	0.1001	0.0068		0.5290	0.0002				0.0010										0.0022		0.0013	
673	HM-2-1 (3979C)	0.0677	0.0076	0.1012		0.0162	0.0448	0.0157	0.1038	0.0070		0.5396	0.0008				0.0009										0.0051		0.0013	
674	HM-2-2 (4099A)	0.0678	0.0073	0.1008		0.0185	0.0443	0.0154	0.1056	0.0067		0.5328	0.0006				0.0009										0.0047		0.0015	
675	HM-2-3 (4120B)	0.0680	0.0071	0.0946		0.0195	0.0467	0.0155	0.1060	0.0061		0.5311	0.0007				0.0009										0.0039		0.0013	
676	HM-3-1 (4176)	0.0625	0.0066	0.0920		0.0211	0.0402	0.0144	0.1048	0.0056		0.5111	0.0005				0.0008										0.0038		0.0013	
677	HM-3-2 (4225)	0.0653	0.0072	0.0976		0.0217	0.0416	0.0151	0.1032	0.0057		0.4973	0.0005				0.0008										0.0038		0.0015	
678	HM-3-3 (4357)	0.0661	0.0077	0.1027		0.0223	0.0415	0.0155	0.0995	0.0059		0.4960	0.0007				0.0009										0.0041		0.0015	
679	HM-4-1 (5260)	0.1005	0.0050	0.0854		0.0237	0.0450	0.0090	0.0955	0.0062		0.5462	0.0120				0.0006										0.0045		0.0011	
680	HM-4-2 (5641)	0.0952	0.0051	0.0823		0.0280	0.0447	0.0109	0.0962	0.0101	0.0002	0.5595	0.0071				0.0005										0.0069		0.0020	
681	HM-4-3 (5748)	0.0912	0.0051	0.0753		0.0289	0.0459	0.0121	0.0968	0.0054		0.5836	0.0046				0.0005										0.0039		0.0016	
682	PX 1-1 (4643)	0.0729	0.0146	0.1051		0.0288	0.0428	0.0146	0.0973	0.0159		0.4914	0.0008				0.0019										0.0046		0.0016	
683	PX 1-2 (4726)	0.0736	0.0150	0.1117		0.0303	0.0434	0.0144	0.1002	0.0171		0.5058	0.0007				0.0020										0.0055		0.0032	
684	PX 1-3 (4776)	0.0725	0.0133	0.0996		0.0277	0.0449	0.0147	0.0955	0.0157		0.5242	0.0008				0.0018										0.0052		0.0028	
685	PX 2-1 (4455)	0.0687	0.0079	0.0952		0.0215	0.0433	0.0159	0.1045	0.0064		0.5186	0.0006				0.0009										0.0039		0.0015	
686	PX 2-2 (4509)	0.0719	0.0114	0.1099		0.0248	0.0432	0.0156	0.0955	0.0118		0.5020	0.0006				0.0014										0.0045		0.0022	
687	PX 2-3 (4566)	0.0740	0.0145	0.1090		0.0302	0.0429	0.0151	0.0984	0.0151		0.4886	0.0007				0.0018										0.0046		0.0027	
688	PX 3-1 (5780)	0.0821	0.0068	0.0908		0.0241	0.0480	0.0143	0.0881	0.0074		0.5969	0.0073				0.0006										0.0035		0.0016	
689	PX 3-2 (5818)	0.0806	0.0074	0.0999		0.0232	0.0486	0.0149	0.0856	0.0081	0.0003	0.6040	0.0072				0.0007										0.0036		0.0020	
690	PX 3-3 (5880)	0.0690	0.0069	0.0938		0.0216	0.0449	0.0141	0.0840	0.0080		0.5425	0.0085				0.0006										0.0029		0.0018	
691	PX 4-1 (6390)	0.0789	0.0081	0.1026		0.0259	0.0483	0.0163	0.0866	0.0092	0.0007	0.5229	0.0082				0.0008										0.0035		0.0028	
692	PX 4-2 (6434)	0.0801	0.0090	0.1055		0.0274	0.0478	0.0166	0.0867	0.0097	0.0005	0.5314	0.0081				0.0008										0.0035		0.0032	
693	PX 4-3 (6458)	0.0807	0.0088	0.1057	0.0003	0.0266	0.0483	0.0169	0.0831	0.0099	0.0007	0.5336	0.0077				0.0008										0.0038		0.0034	
694	PX 5-1 (6787)	0.0807	0.0082	0.0951		0.0226	0.0488	0.0169	0.0838	0.0112		0.5439	0.0066				0.0009										0.0040	0.0005	0.0028	
695	PX 5-2 (6795)	0.0774	0.0090	0.1090		0.0278	0.0434	0.0150	0.1129	0.0131		0.4847	0.0092				0.0009										0.0036	0.0005	0.0036	
696	PX 5-3 (6812)	0.0764	0.0092	0.1263		0.0318	0.0412	0.0143	0.1143	0.0125		0.4542	0.0071				0.0009										0.0033	0.0007	0.0039	
697	PX 5-4 (6820)	0.0755	0.0089	0.1078		0.0313	0.0423	0.0143	0.1262	0.0121		0.4585	0.0069				0.0009										0.0039	0.0006	0.0039	
698	PX 5-5 (6839)	0.0762	0.0091	0.1073		0.0325	0.0430	0.0150	0.1351	0.0121		0.4797	0.0092				0.0008										0.0038	0.0006	0.0039	
699	PX 5-6 (6862)	0.0789	0.0081	0.0935		0.0280	0.0453	0.0154	0.1263	0.0114		0.5051	0.0079				0.0007										0.0042	0.0006	0.0034	
700	PX 5-7 (6871)	0.0815	0.0078	0.0887		0.0270	0.0457	0.0155	0.1278	0.0101		0.5051	0.0076				0.0007										0.0033	0.0006	0.0034	
701	PX 5-8 (6884)	0.0935	0.0081	0.0934		0.0299	0.0437	0.0149	0.1346	0.0119		0.4900	0.0079				0.0007										0.0050	0.0006	0.0036	
702	PX 5-9 (6960)	0.1064	0.0075	0.0896		0.0288	0.0429	0.0142	0.1335	0.0110		0.4820	0.0073				0.0007										0.0041	0.0006	0.0034	
703	PX 5-10 (6972)	0.1080	0.0074	0.0859		0.0275	0.0433	0.0143	0.1335	0.0110		0.4927	0.0071				0.0006										0.0044	0.0006	0.0032	
704	PX 6-1 (7340)	0.0861	0.0084	0.0988		0.0279	0.0486	0.0158	0.1086	0.0114		0.5319	0.0101				0.0008										0.0040		0.0026	
705	BATCH 1 STUDY-6-7	0.0796	0.0152	0.1012	0.0372	0.0481	0.0366	0.0122	0.0952	0.0084	0.0003	0.4353	0.0048				0.0020										0.0004	0.0012	0.0049	
706	BATCH 1 STUDY-10B-7	0.0970	0.0055	0.0120	0.0247	0.0413	0.0515	0.0157	0.0805	0.0025	0.0001	0.5910	0.0020				0.0015										0.0004	0.0012	0.0032	
707	BATCH 1 STUDY-15-7	0.0803	0.0056	0.0269	0.0257	0.0223	0.0558	0.0168	0.0717	0.0027	0.0002	0.6468	0.0018				0.0009										0.0004	0.0005	0.0021	
708	H-GLAS-0112	0.0793	0.0128	0.0946		0.0153	0.0444	0.0131	0.0902	0.0139	0.0006	0.5091	0.0060				0.0016										0.0043		0.0026	
709	H-GLAS-0130	0.0909	0.0120	0.0908	0.0006	0.0156	0.0453	0.0111	0.0852	0.0126	0.0008	0.5165	0.0060				0.0014										0.0041		0.0022	
710	H-GLAS-0162	0.1104	0.0074	0.0818	0.0003	0.0078	0.0456	0.0065	0.0761	0.0095	0.0009	0.5195	0.0248				0.0009										0.0041		0.0013	
711	H-GLAS-0244	0.0907	0.0096	0.1057	0.0004	0.0138	0.0436	0.0096	0.0890	0.0088	0.0007	0.5038	0.0129				0.0010										0.0036		0.0008	
712	H-GLAS-0254	0.1182	0.0067	0.0803		0.0064	0.0473	0.0058	0.0746	0.0090	0.0011	0.5377	0.0275				0.0008										0.0038		0.0007	
713	H-GLAS-0278	0.1132	0.0054	0.0845		0.0057	0.0450	0.0052	0.0726	0.0081	0.0008	0.5273	0.0279				0.0008										0.0035		0.0010	
714	H-GLAS-0293	0.1143	0.0052	0.0874	0.0005	0.0059	0.0446	0.0047	0.0756	0.0079	0.0011	0.5168	0.0148				0.0007										0.0036		0.0009	
715	H-GLAS-0308	0.1218	0.0055	0.0811	0.0002	0.0050	0.0485	0.0045	0.0762	0.0097	0.0010	0.5217	0.0312				0.0007										0.0049		0.0009	
716	H-GLAS-0334	0.1241	0.0049	0.0925		0.0045	0.0471	0.0041	0.0771	0.0089	0.0009	0.5223	0.0167				0.0007										0.0043		0.0008	
717	H-GLAS-0352	0.1265	0.0048	0.0854		0.0039	0.0473	0.0036	0.0761	0.0087	0.0010	0.5173	0.0338				0.0006										0.0038		0.0007	
718	H-GLAS-0387	0.1304	0.0036	0.0762		0.0029	0.0477	0.0028	0.0724	0.0075	0.0007	0.5220	0.0352				0.0006										0.0039		0.0007	
719	H-GLAS-0421	0.1314	0.0041	0.0794		0.0027	0.0483	0.0027	0.0777	0.0081	0.0006	0.5239	0.0366				0.0006										0.0045		0.0007	
720	H-GLAS-0466	0.1328	0.0037	0.0891		0.0031	0.0486	0.0023	0.0763	0.0073	0.0008	0.5171	0.0367				0.0006										0.0036		0.0007	
721	FRIT-202-CLEAR	0.0781	0.0010			0.0030	0.0660	0.0190	0.0580			0.7704																		
722	FRIT-202-INT																													
723	FRIT-202-WHITE																													
724	FRIT-165-7	0.0932					0.0696	0.0099	0.1216			0.6889	0.0099																	
725	FRIT-131-7	0.1437	0.0008	0.0006		0.0018	0.0512	0.0169	0.1880	0.0010		0.5206	0.0046																	
726	MG 9-7																													
727	MG 18-7																													
728	MG 25-7																													
729	MG 28-7																													
730	PBG3/Ce																													
731	PBG3/0x																													
732	PBG3-.5C																													
733	SRC-Al-1																													
734	SRC-Al-2																													
735	SRC-B-1																													
736	SRC-B-2																													
737	SRC-B-3																													
738	SRC-Ca-1																													

#	Glass ID	Ga2O3-a	Gd2O3-a	I-a	La2O3-a	MnO2-a	MnO-a	MoO-a	MoO3-a	Nb2O5-a	Nd2O3-a	NpO2-a	PbO-a	PdO2-a	PdO-a	Pr2O3-a	Pr6O11-a	PuO2-a	Rb2O-a	ReO-a	ReO2-a	Re2O7-a	Rh2O3-a	RhO2-a	RuO2-a	Sb2O3-a	Sb2O5-a	SeO2-a
657	BLEND 1-3510						0.0219																					
658	BLEND 1-3526						0.0211																					
659	BLEND 2-3611						0.0209																					
660	BLEND 2-3622						0.0210																					
661	BLEND 2-3635						0.0206																					
662	BLEND 2-3654						0.0206																					
663	BLEND 2-3666						0.0210																					
664	BLEND 2-3676						0.0206																					
665	BLEND 3-3768						0.0221																					
666	BLEND 3-3789						0.0244																					
667	BLEND 3-3793						0.0251																					
668	BLEND 3-3802B						0.0248																					
669	HM 1-3824						0.0240																					
670	HM 1-3829						0.0254																					
671	HM 1-3851						0.0254																					
672	HM 1-3855						0.0263																					
673	HM-2-1 (3979C)						0.0279						0.0005															
674	HM-2-2 (4099A)						0.0280						0.0006															
675	HM-2-3 (4120B)						0.0268						0.0005															
676	HM-3-1 (4176)						0.0248						0.0004															
677	HM-3-2 (4225)						0.0273						0.0005															
678	HM-3-3 (4357)						0.0290						0.0004															
679	HM-4-1 (5260)						0.0151		0.0007				0.0010															
680	HM-4-2 (5641)				0.0002		0.0172		0.0004				0.0007															
681	HM-4-3 (5748)						0.0172		0.0002				0.0003															
682	PX 1-1 (4643)						0.0310						0.0017															
683	PX 1-2 (4726)						0.0326						0.0019															
684	PX 1-3 (4776)						0.0284						0.0016															
685	PX 2-1 (4455)						0.0284						0.0003															
686	PX 2-2 (4509)						0.0304						0.0011															
687	PX 2-3 (4566)						0.0324						0.0015															
688	PX 3-1 (5780)						0.0173		0.0001				0.0005															
689	PX 3-2 (5818)				0.0001		0.0175		0.0001				0.0007															
690	PX 3-3 (5880)						0.0156		0.0001				0.0007															
691	PX 4-1 (6390)						0.0166		0.0001				0.0010															
692	PX 4-2 (6434)						0.0168		0.0001				0.0011															
693	PX 4-3 (6458)						0.0169		0.0001				0.0011															
694	PX 5-1 (6787)						0.0156				0.0010		0.0013															
695	PX 5-2 (6795)						0.0175				0.0013		0.0015															
696	PX 5-3 (6812)						0.0185				0.0010		0.0014															
697	PX 5-4 (6820)						0.0175				0.0009		0.0014															
698	PX 5-5 (6839)						0.0182				0.0006		0.0014															
699	PX 5-6 (6862)						0.0158				0.0007		0.0012															
700	PX 5-7 (6871)						0.0153				0.0009		0.0012															
701	PX 5-8 (6884)						0.0159				0.0007		0.0012															
702	PX 5-9 (6960)						0.0151				0.0005		0.0011															
703	PX 5-10 (6972)						0.0147				0.0005		0.0011															
704	PX 6-1 (7340)				0.0001		0.0171		0.0002				0.0014															
705	BATCH 1 STUDY-6-7						0.0236				0.0067		0.0013															
706	BATCH 1 STUDY-10B-7						0.0072				0.0022		0.0004															
707	BATCH 1 STUDY-15-7						0.0072				0.0022		0.0004															
708	H-GLAS-0112				0.0004		0.0244		0.0003				0.0020															
709	H-GLAS-0130						0.0206		0.0006				0.0021															
710	H-GLAS-0162				0.0022		0.0124		0.0011				0.0018															
711	H-GLAS-0244				0.0011		0.0171		0.0006				0.0016															
712	H-GLAS-0254				0.0025		0.0110		0.0012				0.0017															
713	H-GLAS-0278				0.0024		0.0095		0.0012				0.0017															
714	H-GLAS-0293				0.0025		0.0093		0.0012				0.0016															
715	H-GLAS-0308				0.0025		0.0094		0.0014				0.0017															
716	H-GLAS-0334				0.0024		0.0087		0.0015				0.0016															
717	H-GLAS-0352				0.0023		0.0078		0.0015				0.0017															
718	H-GLAS-0387				0.0021		0.0066		0.0015				0.0015															
719	H-GLAS-0421				0.0021		0.0066		0.0016				0.0017															
720	H-GLAS-0466				0.0022		0.0063		0.0016				0.0020															
721	FRIT-202-CLEAR																											
722	FRIT-202-INT																											
723	FRIT-202-WHITE																											
724	FRIT-165-7																											
725	FRIT-131-7						0.0013		0.0027		0.0050																	
726	MG 9-7																											
727	MG 18-7																											
728	MG 25-7																											
729	MG 28-7																											
730	PBG3/Ce																											
731	PBG3/0x																											
732	PBG3-.5C																											
733	SRC-Al-1																											
734	SRC-Al-2																											
735	SRC-B-1																											
736	SRC-B-2																											
737	SRC-B-3																											
738	SRC-Ca-1																											

#	Glass ID	Sm2O3-a	SnO-a	SnO2-a	SO3-a	SrO-a	Tc2O7-a	TeO2-a	ThO2-a	TiO2-a	Tl2O-a	Tl2O3-a	U3O8-a	UO2-a	UO3-a	V2O5-a	WO3-a	Y2O3-a	ZnO-a	Sum-a	T_M (°C)	$T_{L,G}$ (°C)	$T_{L,U}$ (°C)	$T_{1\%}$ (°C)	Primary Phase	$C_{650°C}$	$C_{700°C}$	$C_{750°C}$
657	BLEND 1-3510									0.0019										0.9573								
658	BLEND 1-3526									0.0017										0.9446								
659	BLEND 2-3611									0.0017										0.9599								
660	BLEND 2-3622									0.0015										0.9644								
661	BLEND 2-3635									0.0017										0.9564								
662	BLEND 2-3654									0.0014										0.9445								
663	BLEND 2-3666									0.0014										0.9552								
664	BLEND 2-3676									0.0014										0.9567								
665	BLEND 3-3768									0.0013										0.9616								
666	BLEND 3-3789									0.0013										0.9754								
667	BLEND 3-3793									0.0012										0.9714								
668	BLEND 3-3802B									0.0012										0.9606								
669	HM 1-3824									0.0009										0.9688								
670	HM 1-3829									0.0010										0.9747								
671	HM 1-3851									0.0009										0.9733								
672	HM 1-3855									0.0009										0.9803								
673	HM-2-1 (3979C)					0.0015				0.0009									0.0010	1.0201								
674	HM-2-2 (4099A)					0.0016				0.0012									0.0010	1.0175								
675	HM-2-3 (4120B)					0.0015				0.0011									0.0009	1.0076								
676	HM-3-1 (4176)					0.0014				0.0010									0.0008	0.9680								
677	HM-3-2 (4225)					0.0015				0.0010									0.0009	0.9763								
678	HM-3-3 (4357)					0.0015				0.0010									0.0008	0.9867								
679	HM-4-1 (5260)					0.0008				0.0026									0.0012	1.0094								
680	HM-4-2 (5641)					0.0009				0.0027									0.0011	1.0367								
681	HM-4-3 (5748)					0.0009				0.0027									0.0011	1.0360								
682	PX 1-1 (4643)					0.0003				0.0017									0.0016	0.9809								
683	PX 1-2 (4726)					0.0003				0.0037									0.0017	1.0127								
684	PX 1-3 (4776)					0.0002				0.0035									0.0017	0.9975								
685	PX 2-1 (4455)					0.0014				0.0010									0.0010	1.0062								
686	PX 2-2 (4509)					0.0008				0.0017									0.0013	0.9998								
687	PX 2-3 (4566)					0.0005				0.0022									0.0015	0.9956								
688	PX 3-1 (5780)					0.0005				0.0024									0.0011	1.0357								
689	PX 3-2 (5818)					0.0004				0.0024									0.0012	1.0477								
690	PX 3-3 (5880)					0.0002				0.0019									0.0013	0.9478								
691	PX 4-1 (6390)					0.0002				0.0025									0.0012	0.9645								
692	PX 4-2 (6434)					0.0002				0.0027									0.0012	0.9781								
693	PX 4-3 (6458)					0.0002				0.0028									0.0012	0.9782								
694	PX 5-1 (6787)					0.0002				0.0028									0.0009	0.9809								
695	PX 5-2 (6795)					0.0002				0.0029									0.0011	0.9693								
696	PX 5-3 (6812)					0.0002				0.0029									0.0011	0.9538								
697	PX 5-4 (6820)					0.0002				0.0027									0.0011	0.9474								
698	PX 5-5 (6839)					0.0002				0.0027									0.0011	0.9824								
699	PX 5-6 (6862)					0.0001				0.0025									0.0010	0.9778								
700	PX 5-7 (6871)					0.0001				0.0023									0.0009	0.9713								
701	PX 5-8 (6884)					0.0001				0.0024									0.0009	0.9864								
702	PX 5-9 (6960)					0.0001				0.0022									0.0009	0.9781								
703	PX 5-10 (6972)					0.0001				0.0021									0.0009	0.9851								
704	PX 6-1 (7340)									0.0016									0.0010	0.9971								
705	BATCH 1 STUDY-6-7					0.0003				0.0099								0.0001	0.0003	0.9861								
706	BATCH 1 STUDY-10B-7					0.0001				0.0101									0.0003	0.9769								
707	BATCH 1 STUDY-15-7					0.0001				0.0051									0.0005	1.0014								
708	H-GLAS-0112					0.0003				0.0037									0.0032	0.9613								
709	H-GLAS-0130					0.0004				0.0026									0.0027	0.9613								
710	H-GLAS-0162					0.0003				0.0020									0.0042	0.9517								
711	H-GLAS-0244					0.0004				0.0019									0.0028	0.9612								
712	H-GLAS-0254					0.0003				0.0018									0.0026	0.9721								
713	H-GLAS-0278					0.0003				0.0017									0.0032	0.9516								
714	H-GLAS-0293					0.0003				0.0016									0.0026	0.9302								
715	H-GLAS-0308					0.0003				0.0016									0.0033	0.9630								
716	H-GLAS-0334					0.0003				0.0016									0.0027	0.9570								
717	H-GLAS-0352					0.0003				0.0016									0.0029	0.9597								
718	H-GLAS-0387					0.0003				0.0014									0.0033	0.9503								
719	H-GLAS-0421					0.0003				0.0014									0.0029	0.9661								
720	H-GLAS-0466					0.0004				0.0015									0.0026	0.9668								
721	FRIT-202-CLEAR									0.0010										1.0005								
722	FRIT-202-INT																			0.0000								
723	FRIT-202-WHITE																			0.0000								
724	FRIT-165-7																			0.9931								
725	FRIT-131-7									0.0095										0.9512								
726	MG 9-7																			0.0000								
727	MG 18-7																			0.0000								
728	MG 25-7																			0.0000								
729	MG 28-7																			0.0000								
730	PBG3/Ce																			0.0000	1240							
731	PBG3/0x																			0.0000	1240							
732	PBG3-.5C																			0.0000	1240							
733	SRC-Al-1																			0.0000	1180							
734	SRC-Al-2																			0.0000	1242							
735	SRC-B-1																			0.0000	1268							
736	SRC-B-2																			0.0000	1242							
737	SRC-B-3																			0.0000	1095							
738	SRC-Ca-1																			0.0000	1258							

#	Glass ID	$C_{800°C}$	$C_{850°C}$	$C_{900°C}$	$C_{950°C}$	$C_{1000°C}$	$C_{1050°C}$	$C_{1100°C}$	$C_{1150°C}$	$C_{1200°C}$	Quenched Visual/OM	Quenched XRD	CCC XRD	ρ (g/cm³)	Fulc Visc A	Fulc Visc B	Fulc Visc To	Arrh Visc E	Arrh Visc F	T1 (°C)	V1 (Pa·s)
657	BLEND 1-3510																				
658	BLEND 1-3526																				
659	BLEND 2-3611																				
660	BLEND 2-3622																				
661	BLEND 2-3635																				
662	BLEND 2-3654																				
663	BLEND 2-3666																				
664	BLEND 2-3676																				
665	BLEND 3-3768																				
666	BLEND 3-3789																				
667	BLEND 3-3793																				
668	BLEND 3-3802B																				
669	HM 1-3824																				
670	HM 1-3829																				
671	HM 1-3851																				
672	HM 1-3855																				
673	HM-2-1 (3979C)																				
674	HM-2-2 (4099A)																				
675	HM-2-3 (4120B)																				
676	HM-3-1 (4176)																				
677	HM-3-2 (4225)																				
678	HM-3-3 (4357)																				
679	HM-4-1 (5260)																				
680	HM-4-2 (5641)																				
681	HM-4-3 (5748)																				
682	PX 1-1 (4643)																				
683	PX 1-2 (4726)																				
684	PX 1-3 (4776)																				
685	PX 2-1 (4455)																				
686	PX 2-2 (4509)																				
687	PX 2-3 (4566)																				
688	PX 3-1 (5780)																				
689	PX 3-2 (5818)																				
690	PX 3-3 (5880)																				
691	PX 4-1 (6390)																				
692	PX 4-2 (6434)																				
693	PX 4-3 (6458)																				
694	PX 5-1 (6787)																				
695	PX 5-2 (6795)																				
696	PX 5-3 (6812)																				
697	PX 5-4 (6820)																				
698	PX 5-5 (6839)																				
699	PX 5-6 (6862)																				
700	PX 5-7 (6871)																				
701	PX 5-8 (6884)																				
702	PX 5-9 (6960)																				
703	PX 5-10 (6972)																				
704	PX 6-1 (7340)																				
705	BATCH 1 STUDY-6-7																				
706	BATCH 1 STUDY-10B-7																				
707	BATCH 1 STUDY-15-7																				
708	H-GLAS-0112																				
709	H-GLAS-0130																				
710	H-GLAS-0162																				
711	H-GLAS-0244																				
712	H-GLAS-0254																				
713	H-GLAS-0278																				
714	H-GLAS-0293																				
715	H-GLAS-0308																				
716	H-GLAS-0334																				
717	H-GLAS-0352																				
718	H-GLAS-0387																				
719	H-GLAS-0421																				
720	H-GLAS-0466																				
721	FRIT-202-CLEAR																				
722	FRIT-202-INT																				
723	FRIT-202-WHITE																				
724	FRIT-165-7																				
725	FRIT-131-7																				
726	MG 9-7																				
727	MG 18-7																				
728	MG 25-7																				
729	MG 28-7																				
730	PBG3/Ce																	-13.500	20914.0	1096.0	6.094
731	PBG3/0x																				
732	PBG3-.5C																	-12.700	19967.0	1195.0	2.355
733	SRC-Al-1																	-13.200	19930.0	1190.0	1.587
734	SRC-Al-2																	-12.500	20656.0	1148.0	9.887
735	SRC-B-1																	-12.700	21231.0	1288.0	2.371
736	SRC-B-2																	-11.600	18852.0	1239.0	2.358
737	SRC-B-3																	-12.700	19085.0	1189.0	1.536
738	SRC-Ca-1																	-11.000	18423.0	1290.0	2.131

#	Glass ID	T2 (°C)	V2 (Pa·s)	T3 (°C)	V3 (Pa·s)	T4 (°C)	V4 (Pa·s)	T5 (°C)	V5 (Pa·s)	T6 (°C)	V6 (Pa·s)	T7 (°C)	V7 (Pa·s)	T8 (°C)	V8 (Pa·s)	T9 (°C)	V9 (Pa·s)	T10 (°C)	V10 (Pa·s)	TCLP Ag	TCLP As	TCLP Ba	TCLP Cd	TCLP Cr	TCLP Ni	TCLP Pb
657	BLEND 1-3510																									
658	BLEND 1-3526																									
659	BLEND 2-3611																									
660	BLEND 2-3622																									
661	BLEND 2-3635																									
662	BLEND 2-3654																									
663	BLEND 2-3666																									
664	BLEND 2-3676																									
665	BLEND 3-3768																									
666	BLEND 3-3789																									
667	BLEND 3-3793																									
668	BLEND 3-3802B																									
669	HM 1-3824																									
670	HM 1-3829																									
671	HM 1-3851																									
672	HM 1-3855																									
673	HM-2-1 (3979C)																									
674	HM-2-2 (4099A)																									
675	HM-2-3 (4120B)																									
676	HM-3-1 (4176)																									
677	HM-3-2 (4225)																									
678	HM-3-3 (4357)																									
679	HM-4-1 (5260)																									
680	HM-4-2 (5641)																									
681	HM-4-3 (5748)																									
682	PX 1-1 (4643)																									
683	PX 1-2 (4726)																									
684	PX 1-3 (4776)																									
685	PX 2-1 (4455)																									
686	PX 2-2 (4509)																									
687	PX 2-3 (4566)																									
688	PX 3-1 (5780)																									
689	PX 3-2 (5818)																									
690	PX 3-3 (5880)																									
691	PX 4-1 (6390)																									
692	PX 4-2 (6434)																									
693	PX 4-3 (6458)																									
694	PX 5-1 (6787)																									
695	PX 5-2 (6795)																									
696	PX 5-3 (6812)																									
697	PX 5-4 (6820)																									
698	PX 5-5 (6839)																									
699	PX 5-6 (6862)																									
700	PX 5-7 (6871)																									
701	PX 5-8 (6884)																									
702	PX 5-9 (6960)																									
703	PX 5-10 (6972)																									
704	PX 6-1 (7340)																									
705	BATCH 1 STUDY-6-7																									
706	BATCH 1 STUDY-10B-7																									
707	BATCH 1 STUDY-15-7																									
708	H-GLAS-0112																									
709	H-GLAS-0130																									
710	H-GLAS-0162																									
711	H-GLAS-0244																									
712	H-GLAS-0254																									
713	H-GLAS-0278																									
714	H-GLAS-0293																									
715	H-GLAS-0308																									
716	H-GLAS-0334																									
717	H-GLAS-0352																									
718	H-GLAS-0387																									
719	H-GLAS-0421																									
720	H-GLAS-0466																									
721	FRIT-202-CLEAR																									
722	FRIT-202-INT																									
723	FRIT-202-WHITE																									
724	FRIT-165-7																									
725	FRIT-131-7																									
726	MG 9-7																									
727	MG 18-7																									
728	MG 25-7																									
729	MG 28-7																									
730	PBG3/Ce	1046	10.507	996	19.4	1045.0	10.6	1096.0	6.1	1146.0	3.6	1196.0	2.3	1096.0	6.2	945.0	39.5	895.0	91.4							
731	PBG3/0x																									
732	PBG3-.5C	996	20.376	1195	2.4	1145.0	3.9	1096.0	6.4	1046.0	11.0	996.0	20.3	1046.0	11.3	1195.0	2.4	1146.0	3.9							
733	SRC-Al-1	1141	2.466	1092	4.1	1042.0	7.0	993.0	13.0	1190.0	1.6	1141.0	2.5	1092.0	4.2	1042.0	7.2	993.0	13.2							
734	SRC-Al-2	1247	2.929	1297	1.9	1198.0	4.5	1148.0	7.2	1098.0	12.6	1047.0	23.3	1147.0	8.2	1197.0	5.1	1248.0	3.1							
735	SRC-B-1	1239	3.848	1189	6.1	1141.0	10.1	1090.0	17.0	1288.0	2.4	1239.0	3.8	1189.0	6.1	1140.0	10.2	1090.0	17.4							
736	SRC-B-2	1190	3.584	1141	5.8	1092.0	8.8	1042.0	15.3	1240.0	2.3	1190.0	3.6	1141.0	5.8	1092.0	8.9	1042.0	15.7							
737	SRC-B-3	1140	2.317	1091	3.7	1041.0	6.3	993.0	11.4	1189.0	1.5	1140.0	2.3	1091.0	3.8	1041.0	6.5	993.0	11.6							
738	SRC-Ca-1	1241	3.213	1191	4.9	1142.0	7.6	1093.0	11.5	1290.0	2.2	1241.0	3.3	1192.0	4.9	1141.0	7.8	1093.0	12.0							

#	Glass ID	TCLP Se	TCLP Zn	TCLP Al	TCLP B	TCLP Sb	TCLP Tl	TCLP V	Q PCT B (g/m²)	Q PCT Li (g/m²)	Q PCT Na (g/m²)	Q PCT Si (g/m²)	Q PCT pH	CCC PCT B (g/m²)	CCC PCT Li (g/m²)	CCC PCT Na (g/m²)	CCC PCT Si (g/m²)	CCC PCT pH	T1 (°C)
657	BLEND 1-3510								0.340	0.370	0.365	0.205	10.370						
658	BLEND 1-3526								0.335	0.370	0.360	0.210	10.280						
659	BLEND 2-3611								0.305	0.335	0.335	0.195	10.210						
660	BLEND 2-3622								0.305	0.330	0.330	0.195	10.240						
661	BLEND 2-3635								0.305	0.325	0.330	0.195	10.140						
662	BLEND 2-3654								0.300	0.325	0.320	0.195	10.230						
663	BLEND 2-3666								0.300	0.325	0.320	0.195	10.100						
664	BLEND 2-3676								0.295	0.320	0.315	0.195	10.070						
665	BLEND 3-3768								0.300	0.320	0.330	0.185	9.990						
666	BLEND 3-3789								0.315	0.330	0.350	0.185	10.140						
667	BLEND 3-3793								0.315	0.330	0.355	0.190	10.130						
668	BLEND 3-3802B								0.350	0.355	0.385	0.195	10.180						
669	HM 1-3824								0.295	0.315	0.310	0.180	9.980						
670	HM 1-3829								0.285	0.315	0.305	0.175	9.960						
671	HM 1-3851								0.260	0.300	0.275	0.180	9.980						
672	HM 1-3855								0.265	0.300	0.275	0.170	9.990						
673	HM-2-1 (3979C)								0.265	0.305	0.270	0.185	9.560						
674	HM-2-2 (4099A)								0.275	0.315	0.280	0.180	9.600						
675	HM-2-3 (4120B)								0.265	0.310	0.270	0.180	9.220						
676	HM-3-1 (4176)								0.280	0.325	0.265	0.180	9.220						
677	HM-3-2 (4225)								0.275	0.320	0.260	0.180	9.220						
678	HM-3-3 (4357)								0.255	0.295	0.265	0.175	9.200						
679	HM-4-1 (5260)								0.375	0.380	0.320	0.175	9.290						
680	HM-4-2 (5641)								0.265	0.285	0.260	0.150	9.320						
681	HM-4-3 (5748)								0.350	0.355	0.325	0.170	9.700						
682	PX 1-1 (4643)								0.360	0.390	0.365	0.210	9.460						
683	PX 1-2 (4726)								0.355	0.380	0.360	0.215	9.360						
684	PX 1-3 (4776)								0.395	0.415	0.385	0.230	9.380						
685	PX 2-1 (4455)								0.240	0.285	0.240	0.165	9.320						
686	PX 2-2 (4509)								0.290	0.325	0.305	0.185	9.350						
687	PX 2-3 (4566)								0.365	0.390	0.365	0.205	9.490						
688	PX 3-1 (5780)								0.420	0.410	0.335	0.210	9.680						
689	PX 3-2 (5818)								0.540	0.505	0.425	0.245	9.700						
690	PX 3-3 (5880)								0.675	0.605	0.520	0.315	9.620						
691	PX 4-1 (6390)								1.135	0.985	0.920	0.465	10.050						
692	PX 4-2 (6434)								2.270	1.815	1.800	0.780	10.520						
693	PX 4-3 (6458)								2.185	1.745	1.825	0.765	10.420						
694	PX 5-1 (6787)								0.535	0.525	0.530	0.250	10.360						
695	PX 5-2 (6795)								4.580	3.095	4.085	0.995	11.610						
696	PX 5-3 (6812)								9.600	5.305	8.235	1.965	12.040						
697	PX 5-4 (6820)								10.500	5.645	8.940	2.225	12.010						
698	PX 5-5 (6839)								10.515	5.700	8.485	2.330	11.990						
699	PX 5-6 (6862)								9.485	5.405	7.560	2.285	11.840						
700	PX 5-7 (6871)								9.290	5.210	7.215	2.315	11.840						
701	PX 5-8 (6884)								10.790	5.900	8.575	2.350	11.870						
702	PX 5-9 (6960)								8.570	4.790	6.850	2.195	11.780						
703	PX 5-10 (6972)								10.950	4.745	8.685	1.615	11.730						
704	PX 6-1 (7340)								7.560	4.805	8.415	1.950	11.650						
705	BATCH 1 STUDY-6-7								8.595	6.810	7.725	2.270	11.340						
706	BATCH 1 STUDY-10B-7								5.265	4.495	4.765	1.565	10.900						
707	BATCH 1 STUDY-15-7								0.830	0.760	0.710	0.360	10.350						
708	H-GLAS-0112								0.440	0.415	0.375	0.220	9.830						
709	H-GLAS-0130								0.580	0.515	0.460	0.245	9.630						
710	H-GLAS-0162								1.005	0.835	0.690	0.320	9.690						
711	H-GLAS-0244								1.475	1.085	0.690	0.365	9.890						
712	H-GLAS-0254								1.050	0.910	0.715	0.320	9.790						
713	H-GLAS-0278								1.250	1.060	0.770	0.350	9.820						
714	H-GLAS-0293								1.540	1.290	0.925	0.380	9.840						
715	H-GLAS-0308								1.010	0.865	0.660	0.300	9.730						
716	H-GLAS-0334								1.205	1.075	0.775	0.325	9.760						
717	H-GLAS-0352								1.330	1.180	0.835	0.340	9.620						
718	H-GLAS-0387								1.290	1.155	0.785	0.330	9.670						
719	H-GLAS-0421								1.140	1.040	0.685	0.305	9.620						
720	H-GLAS-0466								1.395	1.205	0.830	0.330	9.690						
721	FRIT-202-CLEAR								15.980	14.445	15.190	5.755							
722	FRIT-202-INT								21.950	18.635	19.540	10.485							
723	FRIT-202-WHITE								31.535	29.130	28.720	1.055							
724	FRIT-165-7								40.160	42.155	37.080	30.515							
725	FRIT-131-7								25.150	24.300	21.565	14.830							
726	MG 9-7								35.120		28.210	17.005	12.630						
727	MG 18-7								28.910		23.885	8.340	12.010						
728	MG 25-7								0.415		0.395	0.120	10.050						
729	MG 28-7								0.315		0.360	0.160	10.650						
730	PBG3/Ce																		
731	PBG3/0x																		
732	PBG3-.5C								0.483	0.554	0.554	0.197							
733	SRC-Al-1								6.096	4.909	4.961	1.536	11.880						
734	SRC-Al-2								0.226	0.306	0.291	0.104	10.950						
735	SRC-B-1									0.627	0.603	0.197	11.530						
736	SRC-B-2								0.347	0.306	0.292	0.101	10.970						
737	SRC-B-3								1.787	1.697	1.541	0.349	10.930						
738	SRC-Ca-1								0.334	0.411	0.394	0.173	10.900						

#	Glass ID	EC1 (S/cm)	T2 (°C)	EC2 (S/cm)	T3 (°C)	EC3 (S/cm)	T4 (°C)	EC4 (S/cm)	T5 (°C)	EC5 (S/cm)	T6 (°C)	EC6 (S/cm)	A	B	To
657	BLEND 1-3510														
658	BLEND 1-3526														
659	BLEND 2-3611														
660	BLEND 2-3622														
661	BLEND 2-3635														
662	BLEND 2-3654														
663	BLEND 2-3666														
664	BLEND 2-3676														
665	BLEND 3-3768														
666	BLEND 3-3789														
667	BLEND 3-3793														
668	BLEND 3-3802B														
669	HM 1-3824														
670	HM 1-3829														
671	HM 1-3851														
672	HM 1-3855														
673	HM-2-1 (3979C)														
674	HM-2-2 (4099A)														
675	HM-2-3 (4120B)														
676	HM-3-1 (4176)														
677	HM-3-2 (4225)														
678	HM-3-3 (4357)														
679	HM-4-1 (5260)														
680	HM-4-2 (5641)														
681	HM-4-3 (5748)														
682	PX 1-1 (4643)														
683	PX 1-2 (4726)														
684	PX 1-3 (4776)														
685	PX 2-1 (4455)														
686	PX 2-2 (4509)														
687	PX 2-3 (4566)														
688	PX 3-1 (5780)														
689	PX 3-2 (5818)														
690	PX 3-3 (5880)														
691	PX 4-1 (6390)														
692	PX 4-2 (6434)														
693	PX 4-3 (6458)														
694	PX 5-1 (6787)														
695	PX 5-2 (6795)														
696	PX 5-3 (6812)														
697	PX 5-4 (6820)														
698	PX 5-5 (6839)														
699	PX 5-6 (6862)														
700	PX 5-7 (6871)														
701	PX 5-8 (6884)														
702	PX 5-9 (6960)														
703	PX 5-10 (6972)														
704	PX 6-1 (7340)														
705	BATCH 1 STUDY-6-7														
706	BATCH 1 STUDY-10B-7														
707	BATCH 1 STUDY-15-7														
708	H-GLAS-0112														
709	H-GLAS-0130														
710	H-GLAS-0162														
711	H-GLAS-0244														
712	H-GLAS-0254														
713	H-GLAS-0278														
714	H-GLAS-0293														
715	H-GLAS-0308														
716	H-GLAS-0334														
717	H-GLAS-0352														
718	H-GLAS-0387														
719	H-GLAS-0421														
720	H-GLAS-0466														
721	FRIT-202-CLEAR														
722	FRIT-202-INT														
723	FRIT-202-WHITE														
724	FRIT-165-7														
725	FRIT-131-7														
726	MG 9-7														
727	MG 18-7														
728	MG 25-7														
729	MG 28-7														
730	PBG3/Ce														
731	PBG3/0x														
732	PBG3-.5C														
733	SRC-Al-1														
734	SRC-Al-2														
735	SRC-B-1														
736	SRC-B-2														
737	SRC-B-3														
738	SRC-Ca-1														

#	Glass ID	Study	Reference	Al2O3-t	B2O3-t	CaO-t	Fe2O3-t	FeO-t	K2O-t	Li2O-t	MgO-t	Na2O-t	NiO-t	P2O5-t	SiO2-t	ZrO2-t	Ag2O-t	As2O3-t	As2O5-t	BaO-t	BeO-t	Bi2O3-t	Br-t	CdO-t	Ce2O3-t	CeO2-t	Cl-t
739	SRC-Ca-2	Plutonium Vitrification	Bulkley and Vienna 1997	0.0515	0.0618	0.0200	0.0165		0.0309	0.0412	0.0206	0.1030	0.0052	0.0031	0.4637	0.0309				0.0023						0.0464	0.0052
740	SRC-Ca-3	Plutonium Vitrification	Bulkley and Vienna 1997	0.0484	0.0580	0.0800	0.0155		0.0290	0.0387	0.0193	0.0967	0.0048	0.0029	0.4353	0.0290				0.0021						0.0435	0.0048
741	SRC-Ce-1	Plutonium Vitrification	Bulkley and Vienna 1997	0.0524	0.0628	0.0513	0.0168		0.0314	0.0419	0.0209	0.1047	0.0052	0.0031	0.4712	0.0314				0.0023						0.0000	0.0052
742	SRC-Ce-2	Plutonium Vitrification	Bulkley and Vienna 1997	0.0510	0.0613	0.0500	0.0163		0.0306	0.0408	0.0204	0.1021	0.0051	0.0031	0.4594	0.0306				0.0022						0.0250	0.0051
743	SRC-Ce-3	Plutonium Vitrification	Bulkley and Vienna 1997	0.0490	0.0587	0.0480	0.0157		0.0294	0.0392	0.0196	0.0979	0.0049	0.0029	0.4406	0.0294				0.0022						0.0650	0.0049
744	SRC-Ce-4	Plutonium Vitrification	Bulkley and Vienna 1997	0.0482	0.0578	0.0472	0.0154		0.0289	0.0385	0.0193	0.0963	0.0048	0.0029	0.4335	0.0289				0.0021						0.0800	0.0048
745	SRC-Eu-1	Plutonium Vitrification	Bulkley and Vienna 1997	0.0501	0.0602	0.0491	0.0160		0.0301	0.0401	0.0201	0.1003	0.0050	0.0030	0.4512	0.0301				0.0022						0.0424	0.0050
746	SRC-Gd-1	Plutonium Vitrification	Bulkley and Vienna 1997	0.0524	0.0628	0.0513	0.0168		0.0314	0.0419	0.0209	0.1047	0.0052	0.0031	0.4712	0.0314				0.0023						0.0471	0.0052
747	SRC-Gd-2	Plutonium Vitrification	Bulkley and Vienna 1997	0.0510	0.0613	0.0500	0.0163		0.0306	0.0408	0.0204	0.1021	0.0051	0.0031	0.4594	0.0306				0.0022						0.0459	0.0051
748	SRC-Gd-3	Plutonium Vitrification	Bulkley and Vienna 1997	0.0490	0.0587	0.0480	0.0157		0.0294	0.0392	0.0196	0.0979	0.0049	0.0029	0.4406	0.0294				0.0022						0.0441	0.0049
749	SRC-Gd-4	Plutonium Vitrification	Bulkley and Vienna 1997	0.0482	0.0578	0.0472	0.0154		0.0289	0.0385	0.0193	0.0963	0.0048	0.0029	0.4335	0.0289				0.0021						0.0434	0.0048
750	SRC-K-1	Plutonium Vitrification	Bulkley and Vienna 1997	0.0515	0.0619	0.0505	0.0165		0.0000	0.0412	0.0206	0.1031	0.0052	0.0031	0.4639	0.0309				0.0023						0.0464	0.0052
751	SRC-K-2	Plutonium Vitrification	Bulkley and Vienna 1997	0.0485	0.0581	0.0475	0.0155		0.0600	0.0388	0.0194	0.0969	0.0048	0.0029	0.4361	0.0291				0.0021						0.0436	0.0048
752	SRC-K-3	Plutonium Vitrification	Bulkley and Vienna 1997	0.0469	0.0563	0.0460	0.0150		0.0900	0.0375	0.0188	0.0938	0.0047	0.0028	0.4222	0.0281				0.0021						0.0422	0.0047
753	SRC-K-3i	Plutonium Vitrification	Bulkley and Vienna 1997	0.0469	0.0563	0.0460	0.0150		0.0900	0.0375	0.0188	0.0938	0.0047	0.0028	0.4222	0.0281				0.0021						0.0422	0.0047
754	SRC-Li-1	Plutonium Vitrification	Bulkley and Vienna 1997	0.0521	0.0625	0.0510	0.0167		0.0313	0.0000	0.0208	0.1042	0.0052	0.0031	0.4688	0.0313				0.0023						0.0469	0.0052
755	SRC-Li-2	Plutonium Vitrification	Bulkley and Vienna 1997	0.0513	0.0616	0.0503	0.0164		0.0308	0.0150	0.0205	0.1026	0.0051	0.0031	0.4617	0.0308				0.0023						0.0462	0.0051
756	SRC-Li-3	Plutonium Vitrification	Bulkley and Vienna 1997	0.0497	0.0597	0.0487	0.0159		0.0298	0.0450	0.0199	0.0995	0.0050	0.0030	0.4477	0.0298				0.0022						0.0448	0.0050
757	SRC-Mg-1	Plutonium Vitrification	Bulkley and Vienna 1997	0.0485	0.0582	0.0475	0.0155		0.0291	0.0388	0.0500	0.0969	0.0048	0.0029	0.4362	0.0291				0.0021						0.0436	0.0048
758	SRC-Mg-2	Plutonium Vitrification	Bulkley and Vienna 1997	0.0469	0.0563	0.0460	0.0150		0.0282	0.0376	0.0800	0.0939	0.0047	0.0028	0.4224	0.0282				0.0021						0.0422	0.0047
759	SRC-Mg-3	Plutonium Vitrification	Bulkley and Vienna 1997	0.0449	0.0539	0.0440	0.0144		0.0269	0.0359	0.1200	0.0898	0.0045	0.0027	0.4041	0.0269				0.0020						0.0404	0.0045
760	SRC-Na-1	Plutonium Vitrification	Bulkley and Vienna 1997	0.0551	0.0661	0.0540	0.0176		0.0331	0.0441	0.0220	0.0081	0.0055	0.0033	0.4960	0.0331				0.0024						0.0496	0.0055
761	SRC-Na-2	Plutonium Vitrification	Bulkley and Vienna 1997	0.0511	0.0613	0.0501	0.0164		0.0307	0.0409	0.0204	0.0800	0.0051	0.0031	0.4600	0.0307				0.0022						0.0460	0.0051
762	SRC-Pb-1	Plutonium Vitrification	Bulkley and Vienna 1997	0.0505	0.0606	0.0495	0.0162		0.0303	0.0404	0.0202	0.1010	0.0051	0.0030	0.4545	0.0303				0.0022						0.0455	0.0051
763	SRC-Pb-2	Plutonium Vitrification	Bulkley and Vienna 1997	0.0480	0.0576	0.0470	0.0154		0.0288	0.0384	0.0192	0.0960	0.0048	0.0029	0.4318	0.0288				0.0021						0.0432	0.0048
764	SRC-Pb-3	Plutonium Vitrification	Bulkley and Vienna 1997	0.0454	0.0545	0.0445	0.0145		0.0273	0.0363	0.0182	0.0909	0.0045	0.0027	0.4091	0.0273				0.0020						0.0409	0.0045
765	SRC-Si-1	Plutonium Vitrification	Bulkley and Vienna 1997	0.0545	0.0655	0.0535	0.0175		0.0327	0.0436	0.0218	0.1091	0.0055	0.0033	0.4000	0.0327				0.0024						0.0491	0.0055
766	SRC-Si-2	Plutonium Vitrification	Bulkley and Vienna 1997	0.0409	0.0491	0.0401	0.0131		0.0245	0.0327	0.0164	0.0818	0.0041	0.0025	0.5500	0.0245				0.0018						0.0368	0.0041
767	SRC-Sm-1	Plutonium Vitrification	Bulkley and Vienna 1997	0.0501	0.0602	0.0491	0.0160		0.0301	0.0401	0.0201	0.1003	0.0050	0.0030	0.4512	0.0301				0.0022						0.0424	0.0050
768	SRC-Sn-1	Plutonium Vitrification	Bulkley and Vienna 1997	0.0490	0.0588	0.0480	0.0157		0.0294	0.0392	0.0196	0.0980	0.0049	0.0029	0.4410	0.0294				0.0022						0.0441	0.0049
769	SRC-Sn-2	Plutonium Vitrification	Bulkley and Vienna 1997	0.0480	0.0576	0.0470	0.0154		0.0288	0.0384	0.0192	0.0960	0.0048	0.0029	0.4320	0.0288				0.0021						0.0432	0.0048
770	SRC-Sn-3	Plutonium Vitrification	Bulkley and Vienna 1997	0.0470	0.0564	0.0461	0.0150		0.0282	0.0376	0.0188	0.0940	0.0047	0.0028	0.4230	0.0282				0.0021						0.0423	0.0047
771	SRC-Ti-1	Plutonium Vitrification	Bulkley and Vienna 1997	0.0505	0.0606	0.0495	0.0162		0.0303	0.0404	0.0202	0.1010	0.0051	0.0030	0.4545	0.0303				0.0022						0.0455	0.0051
772	SRC-Ti-2	Plutonium Vitrification	Bulkley and Vienna 1997	0.0480	0.0576	0.0470	0.0154		0.0288	0.0384	0.0192	0.0960	0.0048	0.0029	0.4318	0.0288				0.0021						0.0432	0.0048
773	SRC-Zr-1	Plutonium Vitrification	Bulkley and Vienna 1997	0.0515	0.0619	0.0505	0.0165		0.0309	0.0412	0.0206	0.1031	0.0052	0.0031	0.4639	0.0000				0.0023						0.0464	0.0052
774	SRC-Zr-2	Plutonium Vitrification	Bulkley and Vienna 1997	0.0490	0.0588	0.0480	0.0157		0.0294	0.0392	0.0196	0.0979	0.0049	0.0029	0.4407	0.0500				0.0022						0.0441	0.0049
775	1	Comp. Vs Properties Study	Chick et al. 1981																								
776	2	Comp. Vs Properties Study	Chick et al. 1981																								
777	3	Comp. Vs Properties Study	Chick et al. 1981																								
778	4	Comp. Vs Properties Study	Chick et al. 1981																								
779	5	Comp. Vs Properties Study	Chick et al. 1981																								
780	6	Comp. Vs Properties Study	Chick et al. 1981																								
781	7	Comp. Vs Properties Study	Chick et al. 1981																								
782	8	Comp. Vs Properties Study	Chick et al. 1981																								
783	9	Comp. Vs Properties Study	Chick et al. 1981																								
784	10	Comp. Vs Properties Study	Chick et al. 1981																								
785	11	Comp. Vs Properties Study	Chick et al. 1981																								
786	12	Comp. Vs Properties Study	Chick et al. 1981																								
787	13	Comp. Vs Properties Study	Chick et al. 1981																								
788	14	Comp. Vs Properties Study	Chick et al. 1981																								
789	15	Comp. Vs Properties Study	Chick et al. 1981																								
790	16	Comp. Vs Properties Study	Chick et al. 1981																								
791	17	Comp. Vs Properties Study	Chick et al. 1981																								
792	18	Comp. Vs Properties Study	Chick et al. 1981																								
793	19	Comp. Vs Properties Study	Chick et al. 1981																								
794	20	Comp. Vs Properties Study	Chick et al. 1981																								
795	21	Comp. Vs Properties Study	Chick et al. 1981																								
796	22	Comp. Vs Properties Study	Chick et al. 1981																								
797	23	Comp. Vs Properties Study	Chick et al. 1981																								
798	24	Comp. Vs Properties Study	Chick et al. 1981																								
799	25	Comp. Vs Properties Study	Chick et al. 1981																								
800	26	Comp. Vs Properties Study	Chick et al. 1981																								
801	27	Comp. Vs Properties Study	Chick et al. 1981																								
802	28	Comp. Vs Properties Study	Chick et al. 1981																								
803	29	Comp. Vs Properties Study	Chick et al. 1981																								
804	30	Comp. Vs Properties Study	Chick et al. 1981																								
805	31	Comp. Vs Properties Study	Chick et al. 1981																								
806	32	Comp. Vs Properties Study	Chick et al. 1981																								
807	33	Comp. Vs Properties Study	Chick et al. 1981																								
808	34	Comp. Vs Properties Study	Chick et al. 1981																								
809	35	Comp. Vs Properties Study	Chick et al. 1981																								
810	36	Comp. Vs Properties Study	Chick et al. 1981																								
811	37	Comp. Vs Properties Study	Chick et al. 1981																								
812	38	Comp. Vs Properties Study	Chick et al. 1981																								
813	39	Comp. Vs Properties Study	Chick et al. 1981																								
814	40	Comp. Vs Properties Study	Chick et al. 1981																								
815	41	Comp. Vs Properties Study	Chick et al. 1981																								
816	42	Comp. Vs Properties Study	Chick et al. 1981																								
817	43	Comp. Vs Properties Study	Chick et al. 1981																								
818	44	Comp. Vs Properties Study	Chick et al. 1981																								
819	45	Comp. Vs Properties Study	Chick et al. 1981																								
820	46	Comp. Vs Properties Study	Chick et al. 1981																								

#	Glass ID	CoO-t	Co2O3-t	Cr2O3-t	Cs2O-t	CuO-t	Dy2O3-t	Eu2O3-t	F-t	Ga2O3-t	Gd2O3-t	HfO2-t	HgO-t	I-t	La2O3-t	MnO2-t	MnO-t	MoO-t	MoO2-t	MoO3-t	Nb2O5-t	Nd2O3-t	NpO2-t	PbO-t	PdO2-t	PdO-t	Pr2O3-t	Pr6O11-t	Rb2O-t	ReO-t
739	SRC-Ca-2			0.0041	0.0103	0.0004			0.0010		0.0464									0.0066		0.0082		0.0103						
740	SRC-Ca-3			0.0039	0.0097	0.0004			0.0010		0.0435									0.0062		0.0077		0.0097						
741	SRC-Ce-1			0.0042	0.0105	0.0004			0.0010		0.0471									0.0067		0.0084		0.0105						
742	SRC-Ce-2			0.0041	0.0102	0.0004			0.0010		0.0459									0.0065		0.0082		0.0102						
743	SRC-Ce-3			0.0039	0.0098	0.0004			0.0010		0.0441									0.0063		0.0078		0.0098						
744	SRC-Ce-4			0.0039	0.0096	0.0004			0.0010		0.0434									0.0062		0.0077		0.0096						
745	SRC-Eu-1			0.0040	0.0100	0.0004		0.0451	0.0010		0.0000									0.0064		0.0080		0.0100						
746	SRC-Gd-1			0.0042	0.0105	0.0004			0.0010		0.0000									0.0067		0.0084		0.0105						
747	SRC-Gd-2			0.0041	0.0102	0.0004			0.0010		0.0250									0.0065		0.0082		0.0102						
748	SRC-Gd-3			0.0039	0.0098	0.0004			0.0010		0.0650									0.0063		0.0078		0.0098						
749	SRC-Gd-4			0.0039	0.0096	0.0004			0.0010		0.0800									0.0062		0.0077		0.0096						
750	SRC-K-1			0.0041	0.0103	0.0004			0.0010		0.0464									0.0066		0.0082		0.0103						
751	SRC-K-2			0.0039	0.0097	0.0004			0.0010		0.0436									0.0062		0.0078		0.0097						
752	SRC-K-3			0.0038	0.0094	0.0004			0.0009		0.0422									0.0060		0.0075		0.0094						
753	SRC-K-3i			0.0038	0.0094	0.0004			0.0009		0.0422									0.0060		0.0075		0.0094						
754	SRC-Li-1			0.0042	0.0104	0.0004			0.0010		0.0469									0.0067		0.0083		0.0104						
755	SRC-Li-2			0.0041	0.0103	0.0004			0.0010		0.0462									0.0066		0.0082		0.0103						
756	SRC-Li-3			0.0040	0.0099	0.0004			0.0010		0.0448									0.0064		0.0080		0.0099						
757	SRC-Mg-1			0.0039	0.0097	0.0004			0.0010		0.0436									0.0062		0.0078		0.0097						
758	SRC-Mg-2			0.0038	0.0094	0.0004			0.0009		0.0422									0.0060		0.0075		0.0094						
759	SRC-Mg-3			0.0036	0.0090	0.0004			0.0009		0.0404									0.0057		0.0072		0.0090						
760	SRC-Na-1			0.0044	0.0110	0.0004			0.0011		0.0496									0.0071		0.0088		0.0110						
761	SRC-Na-2			0.0041	0.0102	0.0004			0.0010		0.0460									0.0065		0.0082		0.0102						
762	SRC-Pb-1			0.0040	0.0101	0.0004			0.0010		0.0455									0.0065		0.0081		0.0000						
763	SRC-Pb-2			0.0038	0.0096	0.0004			0.0010		0.0432									0.0061		0.0077		0.0500						
764	SRC-Pb-3			0.0036	0.0091	0.0004			0.0009		0.0409									0.0058		0.0073		0.1000						
765	SRC-Si-1			0.0044	0.0109	0.0004			0.0011		0.0491									0.0070		0.0087		0.0109						
766	SRC-Si-2			0.0033	0.0082	0.0003			0.0008		0.0368									0.0052		0.0065		0.0082						
767	SRC-Sm-1			0.0040	0.0100	0.0004			0.0010		0.0000									0.0064		0.0080		0.0100						
768	SRC-Sn-1			0.0039	0.0098	0.0004			0.0010		0.0441									0.0063		0.0078		0.0098						
769	SRC-Sn-2			0.0038	0.0096	0.0004			0.0010		0.0432									0.0061		0.0077		0.0096						
770	SRC-Sn-3			0.0038	0.0094	0.0004			0.0009		0.0423									0.0060		0.0075		0.0094						
771	SRC-Ti-1			0.0040	0.0101	0.0004			0.0010		0.0455									0.0065		0.0081		0.0101						
772	SRC-Ti-2			0.0038	0.0096	0.0004			0.0010		0.0432									0.0061		0.0077		0.0096						
773	SRC-Zr-1			0.0041	0.0103	0.0004			0.0010		0.0464									0.0066		0.0082		0.0103						
774	SRC-Zr-2			0.0039	0.0098	0.0004			0.0010		0.0441									0.0063		0.0078		0.0098						
775	1																												
776	2																												
777	3																												
778	4																												
779	5																												
780	6																												
781	7																												
782	8																												
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784	10																												
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786	12																												
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799	25																												
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818	44																												
819	45																												
820	46																												

#	Glass ID	ReO2-t	Re2O7-t	Rh2O3-t	RhO2-t	RuO2-t	Ru2O3-t	Sb2O3-t	Sb2O5-t	SeO2-t	Sm2O3-t	SnO-t	SnO2-t	SO3-t	SrO-t	Tc2O7-t	TeO2-t	ThO2-t	TiO2-t	Tl2O-t	Tl2O3-t	U3O8-t	UO2-t	UO3-t	V2O5-t	WO3-t	Y2O3-t	ZnO-t	Sum-t	Al2O3-a
739	SRC-Ca-2																		0.0103									0.9999	
740	SRC-Ca-3																		0.0097									0.9998	
741	SRC-Ce-1																		0.0105									0.9999	
742	SRC-Ce-2																		0.0102									0.9997	
743	SRC-Ce-3																		0.0098									1.0003	
744	SRC-Ce-4																		0.0096									1.0000	
745	SRC-Eu-1																		0.0100									0.9998	
746	SRC-Gd-1																		0.0105									0.9999	
747	SRC-Gd-2																		0.0102									0.9997	
748	SRC-Gd-3																		0.0098									1.0003	
749	SRC-Gd-4																		0.0096									1.0000	
750	SRC-K-1																		0.0103									0.9999	
751	SRC-K-2																		0.0097									1.0001	
752	SRC-K-3																		0.0094									1.0001	
753	SRC-K-3i																		0.0094									1.0001	
754	SRC-Li-1																		0.0104									1.0001	
755	SRC-Li-2																		0.0103									1.0002	
756	SRC-Li-3																		0.0099									1.0000	
757	SRC-Mg-1																		0.0097									1.0000	
758	SRC-Mg-2																		0.0094									1.0000	
759	SRC-Mg-3																		0.0090									1.0001	
760	SRC-Na-1																		0.0110									0.9999	
761	SRC-Na-2																		0.0102									0.9999	
762	SRC-Pb-1																		0.0101									1.0001	
763	SRC-Pb-2																		0.0096									1.0002	
764	SRC-Pb-3																		0.0091									0.9997	
765	SRC-Si-1																		0.0109									1.0001	
766	SRC-Si-2																		0.0082									0.9999	
767	SRC-Sm-1										0.0451								0.0100									0.9998	
768	SRC-Sn-1												0.0200						0.0098									1.0000	
769	SRC-Sn-2												0.0400						0.0096									1.0000	
770	SRC-Sn-3												0.0600						0.0094									1.0000	
771	SRC-Ti-1																		0.0000									1.0001	
772	SRC-Ti-2																		0.0500									1.0002	
773	SRC-Zr-1																		0.0103									0.9999	
774	SRC-Zr-2																		0.0098									1.0002	
775	1																											0.0000	0.0177
776	2																											0.0000	0.0000
777	3																											0.0000	0.0000
778	4																											0.0000	0.0000
779	5																											0.0000	0.0000
780	6																											0.0000	0.0000
781	7																											0.0000	0.2094
782	8																											0.0000	0.2072
783	9																											0.0000	0.1930
784	10																											0.0000	0.0000
785	11																											0.0000	0.0000
786	12																											0.0000	0.2130
787	13																											0.0000	0.0774
788	14																											0.0000	0.2184
789	15																											0.0000	0.0213
790	16																											0.0000	0.0710
791	17																											0.0000	0.2143
792	18																											0.0000	0.1071
793	19																											0.0000	0.1085
794	20																											0.0000	0.1088
795	21																											0.0000	0.2062
796	22																											0.0000	0.0000
797	23																											0.0000	0.2042
798	24																											0.0000	0.0000
799	25																											0.0000	0.2017
800	26																											0.0000	0.1988
801	27																											0.0000	0.0000
802	28																											0.0000	0.0000
803	29																											0.0000	0.0187
804	30																											0.0000	0.0000
805	31																											0.0000	0.0000
806	32																											0.0000	0.2190
807	33																											0.0000	0.2152
808	34																											0.0000	0.0000
809	35																											0.0000	0.2124
810	36																											0.0000	0.2065
811	37																											0.0000	0.2240
812	38																											0.0000	0.2063
813	39																											0.0000	0.0000
814	40																											0.0000	0.0000
815	41																											0.0000	0.0000
816	42																											0.0000	0.2042
817	43																											0.0000	0.1086
818	44																											0.0000	0.1088
819	45																											0.0000	0.1088
820	46																											0.0000	0.0000

#	Glass ID	B2O3-a	CaO-a	Fe2O3-a	FeO-a	K2O-a	Li2O-a	MgO-a	Na2O-a	NiO-a	P2O5-a	SiO2-a	ZrO2-a	Ag2O-a	As2O3-a	As2O5-a	BaO-a	BeO-a	Bi2O3-a	Br-a	CdO-a	Ce2O3-a	CeO2-a	Cl-a	CoO-a	Co2O3-a	Cr2O3-a	Cs2O-a	CuO-a	F-a
739	SRC-Ca-2																													
740	SRC-Ca-3																													
741	SRC-Ce-1																													
742	SRC-Ce-2																													
743	SRC-Ce-3																													
744	SRC-Ce-4																													
745	SRC-Eu-1																													
746	SRC-Gd-1																													
747	SRC-Gd-2																													
748	SRC-Gd-3																													
749	SRC-Gd-4																													
750	SRC-K-1																													
751	SRC-K-2																													
752	SRC-K-3																													
753	SRC-K-3i																													
754	SRC-Li-1																													
755	SRC-Li-2																													
756	SRC-Li-3																													
757	SRC-Mg-1																													
758	SRC-Mg-2																													
759	SRC-Mg-3																													
760	SRC-Na-1																													
761	SRC-Na-2																													
762	SRC-Pb-1																													
763	SRC-Pb-2																													
764	SRC-Pb-3																													
765	SRC-Si-1																													
766	SRC-Si-2																													
767	SRC-Sm-1																													
768	SRC-Sn-1																													
769	SRC-Sn-2																													
770	SRC-Sn-3																													
771	SRC-Ti-1																													
772	SRC-Ti-2																													
773	SRC-Zr-1																													
774	SRC-Zr-2																													
775	1	0.1257	0.0267	0.0692				0.0000	0.0931	0.0302		0.5018															0.0637			
776	2	0.1554	0.0000	0.0000				0.0483	0.1303	0.0218		0.5550															0.0000			
777	3	0.0620	0.1144	0.0748				0.0244	0.1414	0.0000		0.4738															0.0712			
778	4	0.0956	0.0858	0.0000				0.0491	0.1393	0.0000		0.4097															0.0546			
779	5	0.0912	0.0830	0.0000				0.0491	0.1385	0.0000		0.3982															0.0750			
780	6	0.0894	0.0825	0.0000				0.0480	0.1439	0.0000		0.4045															0.0682			
781	7	0.0610	0.0314	0.0000				0.0440	0.0944	0.0290		0.3952															0.0655			
782	8	0.1171	0.0000	0.0448				0.0000	0.1155	0.0283		0.4076															0.0000			
783	9	0.1255	0.0000	0.0000				0.0067	0.1424	0.0000		0.5325															0.0000			
784	10	0.0734	0.1227	0.0000				0.0131	0.1035	0.0327		0.5728															0.0000			
785	11	0.1161	0.1154	0.0743				0.0478	0.1015	0.0000		0.3952															0.0753			
786	12	0.0920	0.1020	0.0703				0.0000	0.1383	0.0276		0.3569															0.0000			
787	13	0.1409	0.0000	0.0741				0.0181	0.1429	0.0000		0.3995															0.0705			
788	14	0.0690	0.0000	0.0000				0.0000	0.0984	0.0000		0.5245															0.0000			
789	15	0.0697	0.0000	0.0716				0.0458	0.1296	0.0000		0.5161															0.0613			
790	16	0.1277	0.1076	0.0704				0.0000	0.1128	0.0000		0.3707															0.0670			
791	17	0.0579	0.0254	0.0000				0.0000	0.1330	0.0000		0.4726															0.0000			
792	18	0.0968	0.0547	0.0354				0.0221	0.1146	0.0155		0.4426															0.0337			
793	19	0.0978	0.0531	0.0354				0.0226	0.1155	0.0144		0.4415															0.0337			
794	20	0.0898	0.0532	0.0331				0.0227	0.1185	0.0144		0.4443															0.0315			
795	21	0.1219	0.0000	0.0682				0.0419	0.0944	0.0000		0.3978															0.0000			
796	22	0.0664	0.1121	0.0726				0.0000	0.1005	0.0000		0.4897															0.0000			
797	23	0.1170	0.0754	0.0000				0.0000	0.0955	0.0000		0.3593															0.0681			
798	24	0.1425	0.0924	0.0000				0.0503	0.1630	0.0348		0.5170															0.0000			
799	25	0.0596	0.0000	0.0650				0.0407	0.0991	0.0252		0.4468															0.0618			
800	26	0.0602	0.0000	0.0636				0.0000	0.1404	0.0256		0.3696															0.0000			
801	27	0.0679	0.1198	0.0000				0.0000	0.1478	0.0000		0.5061															0.0706			
802	28	0.1246	0.0000	0.0000				0.0000	0.1414	0.0000		0.5063															0.0703			
803	29	0.0650	0.0000	0.0685				0.0488	0.1025	0.0000		0.5347															0.0000			
804	30	0.1406	0.0881	0.0230				0.0510	0.1570	0.0335		0.4170															0.0000			
805	31	0.0657	0.1157	0.0729				0.0000	0.1452	0.0319		0.4303															0.0627			
806	32	0.0619	0.1154	0.0000				0.0078	0.1395	0.0000		0.3817															0.0000			
807	33	0.1265	0.1134	0.0000				0.0000	0.0954	0.0000		0.3778															0.0000			
808	34	0.1291	0.0858	0.0642				0.0498	0.0967	0.0000		0.4113															0.0000			
809	35	0.1117	0.0095	0.0562				0.0437	0.1308	0.0000		0.3780															0.0578			
810	36	0.1177	0.0078	0.0647				0.0439	0.1394	0.0000		0.3584															0.0616			
811	37	0.0628	0.0000	0.0000				0.0461	0.1035	0.0303		0.4972															0.0000			
812	38	0.0552	0.0974	0.0546				0.0000	0.0924	0.0000		0.3565															0.0623			
813	39	0.1331	0.1186	0.0626				0.0000	0.1068	0.0328		0.5461															0.0000			
814	40	0.1335	0.1172	0.0697				0.0000	0.1082	0.0326		0.5387															0.0000			
815	41	0.0727	0.1189	0.0000				0.0510	0.1029	0.0331		0.4733															0.0721			
816	42	0.1135	0.0000	0.0000				0.0173	0.0873	0.0279		0.3610															0.0651			
817	43	0.0947	0.0556	0.0354				0.0226	0.1146	0.0155		0.4407															0.0337			
818	44	0.0939	0.0549	0.0355				0.0233	0.1185	0.0155		0.4427															0.0315			
819	45	0.0939	0.0557	0.0355				0.0233	0.1167	0.0155		0.4426															0.0315			
820	46	0.1337	0.0086	0.0000				0.0223	0.1553	0.0000		0.5217															0.0724			

#	Glass ID	Ga2O3-a	Gd2O3-a	I-a	La2O3-a	MnO2-a	MnO-a	MoO-a	MoO3-a	Nb2O5-a	Nd2O3-a	NpO2-a	PbO-a	PdO2-a	PdO-a	Pr2O3-a	Pr6O11-a	PuO2-a	Rb2O-a	ReO-a	ReO2-a	Re2O7-a	Rh2O3-a	RhO2-a	RuO2-a	Sb2O3-a	Sb2O5-a	SeO2-a
739	SRC-Ca-2																											
740	SRC-Ca-3																											
741	SRC-Ce-1																											
742	SRC-Ce-2																											
743	SRC-Ce-3																											
744	SRC-Ce-4																											
745	SRC-Eu-1																											
746	SRC-Gd-1																											
747	SRC-Gd-2																											
748	SRC-Gd-3																											
749	SRC-Gd-4																											
750	SRC-K-1																											
751	SRC-K-2																											
752	SRC-K-3																											
753	SRC-K-3i																											
754	SRC-Li-1																											
755	SRC-Li-2																											
756	SRC-Li-3																											
757	SRC-Mg-1																											
758	SRC-Mg-2																											
759	SRC-Mg-3																											
760	SRC-Na-1																											
761	SRC-Na-2																											
762	SRC-Pb-1																											
763	SRC-Pb-2																											
764	SRC-Pb-3																											
765	SRC-Si-1																											
766	SRC-Si-2																											
767	SRC-Sm-1																											
768	SRC-Sn-1																											
769	SRC-Sn-2																											
770	SRC-Sn-3																											
771	SRC-Ti-1																											
772	SRC-Ti-2																											
773	SRC-Zr-1																											
774	SRC-Zr-2																											
775	1																											
776	2																											
777	3																											
778	4																											
779	5																											
780	6																											
781	7																											
782	8																											
783	9																											
784	10																											
785	11																											
786	12																											
787	13																											
788	14																											
789	15																											
790	16																											
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807	33																											
808	34																											
809	35																											
810	36																											
811	37																											
812	38																											
813	39																											
814	40																											
815	41																											
816	42																											
817	43																											
818	44																											
819	45																											
820	46																											

#	Glass ID	Sm2O3-a	SnO-a	SnO2-a	SO3-a	SrO-a	Tc2O7-a	TeO2-a	ThO2-a	TiO2-a	Tl2O-a	Tl2O3-a	U3O8-a	UO2-a	UO3-a	V2O5-a	WO3-a	Y2O3-a	ZnO-a	Sum-a	T_M (°C)	$T_{L,G}$ (°C)	$T_{L,U}$ (°C)	$T_{1\%}$ (°C)	Primary Phase	$C_{650°C}$	$C_{700°C}$	$C_{750°C}$
739	SRC-Ca-2																			0.0000	1250							
740	SRC-Ca-3																			0.0000	1143							
741	SRC-Ce-1																			0.0000								
742	SRC-Ce-2																			0.0000	1200							
743	SRC-Ce-3																			0.0000	1243							
744	SRC-Ce-4																			0.0000								
745	SRC-Eu-1																			0.0000	1248							
746	SRC-Gd-1																			0.0000								
747	SRC-Gd-2																			0.0000	1192							
748	SRC-Gd-3																			0.0000	1243							
749	SRC-Gd-4																			0.0000								
750	SRC-K-1																			0.0000	1264							
751	SRC-K-2																			0.0000	1169							
752	SRC-K-3																			0.0000	1136							
753	SRC-K-3i																			0.0000	1146							
754	SRC-Li-1																			0.0000	1390							
755	SRC-Li-2																			0.0000	1293							
756	SRC-Li-3																			0.0000	1152							
757	SRC-Mg-1																			0.0000	1189							
758	SRC-Mg-2																			0.0000	1158							
759	SRC-Mg-3																			0.0000	1138							
760	SRC-Na-1																			0.0000	1368							
761	SRC-Na-2																			0.0000	1215							
762	SRC-Pb-1																			0.0000	1246							
763	SRC-Pb-2																			0.0000	1126							
764	SRC-Pb-3																			0.0000	1083							
765	SRC-Si-1																			0.0000	1250							
766	SRC-Si-2																			0.0000	1365							
767	SRC-Sm-1																			0.0000	1250							
768	SRC-Sn-1																			0.0000	1180							
769	SRC-Sn-2																			0.0000	1203							
770	SRC-Sn-3																			0.0000	1306							
771	SRC-Ti-1																			0.0000	1184							
772	SRC-Ti-2																			0.0000	1208							
773	SRC-Zr-1																			0.0000	1169							
774	SRC-Zr-2																			0.0000	1170							
775	1									0.0000									0.0717	1.0000	1250							
776	2									0.0892									0.0000	1.0000	1250							
777	3									0.0000									0.0381	1.0000	1250							
778	4									0.0885									0.0775	1.0000	1250							
779	5									0.0874									0.0778	1.0000	1250							
780	6									0.0866									0.0768	1.0000	1250							
781	7									0.0000									0.0701	1.0000	1350							
782	8									0.0795									0.0000	1.0000	1350							
783	9									0.0000									0.0000	1.0000	1350							
784	10									0.0000									0.0818	1.0000	1250							
785	11									0.0744									0.0000	1.0000	1350							
786	12									0.0000									0.0000	1.0000	1250							
787	13									0.0000									0.0766	1.0000	1160							
788	14									0.0897									0.0000	1.0000	1450							
789	15									0.0847									0.0000	1.0000	1250							
790	16									0.0000									0.0729	1.0000	1250							
791	17									0.0245									0.0724	1.0000	1350							
792	18									0.0414									0.0361	1.0000	1160							
793	19									0.0413									0.0361	1.0000	1160							
794	20									0.0403									0.0434	1.0000	1160							
795	21									0.0000									0.0695	1.0000	1450							
796	22									0.0835									0.0752	1.0000	1150							
797	23									0.0806									0.0000	1.0000	1350							
798	24									0.0000									0.0000	1.0000	1150							
799	25									0.0000									0.0000	1.0000	1350							
800	26									0.0757									0.0659	1.0000	1350							
801	27									0.0878									0.0000	1.0000	1250							
802	28									0.0834									0.0740	1.0000	1250							
803	29									0.0857									0.0760	1.0000	1250							
804	30									0.0897									0.0000	1.0000	1150							
805	31									0.0000									0.0755	1.0000	1150							
806	32									0.0000									0.0747	1.0000	1400							
807	33									0.0000									0.0716	1.0000	1380							
808	34									0.0864									0.0767	1.0000	1150							
809	35									0.0000									0.0000	1.0000	1320							
810	36									0.0000									0.0000	1.0000	1320							
811	37									0.0361									0.0000	1.0000	1400							
812	38									0.0754									0.0000	1.0000	1450							
813	39									0.0000									0.0000	1.0000	1150							
814	40									0.0000									0.0000	1.0000	1150							
815	41									0.0000									0.0760	1.0000	1250							
816	42									0.0563									0.0674	1.0000	1550							
817	43									0.0414									0.0373	1.0000	1250							
818	44									0.0403									0.0350	1.0000	1250							
819	45									0.0403									0.0362	1.0000	1250							
820	46									0.0860									0.0000	1.0000	1250							

#	Glass ID	$C_{800°C}$	$C_{850°C}$	$C_{900°C}$	$C_{950°C}$	$C_{1000°C}$	$C_{1050°C}$	$C_{1100°C}$	$C_{1150°C}$	$C_{1200°C}$	Quenched Visual/OM	Quenched XRD	CCC XRD	ρ (g/cm³)	Fulc Visc A	Fulc Visc B	Fulc Visc To	Arrh Visc E	Arrh Visc F	T1 (°C)	V1 (Pa·s)
739	SRC-Ca-2																	-11.000	18084.0	1239.0	2.510
740	SRC-Ca-3																	-13.400	20707.0	1097.0	5.624
741	SRC-Ce-1																	-12.700	19944.0	1096.0	6.692
742	SRC-Ce-2																	-11.900	18913.0	1191.0	2.881
743	SRC-Ce-3																	-12.800	20042.0	1239.0	1.592
744	SRC-Ce-4																	-14.000	21866.0	1240.0	1.638
745	SRC-Eu-1																	-12.100	19223.0	1241.0	1.881
746	SRC-Gd-1																	-11.900	18941.0	1239.0	1.740
747	SRC-Gd-2																	-11.500	18418.0	1239.0	1.964
748	SRC-Gd-3																	-12.100	19150.0	1239.0	1.763
749	SRC-Gd-4																	-13.700	21362.0	1097.0	7.035
750	SRC-K-1																	-11.200	18126.0	1289.0	1.460
751	SRC-K-2																	-12.600	19605.0	1098.0	5.601
752	SRC-K-3																				
753	SRC-K-3i																				
754	SRC-Li-1																	-12.100	22194.0	1389.0	3.399
755	SRC-Li-2																	-11.600	20126.0	1338.0	2.378
756	SRC-Li-3																	-12.700	19675.0	1097.0	5.871
757	SRC-Mg-1																	-14.000	21647.0	1190.0	2.100
758	SRC-Mg-2																	-12.900	19912.0	1239.0	1.408
759	SRC-Mg-3																				
760	SRC-Na-1																	-12.000	21104.0	1388.0	2.059
761	SRC-Na-2																	-12.300	19914.0	1238.0	2.393
762	SRC-Pb-1																	-11.800	18771.0	1239.0	1.901
763	SRC-Pb-2																	-12.700	19628.0	1196.0	2.033
764	SRC-Pb-3																	-11.300	17621.0	1239.0	1.566
765	SRC-Si-1																	-11.000	16823.0	1239.0	1.184
766	SRC-Si-2																	-11.100	20166.0	1386.0	2.737
767	SRC-Sm-1																	-11.800	18947.0	1240.0	1.947
768	SRC-Sn-1																	-12.900	20472.0	1239.0	1.839
769	SRC-Sn-2																	-14.200	22304.0	1239.0	1.769
770	SRC-Sn-3																				
771	SRC-Ti-1																	-11.700	18672.0	1239.0	1.898
772	SRC-Ti-2																	-12.800	19802.0	1239.0	1.329
773	SRC-Zr-1																	-10.700	17113.0	1239.0	1.822
774	SRC-Zr-2																	-13.300	20889.0	1239.0	1.765
775	1																			1250.0	>580
776	2																			1250.0	2.200
777	3																			1250.0	2.400
778	4																			1250.0	1.300
779	5																			1250.0	1.800
780	6																			1250.0	1.200
781	7																			1250.0	>580
782	8																			1250.0	74.000
783	9																			1250.0	97.000
784	10																			1250.0	1.800
785	11																			1250.0	6.000
786	12																			1250.0	10.500
787	13																			1250.0	35.000
788	14																			1250.0	>580
789	15																			1250.0	47.000
790	16																			1250.0	2.500
791	17																			1250.0	82.000
792	18																			1250.0	33.000
793	19																			1250.0	30.000
794	20																			1250.0	28.000
795	21																			1250.0	96.000
796	22																			1250.0	1.200
797	23																			1250.0	64.000
798	24																			1250.0	0.550
799	25																			1250.0	>580
800	26											24.5 wt% NiFe2O4/Zn2Ti3O8	65 wt% NaAlSiO4/NiFe2O4							1250.0	>580
801	27											3.5 wt% Cr2O3/CaTiSiO5	18 wt% CaTiSiO5/Cr2O3							1250.0	4.400
802	28											15 wt% ZnCr2O4	21 wt% ZnCr2O4/TiO2							1250.0	8.300
803	29											amorphous	12.5 wt% MgTi2O5							1250.0	7.700
804	30											amorphous	27 wt% CaTiSiO5/NiFe2O4							1250.0	0.130
805	31											10.5 wt% (Ni, Zn)(Fe,Cr)2O4	18 wt% (Ni,Zn)(Fe,Cr)CrO4							1250.0	6.600
806	32											amorphous	93.5 wt% NaAlSiO4/ZnAl2O4							1250.0	8.200
807	33											amorphous	11.5 wt% ZnAl2O4							1250.0	8.400
808	34											amorphous	11.5 wt% MgTi2O5							1250.0	0.620
809	35											15.5 wt% Mg(Cr,Fe,Al)2O4	19 wt% Mg(Cr,Fe,Al)2O4							1250.0	>580
810	36											15.5 wt% Mg(Cr,Fe,Al)2O4	22 wt% Mg(Cr,Fe,Al)2O4							1250.0	>580
811	37											4 wt% AlNi2Ti	16.5 wt% MgAl2O4/MgTi2O5							1250.0	140.000
812	38											6.5 wt% (Fe,Ti)Cr2O4	49.5 wt% NaAlSiO4/(Fe,Cr)Cr2O3							1250.0	49.500
813	39											amorphous	3 wt% NiFe2O4/(Ca,Na)FeSi2O6							1250.0	3.400
814	40											amorphous	4.5 wt% NiFe2O4/(Ca,Na)FeSi2O6							1250.0	3.300
815	41											13.5 wt% (Zn,Ni)Cr2O4/Cr2O3	42 wt% (Ca,Na)FeSi2O6/(Zn,Ni)Cr2O4							1250.0	6.800
816	42											30 wt% (Mg,Ni,Zn)(Al,Cr)2O4/TiC	35.5 wt% (Ca,Na)FeSi2O6/(Zn,Ni)Cr2O4							1250.0	>580
817	43											9 wt% (Mg,Ni,Zn)(Cr,Fe)2O4	18.5 wt% (Mg,Ni,Zn)(Cr,Fe)2O4/(Mg,Fe)Al2O4							1250.0	22.000
818	44											9 wt% (Mg,Ni,Zn)(Cr,Fe)2O4	22.5 wt% (Mg,Ni,Zn)(Cr,Fe)2O4/(Mg,Fe)Al2O4							1250.0	17.500
819	45											9 wt% (Mg,Ni,Zn)(Cr,Fe)2O4	20.5 wt% (Mg,Ni,Zn)(Cr,Fe)2O4/(Mg,Fe)Al2O4							1250.0	24.300
820	46											7 wt% MgCr2O4/Cr2O3	14 wt% Cr2O3/TiO2							1250.0	15.000

#	Glass ID	T2 (°C)	V2 (Pa·s)	T3 (°C)	V3 (Pa·s)	T4 (°C)	V4 (Pa·s)	T5 (°C)	V5 (Pa·s)	T6 (°C)	V6 (Pa·s)	T7 (°C)	V7 (Pa·s)	T8 (°C)	V8 (Pa·s)	T9 (°C)	V9 (Pa·s)	T10 (°C)	V10 (Pa·s)	TCLP Ag	TCLP As	TCLP Ba	TCLP Cd	TCLP Cr	TCLP Ni	TCLP Pb
739	SRC-Ca-2	1190	3.816	1141	5.9	1092.0	9.0	1042.0	15.2	1240.0	2.5	1190.0	3.8	1141.0	6.0	1092.0	9.2	1042.0	15.3							
740	SRC-Ca-3	1147	3.242	1196	1.9	1147.0	3.1	1097.0	5.3	1047.0	9.3	997.0	17.1	1096.0	5.4	1146.0	3.1	1196.0	1.9							
741	SRC-Ce-1	1046	11.270	996	20.0	1045.0	11.2	1096.0	6.7	1146.0	4.1	1196.0	2.6	1096.0	6.8	945.0	40.2	895.0	89.3							
742	SRC-Ce-2	1142	4.498	1092	7.3	1043.0	11.8	994.0	21.2	1191.0	2.8	1141.0	4.4	1093.0	7.2	1043.0	11.7	995.0	21.1							
743	SRC-Ce-3	1190	2.447	1142	3.9	1092.0	6.6	1042.0	11.1	1240.0	1.6	1190.0	2.5	1141.0	4.1	1092.0	7.0	1042.0	12.2							
744	SRC-Ce-4	1191	2.819	1142	5.3	1093.0	9.2	1043.0	17.0	1239.0	1.5	1190.0	2.4	1141.0	4.0	1092.0	6.5	1042.0	11.1							
745	SRC-Eu-1	1191	3.016	1142	4.7	1092.0	7.9	1043.0	12.8	1240.0	1.8	1191.0	3.0	1142.0	4.7	1093.0	7.3	1043.0	12.5							
746	SRC-Gd-1	1191	2.690	1142	4.3	1092.0	7.0	1042.0	11.2	1239.0	1.7	1190.0	2.7	1141.0	4.3	1092.0	7.2	1042.0	11.3							
747	SRC-Gd-2	1190	2.940	1141	4.6	1092.0	7.5	1042.0	11.8	1240.0	2.0	1190.0	3.0	1141.0	4.6	1092.0	7.5	1042.0	12.3							
748	SRC-Gd-3	1190	2.684	1140	4.2	1091.0	7.1	1042.0	11.6	1239.0	1.8	1190.0	2.7	1141.0	4.3	1092.0	7.1	1041.0	11.7							
749	SRC-Gd-4	1047	13.543	997	27.1	1047.0	13.9	1097.0	7.3	1147.0	4.0	1197.0	2.2	1097.0	6.2	947.0	41.4	897.0	95.6							
750	SRC-K-1	1239	2.049	1190	3.1	1141.0	4.9	1092.0	7.6	1289.0	1.5	1240.0	2.1	1190.0	3.2	1141.0	5.0	1092.0	7.7							
751	SRC-K-2	1148	3.370	1198	2.0	1148.0	3.3	1098.0	5.5	1048.0	9.4	998.0	16.7	1097.0	5.6	1147.0	3.4	1197.0	2.1							
752	SRC-K-3																									
753	SRC-K-3i																									
754	SRC-Li-1	1339	5.243	1290	7.7	1240.0	12.6	1189.0	21.1	1388.0	3.5	1339.0	5.4	1289.0	7.9	1240.0	13.0	1189.0	21.8							
755	SRC-Li-2	1288	3.568	1239	5.5	1190.0	8.1	1140.0	13.7	1338.0	2.3	1289.0	3.6	1239.0	5.6	1190.0	8.3	1140.0	14.1							
756	SRC-Li-3	1147	3.418	1196	2.0	1147.0	3.2	1097.0	5.4	1047.0	9.4	997.0	16.7	1096.0	5.6	1146.0	3.3	1197.0	2.1							
757	SRC-Mg-1	1141	3.728	1092	6.3	1042.0	11.4	994.0	21.4	1190.0	2.1	1141.0	3.7	1092.0	6.2	1042.0	11.1	994.0	20.8							
758	SRC-Mg-2	1189	2.071	1140	3.3	1091.0	5.6	1042.0	9.9	1239.0	1.4	1190.0	2.1	1140.0	3.3	1091.0	5.7	1042.0	9.9							
759	SRC-Mg-3																									
760	SRC-Na-1	1339	3.042	1289	4.7	1240.0	7.4	1190.0	11.3	1388.0	2.1	1339.0	3.1	1289.0	4.8	1240.0	7.5	1190.0	11.5							
761	SRC-Na-2	1188	3.776	1139	6.0	1090.0	10.0	1040.0	17.3	1238.0	2.4	1188.0	3.9	1139.0	6.2	1090.0	10.3	1040.0	17.9							
762	SRC-Pb-1	1190	2.848	1141	4.4	1091.0	7.3	1041.0	11.9	1240.0	1.8	1190.0	2.8	1141.0	4.4	1091.0	7.3	1042.0	12.0							
763	SRC-Pb-2	1146	3.179	1096	5.3	1046.0	9.0	996.0	16.4	1196.0	2.0	1146.0	3.3	1096.0	5.4	1046.0	9.4	996.0	16.8							
764	SRC-Pb-3	1190	2.089	1141	3.3	1091.0	5.3	1041.0	8.5	1239.0	1.5	1190.0	2.1	1140.0	3.3	1091.0	5.4	1041.0	8.6							
765	SRC-Si-1	1190	1.473	1141	2.3	1092.0	4.0	1240.0	1.2	1190.0	1.5	1142.0	2.3	1092.0	3.8											
766	SRC-Si-2	1337	4.151	1288	6.2	1239.0	9.3	1189.0	14.2	1388.0	2.8	1338.0	4.3	1289.0	6.3	1240.0	9.6	1190.0	14.6							
767	SRC-Sm-1	1190	2.977	1141	4.7	1092.0	7.8	1042.0	12.8	1240.0	2.0	1190.0	3.1	1141.0	4.9	1091.0	8.0	1042.0	13.1							
768	SRC-Sn-1	1189	2.878	1141	4.6	1050.0	13.2	1240.0	1.8	1190.0	2.9	1142.0	4.7	1092.0	8.0	1042.0	13.5									
769	SRC-Sn-2	1189	2.842	1140	4.9	1091.0	8.5	1042.0	15.7	1239.0	1.8	1190.0	2.9	1140.0	5.0	1091.0	8.9	1042.0	16.7							
770	SRC-Sn-3																									
771	SRC-Ti-1	1190	2.888	1141	4.4	1091.0	7.3	1042.0	11.9	1240.0	1.9	1190.0	2.9	1141.0	4.5	1091.0	7.5	1042.0	12.1							
772	SRC-Ti-2	1189	2.020	1140	3.2	1092.0	5.3	1042.0	9.2	1189.0	2.0	1140.0	3.2	1092.0	5.4	1042.0	9.4									
773	SRC-Zr-1	1190	2.661	1141	4.0	1092.0	6.3	1042.0	9.7	1240.0	1.8	1190.0	2.7	1140.0	4.0	1092.0	6.4	1042.0	9.9							
774	SRC-Zr-2	1189	2.734	1141	4.4	1091.0	7.6	1042.0	13.7	1239.0	1.7	1189.0	2.7	1141.0	4.5	1091.0	7.7	1041.0	13.8							
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#	Glass ID	TCLP Se	TCLP Zn	TCLP Al	TCLP B	TCLP Sb	TCLP Tl	TCLP V	Q PCT B (g/m²)	Q PCT Li (g/m²)	Q PCT Na (g/m²)	Q PCT Si (g/m²)	Q PCT pH	CCC PCT B (g/m²)	CCC PCT Li (g/m²)	CCC PCT Na (g/m²)	CCC PCT Si (g/m²)	CCC PCT pH	T1 (°C)
739	SRC-Ca-2								0.411	0.503	0.480	0.191	11.090						
740	SRC-Ca-3								0.630	0.696	0.670	0.216	11.330						
741	SRC-Ce-1								0.626	0.669	0.635	0.231	11.180						
742	SRC-Ce-2								0.605	0.663	0.618	0.228	11.230						
743	SRC-Ce-3								0.593	0.645	0.604	0.219	11.290						
744	SRC-Ce-4								0.626	0.669	0.631	0.227	11.190						
745	SRC-Eu-1								0.718	0.773	0.731	0.269	11.260						
746	SRC-Gd-1								0.342	0.431	0.416	0.160	11.030						
747	SRC-Gd-2								0.471	0.554	0.541	0.201	11.180						
748	SRC-Gd-3								0.558	0.592	0.579	0.216	11.190						
749	SRC-Gd-4								0.580	0.620	0.588	0.202	11.180						
750	SRC-K-1								0.472	0.504	0.481	0.182	11.100						
751	SRC-K-2								0.602	0.675	0.639	0.222	11.310						
752	SRC-K-3																		
753	SRC-K-3i																		
754	SRC-Li-1								0.253		0.314	0.108	10.260						
755	SRC-Li-2								0.315	0.361	0.363	0.130	10.610						
756	SRC-Li-3								0.617	0.668	0.639	0.243	11.300						
757	SRC-Mg-1								1.270	1.187	1.116	0.320	11.550						
758	SRC-Mg-2								4.042	3.419	3.306	0.651	11.980						
759	SRC-Mg-3																		
760	SRC-Na-1								0.140	0.239	0.165	0.088	10.160						
761	SRC-Na-2								0.422	0.484	0.454	0.170	10.920						
762	SRC-Pb-1								0.542	0.618	0.571	0.200	11.240						
763	SRC-Pb-2								0.498	0.573	0.534	0.193	11.210						
764	SRC-Pb-3								0.465	0.568	0.537	0.191	11.200						
765	SRC-Si-1								0.935	0.990	0.940	0.285	11.550						
766	SRC-Si-2								0.275	0.359	0.332	0.151	10.450						
767	SRC-Sm-1								0.792	0.826	0.795	0.290	11.380						
768	SRC-Sn-1								0.541	0.615	0.568	0.202	11.170						
769	SRC-Sn-2								0.440	0.513	0.474	0.180	11.090						
770	SRC-Sn-3																		
771	SRC-Ti-1								0.550	0.616	0.576	0.199	11.270						
772	SRC-Ti-2								0.483	0.538	0.493	0.188	11.110						
773	SRC-Zr-1								0.582	0.670	0.631	0.235	11.240						
774	SRC-Zr-2								0.462	0.538	0.498	0.168	11.230						
775	1																		
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#	Glass ID	EC1 (S/cm)	T2 (°C)	EC2 (S/cm)	T3 (°C)	EC3 (S/cm)	T4 (°C)	EC4 (S/cm)	T5 (°C)	EC5 (S/cm)	T6 (°C)	EC6 (S/cm)	A	B	To
739	SRC-Ca-2														
740	SRC-Ca-3														
741	SRC-Ce-1														
742	SRC-Ce-2														
743	SRC-Ce-3														
744	SRC-Ce-4														
745	SRC-Eu-1														
746	SRC-Gd-1														
747	SRC-Gd-2														
748	SRC-Gd-3														
749	SRC-Gd-4														
750	SRC-K-1														
751	SRC-K-2														
752	SRC-K-3														
753	SRC-K-3i														
754	SRC-Li-1														
755	SRC-Li-2														
756	SRC-Li-3														
757	SRC-Mg-1														
758	SRC-Mg-2														
759	SRC-Mg-3														
760	SRC-Na-1														
761	SRC-Na-2														
762	SRC-Pb-1														
763	SRC-Pb-2														
764	SRC-Pb-3														
765	SRC-Si-1														
766	SRC-Si-2														
767	SRC-Sm-1														
768	SRC-Sn-1														
769	SRC-Sn-2														
770	SRC-Sn-3														
771	SRC-Ti-1														
772	SRC-Ti-2														
773	SRC-Zr-1														
774	SRC-Zr-2														
775	1														
776	2														
777	3														
778	4														
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780	6														
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#	Glass ID	Study	Reference	Al2O3-t	B2O3-t	CaO-t	Fe2O3-t	FeO-t	K2O-t	Li2O-t	MgO-t	Na2O-t	NiO-t	P2O5-t	SiO2-t	ZrO2-t	Ag2O-t	As2O3-t	As2O5-t	BaO-t	BeO-t	Bi2O3-t	Br-t	CdO-t	Ce2O3-t	CeO2-t	Cl-t
821	47	Comp. Vs Properties Study	Chick et al. 1981																								
822	48	Comp. Vs Properties Study	Chick et al. 1981																								
823	49	Comp. Vs Properties Study	Chick et al. 1981																								
824	50	Comp. Vs Properties Study	Chick et al. 1981																								
825	51	Comp. Vs Properties Study	Chick et al. 1981																								
826	52	Comp. Vs Properties Study	Chick et al. 1981																								
827	53	Comp. Vs Properties Study	Chick et al. 1981																								
828	54	Comp. Vs Properties Study	Chick et al. 1981																								
829	55	Comp. Vs Properties Study	Chick et al. 1981																								
830	56	Comp. Vs Properties Study	Chick et al. 1981																								
831	57	Comp. Vs Properties Study	Chick et al. 1981																								
832	58	Comp. Vs Properties Study	Chick et al. 1981																								
833	59	Comp. Vs Properties Study	Chick et al. 1981																								
834	60	Comp. Vs Properties Study	Chick et al. 1981																								
835	61	Comp. Vs Properties Study	Chick et al. 1981																								
836	62	Comp. Vs Properties Study	Chick et al. 1981																								
837	63	Comp. Vs Properties Study	Chick et al. 1981																								
838	64	Comp. Vs Properties Study	Chick et al. 1981																								
839	65	Comp. Vs Properties Study	Chick et al. 1981																								
840	66	Comp. Vs Properties Study	Chick et al. 1981																								
841	67	Comp. Vs Properties Study	Chick et al. 1981																								
842	68	Comp. Vs Properties Study	Chick et al. 1981																								
843	69	Comp. Vs Properties Study	Chick et al. 1981																								
844	70	Comp. Vs Properties Study	Chick et al. 1981																								
845	71	Comp. Vs Properties Study	Chick et al. 1981																								
846	72	Comp. Vs Properties Study	Chick et al. 1981																								
847	73	Comp. Vs Properties Study	Chick et al. 1981																								
848	74	Comp. Vs Properties Study	Chick et al. 1981																								
849	75	Comp. Vs Properties Study	Chick et al. 1981																								
850	76	Comp. Vs Properties Study	Chick et al. 1981																								
851	77	Comp. Vs Properties Study	Chick et al. 1981																								
852	78	Comp. Vs Properties Study	Chick et al. 1981																								
853	79	Comp. Vs Properties Study	Chick et al. 1981																								
854	80	Comp. Vs Properties Study	Chick et al. 1981																								
855	81	Comp. Vs Properties Study	Chick et al. 1981																								
856	82	Comp. Vs Properties Study	Chick et al. 1981																								
857	83	Comp. Vs Properties Study	Chick et al. 1981																								
858	84	Comp. Vs Properties Study	Chick et al. 1981																								
859	85	Comp. Vs Properties Study	Chick et al. 1981																								
860	86	Comp. Vs Properties Study	Chick et al. 1981																								
861	87	Comp. Vs Properties Study	Chick et al. 1981																								
862	88	Comp. Vs Properties Study	Chick et al. 1981																								
863	89	Comp. Vs Properties Study	Chick et al. 1981																								
864	90	Comp. Vs Properties Study	Chick et al. 1981																								
865	91	Comp. Vs Properties Study	Chick et al. 1981																								
866	92	Comp. Vs Properties Study	Chick et al. 1981																								
867	93	Comp. Vs Properties Study	Chick et al. 1981																								
868	94	Comp. Vs Properties Study	Chick et al. 1981																								
869	95	Comp. Vs Properties Study	Chick et al. 1981																								
870	96	Comp. Vs Properties Study	Chick et al. 1981																								
871	97	Comp. Vs Properties Study	Chick et al. 1981																								
872	98	Comp. Vs Properties Study	Chick et al. 1981																								
873	99	Comp. Vs Properties Study	Chick et al. 1981																								
874	100	Comp. Vs Properties Study	Chick et al. 1981																								
875	101	Comp. Vs Properties Study	Chick et al. 1981																								
876	102	Comp. Vs Properties Study	Chick et al. 1981																								
877	31-01	WV HLW Formulation Study	Chick et al. 1984	0.0800	0.0000	0.1500	0.0000					0.1700			0.6000												
878	73-01	WV HLW Formulation Study	Chick et al. 1984	0.0800	0.0000	0.1500	0.0000					0.1700			0.6000												
879	27-02	WV HLW Formulation Study	Chick et al. 1984	0.0800	0.0200	0.0000	0.0000					0.3000			0.6000												
880	72-02	WV HLW Formulation Study	Chick et al. 1984	0.0800	0.0200	0.0000	0.0000					0.3000			0.6000												
881	09-03	WV HLW Formulation Study	Chick et al. 1984	0.0800	0.0000	0.0000	0.2000					0.1200			0.6000												
882	47-04	WV HLW Formulation Study	Chick et al. 1984	0.0000	0.0600	0.0000	0.0000		0.0009			0.1200	0.0077	0.0598	0.6000	0.0044										0.0026	
883	50-05	WV HLW Formulation Study	Chick et al. 1984	0.0000	0.0000	0.0000	0.0000		0.0009			0.1800	0.0077	0.0598	0.6000	0.0044										0.0026	
884	33-06	WV HLW Formulation Study	Chick et al. 1984	0.0800	0.2000	0.0000	0.0000					0.1200			0.6000												
885	59-06	WV HLW Formulation Study	Chick et al. 1984	0.0800	0.2000	0.0000	0.0000					0.1200			0.6000												
886	57-07	WV HLW Formulation Study	Chick et al. 1984	0.0000	0.0000	0.0400	0.2400					0.1200			0.6000												
887	83-08	WV HLW Formulation Study	Chick et al. 1984	0.0000	0.2000	0.0000	0.0000					0.2000			0.6000												
888	01-09	WV HLW Formulation Study	Chick et al. 1984	0.0000	0.0000	0.0000	0.2400					0.1600			0.6000												
889	26-10	WV HLW Formulation Study	Chick et al. 1984	0.0000	0.2000	0.0000	0.0800					0.1200			0.6000												
890	43-11	WV HLW Formulation Study	Chick et al. 1984	0.0600	0.0000	0.0000	0.0000		0.0009			0.1200	0.0077	0.0598	0.6000	0.0044										0.0026	
891	74-12	WV HLW Formulation Study	Chick et al. 1984	0.0000	0.0000	0.1500	0.0000					0.3000			0.5500												
892	49-13	WV HLW Formulation Study	Chick et al. 1984	0.0000	0.2000	0.1500	0.0000					0.1200			0.5300												
893	30-14	WV HLW Formulation Study	Chick et al. 1984	0.0800	0.0000	0.1500	0.0000		0.0009			0.1200	0.0077	0.0598	0.4300	0.0044										0.0026	
894	03-15	WV HLW Formulation Study	Chick et al. 1984	0.0000	0.0000	0.0000	0.2400		0.0009			0.1200	0.0077	0.0598	0.4200	0.0044										0.0026	
895	69-16	WV HLW Formulation Study	Chick et al. 1984	0.0800	0.0000	0.1500	0.2400					0.1200			0.4100												
896	85-16	WV HLW Formulation Study	Chick et al. 1984	0.0800	0.0000	0.1500	0.2400					0.1200			0.4100												
897	45-17	WV HLW Formulation Study	Chick et al. 1984	0.0800	0.0000	0.0000	0.0000		0.0009			0.3000	0.0077	0.0598	0.4000	0.0044										0.0026	
898	34-18	WV HLW Formulation Study	Chick et al. 1984	0.0800	0.2000	0.0000	0.0000		0.0009			0.1200	0.0077	0.0598	0.3800	0.0044										0.0026	
899	36-19	WV HLW Formulation Study	Chick et al. 1984	0.0800	0.0000	0.0000	0.2400					0.3000			0.3800												
900	60-20	WV HLW Formulation Study	Chick et al. 1984	0.0800	0.2000	0.0000	0.2400					0.1200			0.3600												
901	17-21	WV HLW Formulation Study	Chick et al. 1984	0.0000	0.1100	0.0000	0.2400					0.3000			0.3500												
902	20-22	WV HLW Formulation Study	Chick et al. 1984	0.0000	0.0000	0.0000	0.2400		0.0004			0.3000	0.0039	0.0299	0.3500	0.0022										0.0013	

#	Glass ID	CoO-t	Co2O3-t	Cr2O3-t	Cs2O-t	CuO-t	Dy2O3-t	Eu2O3-t	F-t	Ga2O3-t	Gd2O3-t	HfO2-t	HgO-t	I-t	La2O3-t	MnO2-t	MnO-t	MoO-t	MoO2-t	MoO3-t	Nb2O5-t	Nd2O3-t	NpO2-t	PbO-t	PdO2-t	PdO-t	Pr2O3-t	Pr6O11-t	Rb2O-t	ReO-t
821	47																												
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873	99																												
874	100																												
875	101																												
876	102																												
877	31-01																												
878	73-01																												
879	27-02																												
880	72-02																												
881	09-03																												
882	47-04			0.0163	0.0033											0.0101				0.0042		0.0040							
883	50-05			0.0163	0.0033											0.0101				0.0042		0.0040							
884	33-06																												
885	59-06																												
886	57-07																												
887	83-08																												
888	01-09																												
889	26-10																												
890	43-11			0.0163	0.0033											0.0101				0.0042		0.0040							
891	74-12																												
892	49-13																												
893	30-14			0.0163	0.0033											0.0101				0.0042		0.0040							
894	03-15			0.0163	0.0033											0.0101				0.0042		0.0040							
895	69-16																												
896	85-16																												
897	45-17			0.0163	0.0033											0.0101				0.0042		0.0040							
898	34-18			0.0163	0.0033											0.0101				0.0042		0.0040							
899	36-19																												
900	60-20																												
901	17-21																												
902	20-22			0.0081	0.0017											0.0051				0.0021		0.0020							

#	Glass ID	ReO2-t	Re2O7-t	Rh2O3-t	RhO2-t	RuO2-t	Ru2O3-t	Sb2O3-t	Sb2O5-t	SeO2-t	Sm2O3-t	SnO-t	SnO2-t	SO3-t	SrO-t	Tc2O7-t	TeO2-t	ThO2-t	TiO2-t	Tl2O-t	Tl2O3-t	U3O8-t	UO2-t	UO3-t	V2O5-t	WO3-t	Y2O3-t	ZnO-t	Sum-t	Al2O3-a
821	47																											0.0000	0.1122
822	48																											0.0000	0.2142
823	49																											0.0000	0.0000
824	50																											0.0000	0.0361
825	51																											0.0000	0.0375
826	52																											0.0000	0.0361
827	53																											0.0000	0.0000
828	54																											0.0000	0.2153
829	55																											0.0000	0.2230
830	56																											0.0000	0.0485
831	57																											0.0000	0.1981
832	58																											0.0000	0.2093
833	59																											0.0000	0.0000
834	60																											0.0000	0.0491
835	61																											0.0000	0.2236
836	62																											0.0000	0.1984
837	63																											0.0000	0.0190
838	64																											0.0000	0.1919
839	65																											0.0000	0.2072
840	66																											0.0000	0.2087
841	67																											0.0000	0.2219
842	68																											0.0000	0.2089
843	69																											0.0000	0.0000
844	70																											0.0000	0.1220
845	71																											0.0000	0.0777
846	72																											0.0000	0.1099
847	73																											0.0000	0.0882
848	74																											0.0000	0.0000
849	75																											0.0000	0.2204
850	76																											0.0000	0.1168
851	77																											0.0000	0.0836
852	78																											0.0000	0.1095
853	79																											0.0000	0.0917
854	80																											0.0000	0.1096
855	81																											0.0000	0.0930
856	82																											0.0000	0.1077
857	83																											0.0000	0.0948
858	84																											0.0000	0.1093
859	85																											0.0000	0.0918
860	86																											0.0000	0.1077
861	87																											0.0000	0.0962
862	88																											0.0000	0.1080
863	89																											0.0000	0.0960
864	90																											0.0000	0.1045
865	91																											0.0000	0.0968
866	92																											0.0000	0.2040
867	93																											0.0000	0.2143
868	94																											0.0000	0.2073
869	95																											0.0000	0.2411
870	96																											0.0000	0.0000
871	97																											0.0000	0.0000
872	98																											0.0000	0.0000
873	99																											0.0000	0.0000
874	100																											0.0000	0.1519
875	101																											0.0000	0.0000
876	102																											0.0000	0.0411
877	31-01																											1.0000	0.0815
878	73-01																											1.0000	0.0830
879	27-02																											1.0000	0.0838
880	72-02																											1.0000	0.0836
881	09-03																											1.0000	0.0814
882	47-04														0.0033			0.0781					0.0253					1.0000	0.0041
883	50-05														0.0033			0.0781					0.0253					1.0000	0.0104
884	33-06																											1.0000	0.0832
885	59-06																											1.0000	0.0832
886	57-07																											1.0000	0.0111
887	83-08																											1.0000	0.0044
888	01-09																											1.0000	0.0102
889	26-10																											1.0000	0.0064
890	43-11														0.0033			0.0781					0.0253					1.0000	0.0642
891	74-12																											1.0000	0.0038
892	49-13																											1.0000	0.0029
893	30-14														0.0033			0.0781					0.0253					1.0000	0.0880
894	03-15														0.0033			0.0781					0.0253					1.0000	0.0134
895	69-16																											1.0000	0.0896
896	85-16																											1.0000	0.0883
897	45-17														0.0033			0.0781					0.0253					1.0000	0.0825
898	34-18														0.0033			0.0781					0.0253					1.0000	0.0847
899	36-19																											1.0000	0.0898
900	60-20																											1.0000	0.0848
901	17-21																											1.0000	0.0081
902	20-22														0.0017			0.0391					0.0127					1.0000	0.0104

#	Glass ID	B2O3-a	CaO-a	Fe2O3-a	FeO-a	K2O-a	Li2O-a	MgO-a	Na2O-a	NiO-a	P2O5-a	SiO2-a	ZrO2-a	Ag2O-a	As2O3-a	As2O5-a	BaO-a	BeO-a	Bi2O3-a	Br-a	CdO-a	Ce2O3-a	CeO2-a	Cl-a	CoO-a	Co2O3-a	Cr2O3-a	Cs2O-a	CuO-a	F-a
821	47	0.0714	0.0989	0.0650				0.0511	0.1009	0.0270		0.3878															0.0000			
822	48	0.0604	0.0357	0.0476				0.0000	0.1336	0.0192		0.3526															0.0577			
823	49	0.1493	0.0000	0.0267				0.0000	0.1471	0.0000		0.5028															0.0000			
824	50	0.1359	0.0000	0.0000				0.0533	0.0896	0.0000		0.5330															0.0771			
825	51	0.1344	0.0000	0.0000				0.0488	0.0883	0.0000		0.5395															0.0792			
826	52	0.1371	0.0000	0.0000				0.0508	0.0867	0.0000		0.5406															0.0748			
827	53	0.0739	0.0000	0.0773				0.0554	0.1413	0.0315		0.5432															0.0000			
828	54	0.0615	0.0557	0.0573				0.0000	0.0966	0.0000		0.4486															0.0650			
829	55	0.1272	0.0081	0.0000				0.0464	0.1445	0.0226		0.3605															0.0678			
830	56	0.1422	0.1119	0.0000				0.0000	0.1370	0.0000		0.3958															0.0000			
831	57	0.0638	0.0000	0.0000				0.0000	0.1229	0.0225		0.3732															0.0686			
832	58	0.1346	0.0000	0.0000				0.0498	0.1429	0.0000		0.3754															0.0000			
833	59	0.0701	0.0976	0.0000				0.0000	0.1022	0.0308		0.5265															0.0789			
834	60	0.0725	0.1116	0.0621				0.0000	0.1590	0.0000		0.5456															0.0000			
835	61	0.0720	0.1091	0.0000				0.0517	0.1130	0.0000		0.4306															0.0000			
836	62	0.1278	0.0292	0.0656				0.0000	0.0790	0.0000		0.3565															0.0000			
837	63	0.1446	0.1122	0.0743				0.0519	0.0923	0.0290		0.4024															0.0000			
838	64	0.0701	0.1088	0.0000				0.0000	0.1405	0.0288		0.3863															0.0000			
839	65	0.0687	0.1082	0.0000				0.0000	0.1332	0.0286		0.3822															0.0000			
840	66	0.0687	0.1090	0.0000				0.0000	0.1360	0.0231		0.3814															0.0000			
841	67	0.1274	0.0089	0.0000				0.0465	0.1474	0.0248		0.3576															0.0657			
842	68	0.1317	0.1013	0.0000				0.0000	0.0979	0.0255		0.3676															0.0670			
843	69	0.0713	0.0093	0.0000				0.0000	0.1270	0.0281		0.5394															0.0549			
844	70	0.0975	0.0646	0.0419				0.0265	0.1338	0.0174		0.3690															0.0333			
845	71	0.0764	0.0393	0.0268				0.0178	0.1124	0.0125		0.5514															0.0255			
846	72	0.0555	0.0580	0.0401				0.0244	0.1290	0.0176		0.4427															0.0359			
847	73	0.1484	0.0468	0.0309				0.0204	0.1238	0.0145		0.4290															0.0295			
848	74	0.1017	0.0664	0.0442				0.0298	0.1392	0.0195		0.4676															0.0351			
849	75	0.0768	0.0401	0.0252				0.0167	0.1091	0.0107		0.4181															0.0218			
850	76	0.0919	0.0000	0.0417				0.0269	0.1303	0.0173		0.4409															0.0397			
851	77	0.0867	0.1141	0.0291				0.0196	0.1233	0.0147		0.4315															0.0277			
852	78	0.0889	0.0578	0.0394				0.0000	0.1287	0.0174		0.4388															0.0353			
853	79	0.0891	0.0504	0.0341				0.0541	0.1256	0.0148		0.4377															0.0301			
854	80	0.0902	0.0586	0.0376				0.0243	0.0849	0.0165		0.4512															0.0358			
855	81	0.0875	0.0503	0.0334				0.0205	0.1557	0.0145		0.4421															0.0295			
856	82	0.0942	0.0567	0.0380				0.0246	0.1291	0.0200		0.4460															0.0362			
857	83	0.0873	0.0397	0.0330				0.0220	0.1235	0.0154		0.4371															0.0314			
858	84	0.0933	0.0584	0.0404				0.0264	0.1319	0.0189		0.4464															0.0362			
859	85	0.0843	0.0488	0.0330				0.0214	0.1207	0.0143		0.4274															0.0314			
860	86	0.0946	0.0576	0.0386				0.0255	0.1310	0.0169		0.4443															0.0000			
861	87	0.0778	0.0505	0.0324				0.0211	0.1151	0.0152		0.4385															0.0750			
862	88	0.0927	0.0569	0.0000				0.0244	0.1285	0.0170		0.4538															0.0345			
863	89	0.0867	0.0487	0.0786				0.0228	0.1274	0.0151		0.4193															0.0308			
864	90	0.0931	0.0550	0.0356				0.0233	0.1280	0.0000		0.4453															0.0339			
865	91	0.0867	0.0507	0.0355				0.0227	0.1241	0.0377		0.4366															0.0316			
866	92	0.0504	0.0318	0.0793				0.0000	0.0871	0.0360		0.5115															0.0000			
867	93	0.0532	0.0330	0.0000				0.0000	0.0929	0.0000		0.5210															0.0000			
868	94	0.0287	0.0327	0.0000				0.0000	0.0873	0.0000		0.5263															0.0756			
869	95	0.0552	0.0000	0.0000				0.0000	0.1466	0.0329		0.5242															0.0000			
870	96	0.1204	0.0899	0.0764				0.0000	0.0889	0.0347		0.3507															0.0770			
871	97	0.1538	0.0189	0.0955				0.0593	0.1654	0.0000		0.4184															0.0000			
872	98	0.1384	0.1176	0.0000				0.0557	0.0972	0.0394		0.3798															0.0850			
873	99	0.1194	0.1115	0.0805				0.0000	0.1527	0.0161		0.3645															0.0789			
874	100	0.1183	0.0363	0.0000				0.0000	0.1231	0.0000		0.5080															0.0000			
875	101	0.1320	0.0391	0.0824				0.0000	0.1326	0.0000		0.5460															0.0000			
876	102	0.0982	0.1087	0.0520				0.0388	0.1336	0.0000		0.4193															0.0024			
877	31-01	0.0000	0.1496	0.0000					0.1665			0.6025																		
878	73-01	0.0000	0.1530	0.0000					0.1740			0.5900																		
879	27-02	0.0000	0.0021	0.0000					0.2996			0.6145																		
880	72-02	0.0000	0.0033	0.0000					0.3084			0.6047																		
881	09-03	0.0000	0.0000	0.1719					0.1200			0.6267																		
882	47-04	0.0601	0.0015	0.0000		0.0008			0.1328	0.0069	0.0533	0.6055	0.0039										0.0024				0.0145	0.0029		
883	50-05	0.0000	0.0013	0.0000		0.0008			0.1816	0.0070	0.0547	0.6053	0.0040										0.0024				0.0149	0.0030		
884	33-06	0.1922	0.0014	0.0000					0.1189			0.6043																		
885	59-06	0.1945	0.0016	0.0000					0.1193			0.6014																		
886	57-07	0.0000	0.0423	0.2002					0.1227			0.6237																		
887	83-08	0.1947	0.0025	0.0000					0.2103			0.5881																		
888	01-09	0.0000	0.0039	0.2043					0.1636			0.6179																		
889	26-10	0.1931	0.0020	0.0680					0.1186			0.6120																		
890	43-11	0.0000	0.0031	0.0000		0.0008			0.1204	0.0074	0.0571	0.6022	0.0042										0.0025				0.0156	0.0032		
891	74-12	0.0000	0.1492	0.0000					0.3034			0.5436																		
892	49-13	0.2005	0.1511	0.0000					0.1280			0.5174																		
893	30-14	0.0000	0.1548	0.0000		0.0009			0.1272	0.0075	0.0580	0.4167	0.0043										0.0026				0.0158	0.0032		
894	03-15	0.0000	0.0031	0.2086		0.0008			0.1239	0.0074	0.0574	0.4398	0.0042										0.0025				0.0156	0.0032		
895	69-16	0.0000	0.1568	0.2037					0.1273			0.4226																		
896	85-16	0.0000	0.1584	0.2000					0.1259			0.4274																		
897	45-17	0.0000	0.0007	0.0000		0.0008			0.2984	0.0074	0.0576	0.4063	0.0042										0.0025				0.0157	0.0032		
898	34-18	0.1992	0.0020	0.0000		0.0008			0.1215	0.0071	0.0553	0.3892	0.0041										0.0024				0.0151	0.0031		
899	36-19	0.0000	0.0026	0.2031					0.2984			0.4062																		
900	60-20	0.2356	0.0024	0.1943					0.1172			0.3657																		
901	17-21	0.1126	0.0022	0.2050					0.2979			0.3742																		
902	20-22	0.0000	0.0039	0.2085		0.0004			0.2956	0.0038	0.0292	0.3740	0.0022										0.0013				0.0080	0.0016		

#	Glass ID	Ga2O3-a	Gd2O3-a	I-a	La2O3-a	MnO2-a	MnO-a	MoO-a	MoO3-a	Nb2O5-a	Nd2O3-a	NpO2-a	PbO-a	PdO2-a	PdO-a	Pr2O3-a	Pr6O11-a	PuO2-a	Rb2O-a	ReO-a	ReO2-a	Re2O7-a	Rh2O3-a	RhO2-a	RuO2-a	Sb2O3-a	Sb2O5-a	SeO2-a
821	47																											
822	48																											
823	49																											
824	50																											
825	51																											
826	52																											
827	53																											
828	54																											
829	55																											
830	56																											
831	57																											
832	58																											
833	59																											
834	60																											
835	61																											
836	62																											
837	63																											
838	64																											
839	65																											
840	66																											
841	67																											
842	68																											
843	69																											
844	70																											
845	71																											
846	72																											
847	73																											
848	74																											
849	75																											
850	76																											
851	77																											
852	78																											
853	79																											
854	80																											
855	81																											
856	82																											
857	83																											
858	84																											
859	85																											
860	86																											
861	87																											
862	88																											
863	89																											
864	90																											
865	91																											
866	92																											
867	93																											
868	94																											
869	95																											
870	96																											
871	97																											
872	98																											
873	99																											
874	100																											
875	101																											
876	102																											
877	31-01																											
878	73-01																											
879	27-02																											
880	72-02																											
881	09-03																											
882	47-04					0.0090			0.0037		0.0035																	
883	50-05					0.0092			0.0038		0.0036																	
884	33-06																											
885	59-06																											
886	57-07																											
887	83-08																											
888	01-09																											
889	26-10																											
890	43-11					0.0096			0.0040		0.0038																	
891	74-12																											
892	49-13																											
893	30-14					0.0098			0.0041		0.0038																	
894	03-15					0.0097			0.0040		0.0038																	
895	69-16																											
896	85-16																											
897	45-17					0.0097			0.0040		0.0038																	
898	34-18					0.0093			0.0039		0.0037																	
899	36-19																											
900	60-20																											
901	17-21																											
902	20-22					0.0050			0.0021		0.0019																	

#	Glass ID	Sm2O3-a	SnO-a	SnO2-a	SO3-a	SrO-a	Tc2O7-a	TeO2-a	ThO2-a	TiO2-a	Tl2O-a	Tl2O3-a	U3O8-a	UO2-a	UO3-a	V2O5-a	WO3-a	Y2O3-a	ZnO-a	Sum-a	T_M (°C)	$T_{L,G}$ (°C)	$T_{L,U}$ (°C)	$T_{1\%}$ (°C)	Primary Phase	$C_{650°C}$	$C_{700°C}$	$C_{750°C}$
821	47									0.0855									0.0000	1.0000	1250							
822	48									0.0790									0.0000	1.0000	1300							
823	49									0.0960									0.0780	1.0000	1200							
824	50									0.0000									0.0751	1.0000	1200							
825	51									0.0000									0.0723	1.0000	1200							
826	52									0.0000									0.0738	1.0000	1200							
827	53									0.0000									0.0775	1.0000	1200							
828	54									0.0000									0.0000	1.0000	1250							
829	55									0.0000									0.0000	1.0000	1250							
830	56									0.0908									0.0737	1.0000	1050							
831	57									0.0842									0.0668	1.0000	1150							
832	58									0.0880									0.0000	1.0000	1150							
833	59									0.0939									0.0000	1.0000	1300							
834	60									0.0000									0.0000	1.0000	1050							
835	61									0.0000									0.0000	1.0000	1250							
836	62									0.0788									0.0647	1.0000	1300							
837	63									0.0000									0.0744	1.0000	1150							
838	64									0.0000									0.0735	1.0000	1200							
839	65									0.0000									0.0719	1.0000	1200							
840	66									0.0000									0.0731	1.0000	1200							
841	67									0.0000									0.0000	1.0000	1150							
842	68									0.0000									0.0000	1.0000	1400							
843	69									0.0927									0.0772	1.0000	1400							
844	70									0.0536									0.0404	1.0000	1280							
845	71									0.0341									0.0261	1.0000	1570							
846	72									0.0484									0.0385	1.0000	1350							
847	73									0.0381									0.0303	1.0000	1250							
848	74									0.0541									0.0426	1.0000	1150							
849	75									0.0355									0.0256	1.0000	1600							
850	76									0.0533									0.0413	1.0000	1450							
851	77									0.0412									0.0284	1.0000	1150							
852	78									0.0476									0.0366	1.0000	1350							
853	79									0.0402									0.0322	1.0000	1250							
854	80									0.0529									0.0383	1.0000	1450							
855	81									0.0418									0.0316	1.0000	1210							
856	82									0.0475									0.0000	1.0000	1250							
857	83									0.0413									0.0745	1.0000	1250							
858	84									0.0000									0.0388	1.0000	1250							
859	85									0.0943									0.0324	1.0000	1350							
860	86									0.0470									0.0368	1.0000	1250							
861	87									0.0452									0.0331	1.0000	1550							
862	88									0.0472									0.0370	1.0000	1350							
863	89									0.0416									0.0330	1.0000	1300							
864	90									0.0463									0.0351	1.0000	1410							
865	91									0.0438									0.0338	1.0000	1250							
866	92									0.0000									0.0000	1.0000	1610							
867	93									0.0857									0.0000	1.0000	1600							
868	94									0.0420									0.0000	1.0000	1720							
869	95									0.0000									0.0000	1.0000	1600							
870	96									0.0888									0.0733	1.0000	1450							
871	97									0.0000									0.0886	1.0000	1050							
872	98									0.0869									0.0000	1.0000	1350							
873	99									0.0000									0.0762	1.0000	1450							
874	100									0.0000									0.0624	1.0000	1400							
875	101									0.0000									0.0679	1.0000	1250							
876	102									0.0719									0.0341	1.0000	1200							
877	31-01																			1.0001								
878	73-01																			1.0000								
879	27-02																			1.0000								
880	72-02																			1.0000								
881	09-03																			1.0000								
882	47-04					0.0029			0.0696					0.0225						1.0000								
883	50-05					0.0030			0.0715					0.0232						1.0000								
884	33-06																			1.0000								
885	59-06																			1.0000								
886	57-07																			1.0000								
887	83-08																			1.0000								
888	01-09																			0.9999								
889	26-10																			1.0001								
890	43-11					0.0032			0.0746					0.0242						0.9999								
891	74-12																			1.0000								
892	49-13																			0.9999								
893	30-14					0.0032			0.0757					0.0245						0.9999								
894	03-15					0.0032			0.0750					0.0243						1.0000								
895	69-16																			1.0000								
896	85-16																			1.0000								
897	45-17					0.0032			0.0753					0.0244						0.9999								
898	34-18					0.0031			0.0722					0.0234						1.0000								
899	36-19																			1.0001								
900	60-20																			1.0000								
901	17-21																			1.0000								
902	20-22					0.0016			0.0382					0.0124						0.9999								

#	Glass ID	$C_{800°C}$	$C_{850°C}$	$C_{900°C}$	$C_{950°C}$	$C_{1000°C}$	$C_{1050°C}$	$C_{1100°C}$	$C_{1150°C}$	$C_{1200°C}$	Quenched Visual/OM	Quenched XRD	CCC XRD	ρ (g/cm³)	Fulc Visc A	Fulc Visc B	Fulc Visc To	Arrh Visc E	Arrh Visc F	T1 (°C)	V1 (Pa·s)
821	47											4.5 wt% Ni(Fe,Ti)2O4	32 wt% (Ca,Fe,Mg)SiO3/CaTiSiO5							1250.0	1.800
822	48											13.5 wt% Cr2O3/Ni(Cr,Ti,Fe)2O4	55 wt% NaAlSiO4/TiO2							1250.0	80.000
823	49											amorphous	4 wt% TiO2							1250.0	2.300
824	50											18.5 wt% (Mg,Zn)Cr2O4	18.5 wt% (Mg,Zn)Cr2O4							1250.0	52.300
825	51											20.5 wt% (Mg,Zn)Cr2O4	19 wt% (Mg,Zn)Cr2O4							1250.0	60.000
826	52											20 wt% (Mg,Zn)Cr2O4	18.5 wt% (Mg,Zn)Cr2O4							1250.0	35.000
827	53											amorphous	6.5 wt% NiSiO4							1250.0	1.300
828	54											9.5 wt% (Cr,Fe)CrO3	2.4 wt% (Cr,Fe)CrO3/(Na,Ca)Al3Si5O16							1250.0	>580
829	55											16.5 wt% (Ni,Mg)(Cr,Al)CrO4	17 wt% (Ni,Mg)(Cr,Al)CrO4/NiAl2O4							1250.0	58.500
830	56											amorphous	4 wt% Ca4Ti3O10							1250.0	0.390
831	57											27.5 wt% (Ni,Zn)(Cr,Ti,Al)CrO4	40.5 wt% (Ni,Zn)(Cr,Ti,Al)CrO4/NaAlSiO4							1250.0	>580
832	58											amorphous	15.5 wt% NaAlSiO4/MgTi2O5							1250.0	7.400
833	59											11.5 wt% Cr2O3/TiO2	19.5 wt% Cr2O3/CaTiSiO5							1250.0	29.300
834	60											amorphous	amorphous							1250.0	3.700
835	61											amorphous	21 wt% NaAlSiO4/CaAl2SiO6							1250.0	13.000
836	62											16.5 wt% unidentifiable	16 wt% Fe2TiO5/ZnAl2O4							1250.0	9.000
837	63											amorphous	30 wt% (Ca,Fe,Mg)SiO3/NiFe2O4							1250.0	0.900
838	64											amorphous	76.5 wt% NaAlSiO4/Ca2Al2SiO7							1250.0	5.100
839	65											amorphous	76 wt% NaAlSiO4/Ca2Al2SiO7							1250.0	6.800
840	66											amorphous	78 wt% NaAlSiO4/Ca2Al2SiO7							1250.0	5.700
841	67											18.5 wt% (Mg,Ni)(Al,Cr)CrO4	18 wt% (Mg,Ni)(Al,Cr)CrO4							1250.0	68.000
842	68											12.5 wt% Cr2O3/NiCr2O4	16.5 wt% NaAlSiO4/Cr2O3							1250.0	52.000
843	69											14 wt% (Ni,Zn)Cr2O4	26 wt% (Ni,Zn)Cr2O4/TiO2							1250.0	15.000
844	70											14 wt% spinel								1250.0	11.500
845	71											5.9 wt% spinel								1250.0	23.000
846	72											13 wt% spinel								1250.0	25.000
847	73											9.4 wt% spinel								1250.0	6.100
848	74											9.9 wt% spinel								1250.0	4.600
849	75											13.9 wt% spinel								1250.0	59.000
850	76											19.5 wt% spinel								1250.0	72.000
851	77											7.2 wt% spinel								1250.0	2.800
852	78											12.6 wt% spinel								1250.0	18.000
853	79											11.3 wt% spinel								1250.0	13.000
854	80											13.3 wt% spinel								1250.0	35.000
855	81											7 wt% spinel								1250.0	7.000
856	82											9.4 wt% spinel								1250.0	10.000
857	83											12.9 wt% spinel								1250.0	14.000
858	84											12.7 wt% spinel								1250.0	15.000
859	85											10.2 wt% spinel								1250.0	8.200
860	86											amorphous								1250.0	2.700
861	87											18.8 wt% spinel								1250.0	43.000
862	88											10.7 wt% spinel								1250.0	8.600
863	89											12.8wt% spinel								1250.0	21.000
864	90											10.1 wt% spinel								1250.0	
865	91											15.5 wt% spinel								1250.0	6.100
866	92											4.3 wt% unknown								1250.0	64.000
867	93											amorphous								1250.0	180.000
868	94											10.7 wt% FeNiBO4								1250.0	
869	95											2 wt% unknown								1250.0	230.000
870	96											18.4 wt% spinel								1250.0	19.000
871	97											amorphous								1250.0	0.130
872	98											10.9 wt% Cr2O3								1250.0	4.000
873	99											13.4 wt% spinel								1250.0	11.000
874	100											amorphous								1250.0	16.000
875	101											amorphous								1250.0	1.600
876	102											amorphous								1250.0	0.450
877	31-01										amorphous									1454.0	3.000
878	73-01										amorphous									1460.0	3.000
879	27-02										amorphous									1431.0	3.000
880	72-02										amorphous									1332.0	3.000
881	09-03										amorphous									1747.0	3.000
882	47-04										0.05 crystallinity									1600.0	3.000
883	50-05										amorphous									1522.0	3.000
884	33-06										amorphous									1503.0	3.000
885	59-06										amorphous									1589.0	3.000
886	57-07										amorphous									1445.0	3.000
887	83-08										amorphous									1176.0	3.000
888	01-09										amorphous									1503.0	3.000
889	26-10										amorphous									1364.0	3.000
890	43-11										0.16 crystallinity									1806.0	3.000
891	74-12										amorphous									1176.0	3.000
892	49-13										amorphous									1152.0	3.000
893	30-14										amorphous									1383.0	3.000
894	03-15										amorphous									1399.0	3.000
895	69-16										amorphous									1317.0	3.000
896	85-16										amorphous									1307.0	3.000
897	45-17										0.14 crystallinity									1330.0	3.000
898	34-18										amorphous									1343.0	3.000
899	36-19										amorphous									1249.0	3.000
900	60-20										0.12 crystallinity									1258.0	3.000
901	17-21										amorphous									870.0	3.000
902	20-22										0.71 crystallinity									1073.0	3.000

#	Glass ID	T2 (°C)	V2 (Pa·s)	T3 (°C)	V3 (Pa·s)	T4 (°C)	V4 (Pa·s)	T5 (°C)	V5 (Pa·s)	T6 (°C)	V6 (Pa·s)	T7 (°C)	V7 (Pa·s)	T8 (°C)	V8 (Pa·s)	T9 (°C)	V9 (Pa·s)	T10 (°C)	V10 (Pa·s)	TCLP Ag	TCLP As	TCLP Ba	TCLP Cd	TCLP Cr	TCLP Ni	TCLP Pb
821	47																									
822	48																									
823	49																									
824	50																									
825	51																									
826	52																									
827	53																									
828	54																									
829	55																									
830	56																									
831	57																									
832	58																									
833	59																									
834	60																									
835	61																									
836	62																									
837	63																									
838	64																									
839	65																									
840	66																									
841	67																									
842	68																									
843	69																									
844	70																									
845	71																									
846	72																									
847	73																									
848	74																									
849	75																									
850	76																									
851	77																									
852	78																									
853	79																									
854	80																									
855	81																									
856	82																									
857	83																									
858	84																									
859	85																									
860	86																									
861	87																									
862	88																									
863	89																									
864	90																									
865	91																									
866	92																									
867	93																									
868	94																									
869	95																									
870	96																									
871	97																									
872	98																									
873	99																									
874	100																									
875	101																									
876	102																									
877	31-01																									
878	73-01																									
879	27-02																									
880	72-02																									
881	09-03																									
882	47-04																									
883	50-05																									
884	33-06																									
885	59-06																									
886	57-07																									
887	83-08																									
888	01-09																									
889	26-10																									
890	43-11																									
891	74-12																									
892	49-13																									
893	30-14																									
894	03-15																									
895	69-16																									
896	85-16																									
897	45-17																									
898	34-18																									
899	36-19																									
900	60-20																									
901	17-21																									
902	20-22																									

#	Glass ID	TCLP Se	TCLP Zn	TCLP Al	TCLP B	TCLP Sb	TCLP Tl	TCLP V	Q PCT B (g/m²)	Q PCT Li (g/m²)	Q PCT Na (g/m²)	Q PCT Si (g/m²)	Q PCT pH	CCC PCT B (g/m²)	CCC PCT Li (g/m²)	CCC PCT Na (g/m²)	CCC PCT Si (g/m²)	CCC PCT pH	T1 (°C)
821	47																		
822	48																		
823	49																		
824	50																		
825	51																		
826	52																		
827	53																		
828	54																		
829	55																		
830	56																		
831	57																		
832	58																		
833	59																		
834	60																		
835	61																		
836	62																		
837	63																		
838	64																		
839	65																		
840	66																		
841	67																		
842	68																		
843	69																		
844	70																		
845	71																		
846	72																		
847	73																		
848	74																		
849	75																		
850	76																		
851	77																		
852	78																		
853	79																		
854	80																		
855	81																		
856	82																		
857	83																		
858	84																		
859	85																		
860	86																		
861	87																		
862	88																		
863	89																		
864	90																		
865	91																		
866	92																		
867	93																		
868	94																		
869	95																		
870	96																		
871	97																		
872	98																		
873	99																		
874	100																		
875	101																		
876	102																		
877	31-01																		
878	73-01																		
879	27-02																		
880	72-02																		
881	09-03																		
882	47-04																		
883	50-05																		
884	33-06																		
885	59-06																		
886	57-07																		
887	83-08																		
888	01-09																		
889	26-10																		
890	43-11																		
891	74-12																		
892	49-13																		
893	30-14																		
894	03-15																		
895	69-16																		
896	85-16																		
897	45-17																		
898	34-18																		
899	36-19																		
900	60-20																		
901	17-21																		
902	20-22																		

#	Glass ID	EC1 (S/cm)	T2 (°C)	EC2 (S/cm)	T3 (°C)	EC3 (S/cm)	T4 (°C)	EC4 (S/cm)	T5 (°C)	EC5 (S/cm)	T6 (°C)	EC6 (S/cm)	A	B	To
821	47														
822	48														
823	49														
824	50														
825	51														
826	52														
827	53														
828	54														
829	55														
830	56														
831	57														
832	58														
833	59														
834	60														
835	61														
836	62														
837	63														
838	64														
839	65														
840	66														
841	67														
842	68														
843	69														
844	70														
845	71														
846	72														
847	73														
848	74														
849	75														
850	76														
851	77														
852	78														
853	79														
854	80														
855	81														
856	82														
857	83														
858	84														
859	85														
860	86														
861	87														
862	88														
863	89														
864	90														
865	91														
866	92														
867	93														
868	94														
869	95														
870	96														
871	97														
872	98														
873	99														
874	100														
875	101														
876	102														
877	31-01														
878	73-01														
879	27-02														
880	72-02														
881	09-03														
882	47-04														
883	50-05														
884	33-06														
885	59-06														
886	57-07														
887	83-08														
888	01-09														
889	26-10														
890	43-11														
891	74-12														
892	49-13														
893	30-14														
894	03-15														
895	69-16														
896	85-16														
897	45-17														
898	34-18														
899	36-19														
900	60-20														
901	17-21														
902	20-22														

#	Glass ID	Study	Reference	Al2O3-t	B2O3-t	CaO-t	Fe2O3-t	FeO-t	K2O-t	Li2O-t	MgO-t	Na2O-t	NiO-t	P2O5-t	SiO2-t	ZrO2-t	Ag2O-t	As2O3-t	As2O5-t	BaO-t	BeO-t	Bi2O3-t	Br-t	CdO-t	Ce2O3-t	CeO2-t	Cl-t
903	44-23	WV HLW Formulation Study	Chick et al. 1984	0.0000	0.0000	0.0000	0.1300		0.0009			0.3000	0.0077	0.0598	0.3500	0.0044										0.0026	
904	82-24	WV HLW Formulation Study	Chick et al. 1984	0.0000	0.2000	0.0000	0.0000		0.0006			0.3000	0.0053	0.0408	0.3500	0.0030										0.0018	
905	77-25	WV HLW Formulation Study	Chick et al. 1984	0.0800	0.2000	0.1500	0.1000					0.1200			0.3500												
906	75-26	WV HLW Formulation Study	Chick et al. 1984	0.0800	0.0800	0.1500	0.0000		0.0009			0.1200	0.0077	0.0598	0.3500	0.0044										0.0026	
907	22-27	WV HLW Formulation Study	Chick et al. 1984	0.0800	0.2000	0.0700	0.0000					0.3000			0.3500												
908	55-27	WV HLW Formulation Study	Chick et al. 1984	0.0800	0.2000	0.0700	0.0000					0.3000			0.3500												
909	64-28	WV HLW Formulation Study	Chick et al. 1984	0.0000	0.2000	0.0900	0.2400					0.1200			0.3500												
910	76-29	WV HLW Formulation Study	Chick et al. 1984	0.0000	0.2000	0.1100	0.0000		0.0009			0.1200	0.0077	0.0598	0.3500	0.0044										0.0026	
911	10-30	WV HLW Formulation Study	Chick et al. 1984	0.0000	0.0000	0.1500	0.2000					0.3000			0.3500												
912	37-31	WV HLW Formulation Study	Chick et al. 1984	0.0000	0.0000	0.1500	0.0000		0.0009			0.2800	0.0077	0.0598	0.3500	0.0044										0.0026	
913	48-32	WV HLW Formulation Study	Chick et al. 1984	0.0800	0.0000	0.0000	0.2300		0.0009			0.1200	0.0077	0.0598	0.3500	0.0044										0.0026	
914	66-33	WV HLW Formulation Study	Chick et al. 1984	0.0000	0.2000	0.1500	0.0000					0.3000			0.3500												
915	71-33	WV HLW Formulation Study	Chick et al. 1984	0.0000	0.2000	0.1500	0.0000					0.3000			0.3500												
916	07-34	WV HLW Formulation Study	Chick et al. 1984	0.0374	0.0809	0.0630	0.0926		0.0003			0.1939	0.0031	0.0237	0.4450	0.0017										0.0010	
917	42-34	WV HLW Formulation Study	Chick et al. 1984	0.0374	0.0809	0.0630	0.0926		0.0003			0.1939	0.0031	0.0237	0.4450	0.0017										0.0010	
918	63-34	WV HLW Formulation Study	Chick et al. 1984	0.0374	0.0809	0.0630	0.0926		0.0003			0.1939	0.0031	0.0237	0.4450	0.0017										0.0010	
919	81-34	WV HLW Formulation Study	Chick et al. 1984	0.0374	0.0809	0.0630	0.0926		0.0003			0.1939	0.0031	0.0237	0.4450	0.0017										0.0010	
920	35-35	WV HLW Formulation Study	Chick et al. 1984	0.0456	0.0986	0.0768	0.1128		0.0004			0.2100	0.0037	0.0289	0.3500	0.0021										0.0013	
921	21-36	WV HLW Formulation Study	Chick et al. 1984	0.0241	0.0521	0.0406	0.0596		0.0002			0.1676	0.0020	0.0152	0.5999	0.0011										0.0007	
922	29-37	WV HLW Formulation Study	Chick et al. 1984	0.0441	0.0000	0.0743	0.1093		0.0004			0.2072	0.0036	0.0280	0.4621	0.0021										0.0012	
923	02-38	WV HLW Formulation Study	Chick et al. 1984	0.0275	0.2000	0.0463	0.0680		0.0003			0.1743	0.0022	0.0174	0.4198	0.0013										0.0008	
924	58-39	WV HLW Formulation Study	Chick et al. 1984	0.0435	0.0940	0.0732	0.1076		0.0004			0.1200	0.0035	0.0275	0.4604	0.0020										0.0012	
925	05-40	WV HLW Formulation Study	Chick et al. 1984	0.0287	0.0621	0.0483	0.0711		0.0003			0.3000	0.0023	0.0182	0.4229	0.0013										0.0008	
926	24-41	WV HLW Formulation Study	Chick et al. 1984	0.0424	0.0918	0.0000	0.1051		0.0004			0.2039	0.0035	0.0269	0.4578	0.0020										0.0012	
927	52-42	WV HLW Formulation Study	Chick et al. 1984	0.0304	0.0658	0.1500	0.0753		0.0003			0.1801	0.0025	0.0193	0.4273	0.0014										0.0009	
928	79-43	WV HLW Formulation Study	Chick et al. 1984	0.0000	0.0870	0.0678	0.0996		0.0004			0.1995	0.0033	0.0255	0.4522	0.0019										0.0011	
929	04-44	WV HLW Formulation Study	Chick et al. 1984	0.0800	0.0739	0.0576	0.0846		0.0003			0.1875	0.0028	0.0217	0.4368	0.0016										0.0010	
930	28-45	WV HLW Formulation Study	Chick et al. 1984	0.0453	0.0980	0.0763	0.0000		0.0004			0.2095	0.0037	0.0287	0.4651	0.0021										0.0013	
931	80-46	WV HLW Formulation Study	Chick et al. 1984	0.0248	0.0536	0.0418	0.2400		0.0002			0.1690	0.0020	0.0157	0.4130	0.0012										0.0007	
932	40-47	WV HLW Formulation Study	Chick et al. 1984	0.0448	0.0968	0.0754	0.1108					0.2085			0.4637												
933	78-48	WV HLW Formulation Study	Chick et al. 1984	0.0262	0.0566	0.0441	0.0648		0.0009			0.1717	0.0077	0.0598	0.4165	0.0044										0.0026	
934	65-49	WV HLW Formulation Study	Chick et al. 1984	0.0000	0.0000	0.1500	0.2000		0.0009			0.1200	0.0063	0.0489	0.3500	0.0036										0.0022	
935	68-50	WV HLW Formulation Study	Chick et al. 1984	0.0800	0.0000	0.1500	0.0600		0.0009			0.3000	0.0021	0.0163	0.3500	0.0012										0.0007	
936	84-51	WV HLW Formulation Study	Chick et al. 1984	0.0000	0.2000	0.0000	0.1750		0.0009			0.1200	0.0054	0.0421	0.3500	0.0031										0.0019	
937	53-52	WV HLW Formulation Study	Chick et al. 1984	0.0000	0.0000	0.1500	0.0650		0.0009			0.1200	0.0023	0.0177	0.6000	0.0013										0.0008	
938	38-53	WV HLW Formulation Study	Chick et al. 1984	0.0000	0.0000	0.0000	0.0500		0.0009			0.3000	0.0018	0.0136	0.6000	0.0010										0.0006	
939	62-54	WV HLW Formulation Study	Chick et al. 1984	0.0400	0.2000	0.1500	0.0000		0.0009			0.1200	0.0049	0.0381	0.3500	0.0028										0.0017	
940	70-55	WV HLW Formulation Study	Chick et al. 1984	0.0400	0.2000	0.0000	0.1100					0.3000			0.3500												
941	46-56	WV HLW Formulation Study	Chick et al. 1984	0.0800	0.0000	0.0750	0.2400		0.0009			0.1200	0.0047	0.0367	0.3500	0.0027										0.0016	
942	11-57	WV HLW Formulation Study	Chick et al. 1984	0.0400	0.0900	0.0000	0.0000		0.0009			0.3000	0.0077	0.0598	0.3500	0.0044										0.0026	
943	16-58	WV HLW Formulation Study	Chick et al. 1984	0.0000	0.0700	0.1500	0.2400					0.1900			0.3500												
944	39-59	WV HLW Formulation Study	Chick et al. 1984	0.1200	0.0000	0.1300	0.0600		0.0009			0.0700	0.0021	0.0163	0.5600	0.0012										0.0007	
945	13-60	WV HLW Formulation Study	Chick et al. 1984	0.0000	0.0900	0.0200	0.1550		0.0005			0.1600	0.0040	0.0313	0.4600	0.0023										0.0014	
946	61-60	WV HLW Formulation Study	Chick et al. 1984	0.0000	0.0900	0.0200	0.1550		0.0005			0.1600	0.0040	0.0313	0.4600	0.0023										0.0014	
947	23-61	WV HLW Formulation Study	Chick et al. 1984	0.0000	0.0650	0.0100	0.1550		0.0005			0.1350	0.0040	0.0313	0.5200	0.0023										0.0014	
948	08-62	WV HLW Formulation Study	Chick et al. 1984	0.0550	0.1050	0.0100	0.1350					0.1650			0.5300												
949	41-63	WV HLW Formulation Study	Chick et al. 1984	0.1200	0.1050	0.0100	0.0700					0.1650			0.5300												
950	25-64	WV HLW Formulation Study	Chick et al. 1984	0.1200	0.1200	0.0000	0.0000					0.1600			0.6000												
951	12-65	WV HLW Formulation Study	Chick et al. 1984	0.0000	0.1200	0.0000	0.1200					0.1600			0.6000												
952	51-66	WV HLW Formulation Study	Chick et al. 1984	0.0600	0.1200	0.0000	0.0600					0.1600			0.6000												
953	14-67	WV HLW Formulation Study	Chick et al. 1984	0.0000	0.0900	0.0000	0.2400					0.0700			0.6000												
954	56-68	WV HLW Formulation Study	Chick et al. 1984	0.0000	0.0000	0.1100	0.0000		0.0009			0.0700	0.0077	0.0598	0.6000	0.0044										0.0026	
955	18-69	WV HLW Formulation Study	Chick et al. 1984	0.1200	0.0000	0.0000	0.0000		0.0009			0.3000	0.0077	0.0598	0.3600	0.0044										0.0026	
956	32-70	WV HLW Formulation Study	Chick et al. 1984	0.1200	0.2000	0.0000	0.0000		0.0009			0.1100	0.0077	0.0598	0.3500	0.0044										0.0026	
957	06-71	WV HLW Formulation Study	Chick et al. 1984	0.1200	0.0000	0.1500	0.0800					0.3000			0.3500												
958	54-72	WV HLW Formulation Study	Chick et al. 1984	0.1200	0.2000	0.1500	0.0000					0.1800			0.3500												
959	19-73	WV HLW Formulation Study	Chick et al. 1984	0.1200	0.0900	0.1500	0.0000		0.0009			0.0700	0.0077	0.0598	0.3500	0.0044										0.0026	
960	15-74	WV HLW Formulation Study	Chick et al. 1984	0.1200	0.2000	0.0000	0.2400					0.0900			0.3500												
961	67-75	WV HLW Formulation Study	Chick et al. 1984	0.1200	0.0000	0.0000	0.2350					0.2950			0.3500												
962	96-76	WV HLW Formulation Study	Chick et al. 1984	0.0000	0.0000	0.1330	0.0000					0.2670			0.6000												
963	89-77	WV HLW Formulation Study	Chick et al. 1984	0.0710	0.1770	0.0000	0.2120					0.1200			0.4200												
964	99-78	WV HLW Formulation Study	Chick et al. 1984	0.0000	0.1000	0.0000	0.2180					0.2720			0.4100												
965	98-79	WV HLW Formulation Study	Chick et al. 1984	0.0000	0.0000	0.0000	0.1130		0.0009			0.2610	0.0067	0.0519	0.4350	0.0038										0.0023	
966	101-80	WV HLW Formulation Study	Chick et al. 1984	0.0690	0.1740	0.1300	0.0870					0.1200			0.4200												
967	93-81	WV HLW Formulation Study	Chick et al. 1984	0.0000	0.1530	0.0840	0.0000		0.0009			0.1200	0.0059	0.0457	0.4750	0.0034										0.0020	
968	97-82	WV HLW Formulation Study	Chick et al. 1984	0.0000	0.0000	0.1150	0.0000		0.0009			0.2160	0.0059	0.0459	0.5000	0.0034										0.0020	
969	103-83	WV HLW Formulation Study	Chick et al. 1984	0.0000	0.1450	0.1080	0.0000					0.2170			0.5300												
970	92-84	WV HLW Formulation Study	Chick et al. 1984	0.0313	0.0677	0.0527	0.0775		0.0009			0.1817	0.0056	0.0435	0.4293	0.0032										0.0019	
971	90-85	WV HLW Formulation Study	Chick et al. 1984	0.0000	0.0000	0.1200	0.1600		0.0009			0.1200	0.0050	0.0391	0.4560	0.0029										0.0017	
972	87-86	WV HLW Formulation Study	Chick et al. 1984	0.0730	0.0000	0.1360	0.0540		0.0009			0.2720	0.0019	0.0147	0.4110	0.0011										0.0006	
973	102-87	WV HLW Formulation Study	Chick et al. 1984	0.1090	0.1820	0.0000	0.0000		0.0009			0.1000	0.0070	0.0544	0.4090	0.0040										0.0024	
974	86-88	WV HLW Formulation Study	Chick et al. 1984	0.1200	0.0000	0.0000	0.0000					0.2800			0.6000												
975	91-89	WV HLW Formulation Study	Chick et al. 1984	0.1200	0.1000	0.0000	0.1200		0.0004			0.1500	0.0038	0.0294	0.4020	0.0022										0.0013	
976	95-90	WV HLW Formulation Study	Chick et al. 1984	0.1200	0.0000	0.1000	0.1200		0.0004			0.1500	0.0038	0.0294	0.4020	0.0022										0.0013	
977	88-91	WV HLW Formulation Study	Chick et al. 1984	0.0000	0.0600	0.1500	0.0300		0.0009			0.1800	0.0021	0.0163	0.5200	0.0012										0.0007	
978	94-92	WV HLW Formulation Study	Chick et al. 1984	0.0300	0.0600	0.0000	0.0000		0.0009			0.1800	0.0074	0.0571	0.5200	0.0042										0.0025	
979	100-93	WV HLW Formulation Study	Chick et al. 1984	0.0400	0.0000	0.0800	0.1280		0.0004			0.1000	0.0039	0.0299	0.5420	0.0022										0.0013	
980	HW39	HWVP 85	Bates 1985	0.0430	0.0960	0.0290	0.1110			0.0380	0.0080	0.1040	0.0060		0.5120	0.0060				0.0010						0.0018	
981	DWRG	WV Glasses by CUA and PNL	Johnston et al. 1990																								
982	SF10	WV Glasses by CUA and PNL	Johnston et al. 1990																								
983	TC27	WV Glasses by CUA and PNL	Johnston et al. 1990																								
984	WV205	WV Glasses by CUA and PNL	Johnston et al. 1990																								

#	Glass ID	CoO-t	Co2O3-t	Cr2O3-t	Cs2O-t	CuO-t	Dy2O3-t	Eu2O3-t	F-t	Ga2O3-t	Gd2O3-t	HfO2-t	HgO-t	I-t	La2O3-t	MnO2-t	MnO-t	MoO-t	MoO2-t	MoO3-t	Nb2O5-t	Nd2O3-t	NpO2-t	PbO-t	PdO2-t	PdO-t	Pr2O3-t	Pr6O11-t	Rb2O-t	ReO-t
903	44-23			0.0163	0.0033											0.0101				0.0042		0.0040								
904	82-24			0.0111	0.0023											0.0069				0.0029		0.0027								
905	77-25																													
906	75-26			0.0163	0.0033											0.0101				0.0042		0.0040								
907	22-27																													
908	55-27																													
909	64-28																													
910	76-29			0.0163	0.0033											0.0101				0.0042		0.0040								
911	10-30																													
912	37-31			0.0163	0.0033											0.0101				0.0042		0.0040								
913	48-32			0.0163	0.0033											0.0101				0.0042		0.0040								
914	66-33																													
915	71-33																													
916	07-34			0.0065	0.0013											0.0040				0.0017		0.0016								
917	42-34			0.0065	0.0013											0.0040				0.0017		0.0016								
918	63-34			0.0065	0.0013											0.0040				0.0017		0.0016								
919	81-34			0.0065	0.0013											0.0040				0.0017		0.0016								
920	35-35			0.0079	0.0016											0.0049				0.0020		0.0019								
921	21-36			0.0042	0.0008											0.0026				0.0011		0.0010								
922	29-37			0.0076	0.0015											0.0047				0.0020		0.0019								
923	02-38			0.0047	0.0010											0.0029				0.0012		0.0012								
924	58-39			0.0075	0.0015											0.0047				0.0019		0.0018								
925	05-40			0.0050	0.0010											0.0031				0.0013		0.0012								
926	24-41			0.0073	0.0015											0.0045				0.0019		0.0018								
927	52-42			0.0053	0.0011											0.0033				0.0013		0.0013								
928	79-43			0.0069	0.0014											0.0043				0.0018		0.0017								
929	04-44			0.0059	0.0012											0.0037				0.0015		0.0014								
930	28-45			0.0078	0.0016											0.0049				0.0020		0.0019								
931	80-46			0.0043	0.0009											0.0027				0.0011		0.0010								
932	40-47																													
933	78-48			0.0163	0.0033											0.0101				0.0042		0.0040								
934	65-49			0.0133	0.0027											0.0083				0.0034		0.0032								
935	68-50			0.0044	0.0009											0.0028				0.0011		0.0011								
936	84-51			0.0115	0.0023											0.0071				0.0029		0.0028								
937	53-52			0.0048	0.0010											0.0030				0.0012		0.0012								
938	38-53			0.0037	0.0008											0.0023				0.0010		0.0009								
939	62-54			0.0104	0.0021											0.0064				0.0027		0.0025								
940	70-55																													
941	46-56			0.0100	0.0020											0.0062				0.0026		0.0024								
942	11-57			0.0163	0.0033											0.0101				0.0042		0.0040								
943	16-58																													
944	39-59			0.0044	0.0009											0.0028				0.0011		0.0011								
945	13-60			0.0085	0.0017											0.0053				0.0022		0.0021								
946	61-60			0.0085	0.0017											0.0053				0.0022		0.0021								
947	23-61			0.0085	0.0017											0.0053				0.0022		0.0021								
948	08-62																													
949	41-63																													
950	25-64																													
951	12-65																													
952	51-66																													
953	14-67																													
954	56-68			0.0163	0.0033											0.0101				0.0042		0.0040								
955	18-69			0.0163	0.0033											0.0101				0.0042		0.0040								
956	32-70			0.0163	0.0033											0.0101				0.0042		0.0040								
957	06-71																													
958	54-72																													
959	19-73			0.0163	0.0033											0.0101				0.0042		0.0040								
960	15-74																													
961	67-75																													
962	96-76																													
963	89-77																													
964	99-78																													
965	98-79			0.0142	0.0029											0.0088				0.0036		0.0034								
966	101-80																													
967	93-81			0.0124	0.0025											0.0077				0.0032		0.0030								
968	97-82			0.0125	0.0025											0.0078				0.0032		0.0030								
969	103-83																													
970	92-84			0.0118	0.0024											0.0073				0.0030		0.0029								
971	90-85			0.0107	0.0022											0.0066				0.0027		0.0026								
972	87-86			0.0040	0.0008											0.0025				0.0010		0.0010								
973	102-87			0.0148	0.0030											0.0092				0.0038		0.0036								
974	86-88																													
975	91-89			0.0080	0.0016											0.0050				0.0021		0.0019								
976	95-90			0.0080	0.0016											0.0050				0.0021		0.0019								
977	88-91			0.0044	0.0009											0.0028				0.0011		0.0011								
978	94-92			0.0156	0.0032											0.0096				0.0040		0.0038								
979	100-93			0.0081	0.0017											0.0051				0.0021		0.0020								
980	HW39			0.0130	0.0020	0.0016			0.0030						0.0060		0.0018			0.0032		0.0050						0.0010		
981	DWRG																													
982	SF10																													
983	TC27																													
984	WV205																													

#	Glass ID	ReO2-t	Re2O7-t	Rh2O3-t	RhO2-t	RuO2-t	Ru2O3-t	Sb2O3-t	Sb2O5-t	SeO2-t	Sm2O3-t	SnO-t	SnO2-t	SO3-t	SrO-t	Tc2O7-t	TeO2-t	ThO2-t	TiO2-t	Tl2O-t	Tl2O3-t	U3O8-t	UO2-t	UO3-t	V2O5-t	WO3-t	Y2O3-t	ZnO-t	Sum-t	Al2O3-a
903	44-23														0.0033			0.0781					0.0253						1.0000	0.0090
904	82-24														0.0023			0.0533					0.0173						1.0003	0.0034
905	77-25																												1.0000	0.0845
906	75-26														0.0033			0.0781					0.0253						1.0000	0.0854
907	22-27																												1.0000	0.0827
908	55-27																												1.0000	0.0817
909	64-28																												1.0000	0.0085
910	76-29														0.0033			0.0781					0.0253						1.0000	0.0046
911	10-30																												1.0000	0.0069
912	37-31														0.0033			0.0781					0.0253						1.0000	0.0040
913	48-32														0.0033			0.0781					0.0253						1.0000	0.0818
914	66-33																												1.0000	0.0025
915	71-33																												1.0000	0.0428
916	07-34														0.0013			0.0310					0.0100						1.0000	0.0451
917	42-34														0.0013			0.0310					0.0100						1.0000	0.0446
918	63-34														0.0013			0.0310					0.0100						1.0000	0.0442
919	81-34														0.0013			0.0310					0.0100						1.0000	0.0442
920	35-35														0.0016			0.0377					0.0122						1.0000	0.0551
921	21-36														0.0008			0.0199					0.0065						1.0000	0.0292
922	29-37														0.0015			0.0365					0.0118						0.9999	0.0524
923	02-38														0.0010			0.0228					0.0074						1.0000	0.0329
924	58-39														0.0015			0.0360					0.0116						1.0000	0.0524
925	05-40														0.0010			0.0237					0.0077						1.0000	0.0346
926	24-41														0.0015			0.0351					0.0114						1.0000	0.0498
927	52-42														0.0011			0.0252					0.0082						0.9999	0.0365
928	79-43														0.0014			0.0333					0.0108						0.9999	0.0077
929	04-44														0.0012			0.0283					0.0092						1.0001	0.0875
930	28-45														0.0016			0.0375					0.0122						0.9999	0.0504
931	80-46														0.0009			0.0205					0.0066						1.0000	0.0359
932	40-47																												1.0000	0.0507
933	78-48														0.0033			0.0781					0.0253						0.9999	0.0350
934	65-49														0.0027			0.0639					0.0207						1.0001	0.0095
935	68-50														0.0009			0.0213					0.0069						1.0006	0.0842
936	84-51														0.0023			0.0550					0.0178						1.0002	0.0093
937	53-52														0.0010			0.0231					0.0075						1.0006	0.0064
938	38-53														0.0008			0.0178					0.0058						1.0007	0.0064
939	62-54														0.0021			0.0497					0.0161						1.0003	0.0438
940	70-55																												1.0000	0.0452
941	46-56														0.0020			0.0479					0.0155						1.0003	0.0913
942	11-57														0.0033			0.0781					0.0253						1.0000	0.0440
943	16-58																												1.0000	0.0101
944	39-59														0.0009			0.0213					0.0069						1.0006	0.1240
945	13-60														0.0017			0.0408					0.0132						1.0000	0.0092
946	61-60														0.0017			0.0408					0.0132						1.0000	0.0101
947	23-61														0.0017			0.0408					0.0132						1.0000	0.0091
948	08-62																												1.0000	0.0564
949	41-63																												1.0000	0.1254
950	25-64																												1.0000	0.1249
951	12-65																												1.0000	0.0079
952	51-66																												1.0000	0.0563
953	14-67																												1.0000	0.0098
954	56-68														0.0033			0.0781					0.0253						1.0000	0.0083
955	18-69														0.0033			0.0781					0.0253						1.0000	0.1283
956	32-70														0.0033			0.0781					0.0253						1.0000	0.1255
957	06-71																												1.0000	0.1230
958	54-72																												1.0000	0.1208
959	19-73														0.0033			0.0781					0.0253						1.0000	0.1244
960	15-74																												1.0000	0.1221
961	67-75																												1.0000	0.1282
962	96-76																												1.0000	0.0032
963	89-77																												1.0000	0.0800
964	99-78																												1.0000	0.0092
965	98-79														0.0029			0.0678					0.0220						1.0001	0.0061
966	101-80																												1.0000	0.0727
967	93-81														0.0025			0.0596					0.0193						1.0002	0.0031
968	97-82														0.0025			0.0600					0.0194						1.0002	0.0027
969	103-83																												1.0000	0.0033
970	92-84														0.0024			0.0568					0.0184						1.0003	0.0364
971	90-85														0.0022			0.0511					0.0166						1.0003	0.0070
972	87-86														0.0008			0.0192					0.0062						1.0007	0.0791
973	102-87														0.0030			0.0710					0.0230						1.0000	0.1165
974	86-88																												1.0000	0.1222
975	91-89														0.0016			0.0383					0.0124						1.0000	0.1246
976	95-90														0.0016			0.0383					0.0124						1.0000	0.1281
977	88-91														0.0009			0.0213					0.0069						1.0006	0.0050
978	94-92														0.0032			0.0746					0.0242						1.0000	0.0344
979	100-93														0.0017			0.0391					0.0127						1.0000	0.0461
980	HW39					0.0016					0.0005			0.0040	0.0010												0.0005		1.0000	
981	DWRG																												0.0000	0.0669
982	SF10																												0.0000	0.0636
983	TC27																												0.0000	0.0650
984	WV205																												0.0000	0.0330

#	Glass ID	B2O3-a	CaO-a	Fe2O3-a	FeO-a	K2O-a	Li2O-a	MgO-a	Na2O-a	NiO-a	P2O5-a	SiO2-a	ZrO2-a	Ag2O-a	As2O3-a	As2O5-a	BaO-a	BeO-a	Bi2O3-a	Br-a	CdO-a	Ce2O3-a	CeO2-a	Cl-a	CoO-a	Co2O3-a	Cr2O3-a	Cs2O-a	CuO-a	F-a
903	44-23	0.0000	0.0016	0.1151		0.0008			0.3013	0.0073	0.0570	0.3634	0.0042										0.0025				0.0155	0.0031		
904	82-24	0.1909	0.0000	0.0000		0.0007			0.2933	0.0062	0.0474	0.3381	0.0035										0.0021				0.0129	0.0027		
905	77-25	0.1976	0.1548	0.0845					0.1253			0.3534																			
906	75-26	0.0830	0.1502	0.0000		0.0008			0.1229	0.0072	0.0558	0.3533	0.0041										0.0025				0.0152	0.0031		
907	22-27	0.1982	0.0746	0.0000					0.2891			0.3555																			
908	55-27	0.1962	0.0707	0.0000					0.3038			0.3476																			
909	64-28	0.1997	0.0918	0.2017					0.1251			0.3732																			
910	76-29	0.1925	0.1112	0.0000		0.0009			0.1221	0.0075	0.0581	0.3559	0.0043										0.0026				0.0158	0.0032		
911	10-30	0.0000	0.1527	0.1701					0.3003			0.3700																			
912	37-31	0.0000	0.1531	0.0000		0.0009			0.2813	0.0075	0.0581	0.3478	0.0043										0.0026				0.0158	0.0032		
913	48-32	0.0000	0.0040	0.1749		0.0008			0.1097	0.0069	0.0532	0.4336	0.0039										0.0024				0.0145	0.0029		
914	66-33	0.1918	0.1535	0.0000					0.3069			0.3453																			
915	71-33	0.0911	0.0666	0.0000					0.2745			0.3426																			
916	07-34	0.0841	0.0625	0.0810		0.0003			0.1917	0.0029	0.0224	0.4532	0.0016										0.0009				0.0061	0.0012		
917	42-34	0.0810	0.0633	0.0800		0.0003			0.1973	0.0027	0.0209	0.4569	0.0015										0.0009				0.0057	0.0011		
918	63-34	0.0802	0.0627	0.0792		0.0003			0.1984	0.0029	0.0225	0.4524	0.0016										0.0010				0.0062	0.0012		
919	81-34	0.0802	0.0637	0.0791		0.0003			0.1963	0.0030	0.0229	0.4523	0.0016										0.0010				0.0063	0.0013		
920	35-35	0.1044	0.0805	0.0580		0.0004			0.2193	0.0033	0.0254	0.3894	0.0018										0.0011				0.0069	0.0014		
921	21-36	0.0514	0.0423	0.0524		0.0002			0.1633	0.0021	0.0161	0.6020	0.0012										0.0007				0.0044	0.0009		
922	29-37	0.0000	0.0768	0.0956		0.0004			0.2095	0.0032	0.0251	0.4735	0.0018										0.0011				0.0068	0.0014		
923	02-38	0.2044	0.0462	0.0596		0.0002			0.1736	0.0022	0.0169	0.4212	0.0012										0.0007				0.0046	0.0009		
924	58-39	0.0929	0.0709	0.0919		0.0004			0.1237	0.0031	0.0244	0.4785	0.0018										0.0011				0.0066	0.0013		
925	05-40	0.0631	0.0508	0.0620		0.0003			0.2873	0.0028	0.0218	0.4220	0.0016										0.0010				0.0059	0.0012		
926	24-41	0.0916	0.0060	0.0906		0.0004			0.2010	0.0034	0.0267	0.4628	0.0020										0.0012				0.0073	0.0015		
927	52-42	0.0657	0.1511	0.0646		0.0002			0.1814	0.0021	0.0166	0.4399	0.0012										0.0007				0.0045	0.0009		
928	79-43	0.0870	0.0686	0.0849		0.0004			0.2077	0.0031	0.0244	0.4544	0.0018										0.0011				0.0067	0.0013		
929	04-44	0.0763	0.0590	0.0743		0.0003			0.1872	0.0026	0.0201	0.4416	0.0015										0.0009				0.0055	0.0011		
930	28-45	0.0977	0.0793	0.0000		0.0004			0.2082	0.0032	0.0251	0.4721	0.0018										0.0011				0.0068	0.0014		
931	80-46	0.0553	0.0430	0.1998		0.0002			0.1742	0.0021	0.0167	0.4303	0.0012										0.0007				0.0045	0.0009		
932	40-47	0.0954	0.0775	0.0974					0.2078			0.4712																			
933	78-48	0.0577	0.0433	0.0566		0.0008			0.1792	0.0072	0.0557	0.4233	0.0041										0.0025				0.0152	0.0031		
934	65-49	0.0000	0.1545	0.1713		0.0008			0.1251	0.0056	0.0438	0.3784	0.0032										0.0019				0.0119	0.0024		
935	68-50	0.0000	0.1500	0.0503		0.0009			0.3010	0.0021	0.0166	0.3534	0.0012										0.0007				0.0045	0.0009		
936	84-51	0.1974	0.0020	0.1490		0.0009			0.1234	0.0054	0.0416	0.3659	0.0031										0.0018				0.0113	0.0023		
937	53-52	0.0000	0.1489	0.0557		0.0009			0.1205	0.0023	0.0176	0.6036	0.0013										0.0008				0.0048	0.0010		
938	38-53	0.0000	0.0017	0.0427		0.0009			0.2944	0.0018	0.0139	0.6038	0.0010										0.0006				0.0038	0.0008		
939	62-54	0.2004	0.1545	0.0000		0.0008			0.1232	0.0043	0.0335	0.3549	0.0025										0.0015				0.0091	0.0018		
940	70-55	0.1977	0.0025	0.0933					0.3101			0.3512																			
941	46-56	0.0000	0.0810	0.2020		0.0009			0.1231	0.0047	0.0362	0.3692	0.0027										0.0016				0.0099	0.0020		
942	11-57	0.0911	0.0021	0.0000		0.0008			0.2977	0.0072	0.0558	0.3598	0.0041										0.0025				0.0152	0.0031		
943	16-58	0.0717	0.1515	0.2121					0.1818			0.3727																			
944	39-59	0.0000	0.1370	0.0430		0.0008			0.0700	0.0020	0.0152	0.5699	0.0011										0.0007				0.0042	0.0008		
945	13-60	0.0898	0.0225	0.1348		0.0005			0.1613	0.0037	0.0290	0.4757	0.0021										0.0013				0.0079	0.0016		
946	61-60	0.0891	0.0246	0.1281		0.0005			0.1629	0.0040	0.0309	0.4714	0.0023										0.0014				0.0084	0.0017		
947	23-61	0.0637	0.0131	0.1344		0.0005			0.1344	0.0038	0.0299	0.5355	0.0022										0.0013				0.0081	0.0016		
948	08-62	0.1101	0.0123	0.1163					0.1639			0.5410																			
949	41-63	0.0973	0.0120	0.0602					0.1625			0.5426																			
950	25-64	0.1159	0.0042	0.0000					0.1563			0.5988																			
951	12-65	0.1186	0.0000	0.1090					0.1561			0.6083																			
952	51-66	0.1031	0.0053	0.0473					0.1454			0.6057																			
953	14-67	0.0859	0.0040	0.2063					0.0689			0.6250																			
954	56-68	0.0000	0.1094	0.0000		0.0009			0.0733	0.0077	0.0597	0.5894	0.0044										0.0026				0.0163	0.0033		
955	18-69	0.0000	0.0030	0.0000		0.0008			0.2921	0.0074	0.0573	0.3658	0.0042										0.0025				0.0156	0.0032		
956	32-70	0.1983	0.0021	0.0000		0.0008			0.1123	0.0071	0.0555	0.3577	0.0041										0.0024				0.0151	0.0031		
957	06-71	0.0000	0.1516	0.0697					0.3002			0.3555																			
958	54-72	0.1974	0.1511	0.0000					0.1833			0.3474																			
959	19-73	0.1455	0.0943	0.0000		0.0008			0.0752	0.0073	0.0563	0.3533	0.0041										0.0025				0.0154	0.0031		
960	15-74	0.2096	0.0000	0.1974					0.0926			0.3784																			
961	67-75	0.0000	0.0019	0.1968					0.3048			0.3684																			
962	96-76	0.0000	0.1297	0.0000					0.2654			0.6017																			
963	89-77	0.1666	0.0016	0.1798					0.1219			0.4501																			
964	99-78	0.0000	0.1217	0.1454					0.1279			0.4889																			
965	98-79	0.0000	0.0044	0.0964		0.0009			0.2658	0.0065	0.0503	0.4424	0.0037										0.0022				0.0137	0.0028		
966	101-80	0.1707	0.1309	0.0747					0.1196			0.4314																			
967	93-81	0.1749	0.0838	0.0000		0.0007			0.1288	0.0047	0.0365	0.4754	0.0027										0.0016				0.0099	0.0020		
968	97-82	0.0000	0.1176	0.0000		0.0009			0.2270	0.0059	0.0460	0.4834	0.0034										0.0020				0.0125	0.0025		
969	103-83	0.1456	0.1084	0.0000					0.2210			0.5216																			
970	92-84	0.0673	0.0512	0.0664		0.0008			0.1871	0.0052	0.0407	0.4417	0.0030										0.0018				0.0111	0.0022		
971	90-85	0.0000	0.1228	0.1264		0.0011			0.1218	0.0060	0.0468	0.4497	0.0034										0.0021				0.0128	0.0026		
972	87-86	0.0000	0.1384	0.0462		0.0010			0.2811	0.0021	0.0161	0.3959	0.0012										0.0007				0.0044	0.0009		
973	102-87	0.1689	0.0019	0.0000		0.0008			0.0997	0.0065	0.0504	0.4276	0.0037										0.0022				0.0137	0.0028		
974	86-88	0.0000	0.0010	0.0000					0.2668			0.6100																			
975	91-89	0.0961	0.0019	0.1014		0.0004			0.1513	0.0038	0.0293	0.4170	0.0022										0.0013				0.0080	0.0016		
976	95-90	0.0000	0.0997	0.1027		0.0004			0.1525	0.0038	0.0297	0.4077	0.0022										0.0013				0.0081	0.0016		
977	88-91	0.0592	0.1517	0.0256		0.0009			0.1819	0.0021	0.0166	0.5154	0.0012										0.0007				0.0045	0.0009		
978	94-92	0.0587	0.0025	0.0000		0.0009			0.1875	0.0072	0.0557	0.5117	0.0041										0.0025				0.0152	0.0031		
979	100-93	0.0000	0.0781	0.1086		0.0004			0.1026	0.0039	0.0301	0.5541	0.0022										0.0013				0.0082	0.0017		
980	HW39																														
981	DWRG	0.0663		0.1040							0.0020	0.5032																			
982	SF10	0.0970		0.1145							0.0271	0.4676																			
983	TC27	0.0973		0.1176							0.0231	0.4674																			
984	WV205	0.0996		0.1180							0.0250	0.4522																			

#	Glass ID	Ga2O3-a	Gd2O3-a	I-a	La2O3-a	MnO2-a	MnO-a	MoO-a	MoO3-a	Nb2O5-a	Nd2O3-a	NpO2-a	PbO-a	PdO2-a	PdO-a	Pr2O3-a	Pr6O11-a	PuO2-a	Rb2O-a	ReO-a	ReO2-a	Re2O7-a	Rh2O3-a	RhO2-a	RuO2-a	Sb2O3-a	Sb2O5-a	SeO2-a
903	44-23					0.0096			0.0040		0.0038																	
904	82-24					0.0080			0.0034		0.0031																	
905	77-25																											
906	75-26					0.0094			0.0039		0.0037																	
907	22-27																											
908	55-27																											
909	64-28																											
910	76-29					0.0098			0.0041		0.0038																	
911	10-30																											
912	37-31					0.0098			0.0041		0.0039																	
913	48-32					0.0090			0.0037		0.0035																	
914	66-33																											
915	71-33																											
916	07-34					0.0038			0.0016		0.0015																	
917	42-34					0.0035			0.0015		0.0014																	
918	63-34					0.0038			0.0016		0.0015																	
919	81-34					0.0039			0.0016		0.0015																	
920	35-35					0.0043			0.0018		0.0017																	
921	21-36					0.0027			0.0011		0.0011																	
922	29-37					0.0042			0.0018		0.0017																	
923	02-38					0.0028			0.0012		0.0011																	
924	58-39					0.0041			0.0017		0.0016																	
925	05-40					0.0037			0.0015		0.0014																	
926	24-41					0.0045			0.0019		0.0018																	
927	52-42					0.0028			0.0012		0.0011																	
928	79-43					0.0041			0.0017		0.0016																	
929	04-44					0.0034			0.0014		0.0013																	
930	28-45					0.0042			0.0018		0.0017																	
931	80-46					0.0028			0.0012		0.0011																	
932	40-47																											
933	78-48					0.0094			0.0039		0.0037																	
934	65-49					0.0074			0.0031		0.0029																	
935	68-50					0.0028			0.0012		0.0011																	
936	84-51					0.0070			0.0029		0.0028																	
937	53-52					0.0030			0.0012		0.0012																	
938	38-53					0.0023			0.0010		0.0009																	
939	62-54					0.0057			0.0023		0.0022																	
940	70-55																											
941	46-56					0.0061			0.0025		0.0024																	
942	11-57					0.0094			0.0039		0.0037																	
943	16-58																											
944	39-59					0.0026			0.0011		0.0010																	
945	13-60					0.0049			0.0020		0.0019																	
946	61-60					0.0052			0.0022		0.0021																	
947	23-61					0.0051			0.0021		0.0020																	
948	08-62																											
949	41-63																											
950	25-64																											
951	12-65																											
952	51-66																											
953	14-67																											
954	56-68					0.0101			0.0042		0.0040																	
955	18-69					0.0097			0.0040		0.0038																	
956	32-70					0.0094			0.0039		0.0037																	
957	06-71																											
958	54-72																											
959	19-73					0.0095			0.0039		0.0037																	
960	15-74																											
961	67-75																											
962	96-76																											
963	89-77																											
964	99-78																											
965	98-79					0.0085			0.0035		0.0033																	
966	101-80																											
967	93-81					0.0062			0.0025		0.0024																	
968	97-82					0.0078			0.0032		0.0030																	
969	103-83																											
970	92-84					0.0069			0.0028		0.0027																	
971	90-85					0.0079			0.0033		0.0031																	
972	87-86					0.0027			0.0011		0.0011																	
973	102-87					0.0085			0.0035		0.0033																	
974	86-88																											
975	91-89					0.0050			0.0021		0.0019																	
976	95-90					0.0051			0.0021		0.0019																	
977	88-91					0.0028			0.0012		0.0011																	
978	94-92					0.0094			0.0039		0.0037																	
979	100-93					0.0051			0.0021		0.0020																	
980	HW39																											
981	DWRG					0.0177																						
982	SF10					0.0092																						
983	TC27					0.0114																						
984	WV205					0.0136																						

#	Glass ID	Sm2O3-a	SnO-a	SnO2-a	SO3-a	SrO-a	Tc2O7-a	TeO2-a	ThO2-a	TiO2-a	Tl2O-a	Tl2O3-a	U3O8-a	UO2-a	UO3-a	V2O5-a	WO3-a	Y2O3-a	ZnO-a	Sum-a	T_M (°C)	$T_{L,G}$ (°C)	$T_{L,U}$ (°C)	$T_{1\%}$ (°C)	Primary Phase	$C_{650°C}$	$C_{700°C}$	$C_{750°C}$
903	44-23					0.0031			0.0744					0.0241						1.0000								
904	82-24					0.0027			0.0620					0.0201						1.0004								
905	77-25																			1.0001								
906	75-26					0.0031			0.0728					0.0236						1.0000								
907	22-27																			1.0001								
908	55-27																			1.0000								
909	64-28																			1.0000								
910	76-29					0.0032			0.0758					0.0246						0.9999								
911	10-30																			1.0000								
912	37-31					0.0032			0.0759					0.0246						1.0001								
913	48-32					0.0029			0.0695					0.0225						0.9999								
914	66-33																			1.0000								
915	71-33																			0.8176								
916	07-34					0.0012			0.0293					0.0094						0.9999								
917	42-34					0.0011			0.0273					0.0088						1.0000								
918	63-34					0.0012			0.0295					0.0095						1.0000								
919	81-34					0.0013			0.0299					0.0097						1.0000								
920	35-35					0.0014			0.0331					0.0107						1.0000								
921	21-36					0.0009			0.0210					0.0068						0.9998								
922	29-37					0.0014			0.0327					0.0106						1.0000								
923	02-38					0.0009			0.0220					0.0071						0.9999								
924	58-39					0.0013			0.0318					0.0103						1.0000								
925	05-40					0.0012			0.0284					0.0092						0.9999								
926	24-41					0.0015			0.0349					0.0113						1.0001								
927	52-42					0.0009			0.0216					0.0070						1.0001								
928	79-43					0.0013			0.0319					0.0103						1.0001								
929	04-44					0.0011			0.0263					0.0085						1.0000								
930	28-45					0.0014			0.0328					0.0106						1.0000								
931	80-46					0.0009			0.0218					0.0071						0.9999								
932	40-47																			1.0000								
933	78-48					0.0031			0.0727					0.0236						1.0000								
934	65-49					0.0024			0.0572					0.0185						1.0001								
935	68-50					0.0009			0.0217					0.0070						1.0005								
936	84-51					0.0023			0.0544					0.0176						1.0003								
937	53-52					0.0010			0.0230					0.0075						1.0006								
938	38-53					0.0008			0.0181					0.0059						1.0007								
939	62-54					0.0018			0.0437					0.0142						1.0003								
940	70-55																			1.0000								
941	46-56					0.0020			0.0473					0.0153						1.0002								
942	11-57					0.0031			0.0729					0.0236						1.0000								
943	16-58																			0.9999								
944	39-59					0.0008			0.0199					0.0065						1.0006								
945	13-60					0.0016			0.0379					0.0122						1.0000								
946	61-60					0.0017			0.0403					0.0131						0.9999								
947	23-61					0.0016			0.0390					0.0126						1.0001								
948	08-62																			1.0000								
949	41-63																			1.0000								
950	25-64																			1.0001								
951	12-65																			0.9999								
952	51-66																			0.9631								
953	14-67																			0.9999								
954	56-68					0.0033			0.0780					0.0253						1.0000								
955	18-69					0.0032			0.0748					0.0242						0.9999								
956	32-70					0.0031			0.0724					0.0235						0.9999								
957	06-71																			1.0000								
958	54-72																			1.0000								
959	19-73					0.0031			0.0736					0.0238						1.0000								
960	15-74																			1.0001								
961	67-75																			1.0001								
962	96-76																			1.0000								
963	89-77																			1.0000								
964	99-78																			0.8931								
965	98-79					0.0028			0.0656					0.0213						1.0001								
966	101-80																			1.0000								
967	93-81					0.0020			0.0476					0.0154						1.0002								
968	97-82					0.0025			0.0601					0.0195						1.0001								
969	103-83																			0.9999								
970	92-84					0.0022			0.0532					0.0172						1.0002								
971	90-85					0.0026			0.0612					0.0198						1.0003								
972	87-86					0.0009			0.0211					0.0068						1.0007								
973	102-87					0.0028			0.0658					0.0213						0.9999								
974	86-88																			1.0000								
975	91-89					0.0016			0.0382					0.0124						1.0001								
976	95-90					0.0016			0.0388					0.0125						1.0000								
977	88-91					0.0009			0.0217					0.0070						1.0006								
978	94-92					0.0031			0.0728					0.0236						0.9999								
979	100-93					0.0017			0.0393					0.0127						1.0001								
980	HW39																			0.0000								
981	DWRG								0.0000					0.0301						0.7902								
982	SF10								0.0000					0.0000						0.7790								
983	TC27								0.0000					0.0000						0.7818								
984	WV205								0.0000					0.0000						0.7414								

#	Glass ID	$C_{800°C}$	$C_{850°C}$	$C_{900°C}$	$C_{950°C}$	$C_{1000°C}$	$C_{1050°C}$	$C_{1100°C}$	$C_{1150°C}$	$C_{1200°C}$	Quenched Visual/OM	Quenched XRD	CCC XRD	ρ (g/cm³)	Fulc Visc A	Fulc Visc B	Fulc Visc To	Arrh Visc E	Arrh Visc F	T1 (°C)	V1 (Pa·s)
903	44-23										0.42 crystallinity										
904	82-24										amorphous									886.0	3.000
905	77-25										amorphous									1043.0	3.000
906	75-26										amorphous									1195.0	3.000
907	22-27										amorphous									897.0	3.000
908	55-27										amorphous									910.0	3.000
909	64-28										amorphous									1055.0	3.000
910	76-29										amorphous										
911	10-30										0.83 crystallinity									1064.0	3.000
912	37-31										1.88 crystallinity										
913	48-32										0.52 crystallinity									1513.0	3.000
914	66-33										amorphous										
915	71-33										amorphous										
916	07-34										amorphous									1172.0	3.000
917	42-34										amorphous									1183.0	3.000
918	63-34										amorphous									1222.0	3.000
919	81-34										amorphous									1195.0	3.000
920	35-35										0.09 crystallinity									1039.0	3.000
921	21-36										amorphous									1436.0	3.000
922	29-37										amorphous									1297.0	3.000
923	02-38										amorphous									1062.0	3.000
924	58-39										amorphous									1312.0	3.000
925	05-40										amorphous									1026.0	3.000
926	24-41										amorphous									1240.0	3.000
927	52-42										amorphous									1124.0	3.000
928	79-43										0.09 crystallinity									1126.0	3.000
929	04-44										amorphous									1254.0	3.000
930	28-45										amorphous									1168.0	3.000
931	80-46										amorphous									1215.0	3.000
932	40-47										amorphous									1147.0	3.000
933	78-48										amorphous									1231.0	3.000
934	65-49										amorphous										
935	68-50										1.61 crystallinity									1114.0	3.000
936	84-51										amorphous									1162.0	3.000
937	53-52										amorphous									1416.0	3.000
938	38-53										amorphous									1374.0	3.000
939	62-54										amorphous										
940	70-55										amorphous									886.0	3.000
941	46-56										0.42 crystallinity									1317.0	3.000
942	11-57										amorphous									998.0	3.000
943	16-58										0.04 crystallinity									960.0	3.000
944	39-59										amorphous									1632.0	3.000
945	13-60										amorphous									1224.0	3.000
946	61-60										amorphous									1222.0	3.000
947	23-61										amorphous									1419.0	3.000
948	08-62										amorphous									1391.0	3.000
949	41-63										amorphous									1555.0	3.000
950	25-64										amorphous									1582.0	3.000
951	12-65										amorphous									1335.0	3.000
952	51-66										amorphous									1542.0	3.000
953	14-67										amorphous									1699.0	3.000
954	56-68										0.10 crystallinity									1582.0	3.000
955	18-69										0.47 crystallinity									1337.0	3.000
956	32-70										amorphous									1457.0	3.000
957	06-71										0.06 crystallinity									1147.0	3.000
958	54-72										amorphous									1057.0	3.000
959	19-73										0.07 crystallinity									1343.0	3.000
960	15-74										0.39 crystallinity									1350.0	3.000
961	67-75										amorphous									1335.0	3.000
962	96-76										amorphous									1324.0	3.000
963	89-77										amorphous									1422.0	3.000
964	99-78										amorphous									1006.0	3.000
965	98-79										amorphous									1261.0	3.000
966	101-80										amorphous									1183.0	3.000
967	93-81										0.03 crystallinity									1224.0	3.000
968	97-82										amorphous									1290.0	3.000
969	103-83										amorphous									1086.0	3.000
970	92-84										amorphous									1282.0	3.000
971	90-85										amorphous									1287.0	3.000
972	87-86										0.01 crystallinity									1200.0	3.000
973	102-87										amorphous									1562.0	3.000
974	86-88										amorphous									1542.0	3.000
975	91-89										amorphous									1469.0	3.000
976	95-90										amorphous									1428.0	3.000
977	88-91										amorphous									1204.0	3.000
978	94-92										amorphous									1451.0	3.000
979	100-93										amorphous									1545.0	3.000
980	HW39													2.650				-11.178	18794.4	960.0	60.000
981	DWRG																				
982	SF10																				
983	TC27																				
984	WV205																				

#	Glass ID	T2 (°C)	V2 (Pa·s)	T3 (°C)	V3 (Pa·s)	T4 (°C)	V4 (Pa·s)	T5 (°C)	V5 (Pa·s)	T6 (°C)	V6 (Pa·s)	T7 (°C)	V7 (Pa·s)	T8 (°C)	V8 (Pa·s)	T9 (°C)	V9 (Pa·s)	T10 (°C)	V10 (Pa·s)	TCLP Ag	TCLP As	TCLP Ba	TCLP Cd	TCLP Cr	TCLP Ni	TCLP Pb
903	44-23																									
904	82-24																									
905	77-25																									
906	75-26																									
907	22-27																									
908	55-27																									
909	64-28																									
910	76-29																									
911	10-30																									
912	37-31																									
913	48-32																									
914	66-33																									
915	71-33																									
916	07-34																									
917	42-34																									
918	63-34																									
919	81-34																									
920	35-35																									
921	21-36																									
922	29-37																									
923	02-38																									
924	58-39																									
925	05-40																									
926	24-41																									
927	52-42																									
928	79-43																									
929	04-44																									
930	28-45																									
931	80-46																									
932	40-47																									
933	78-48																									
934	65-49																									
935	68-50																									
936	84-51																									
937	53-52																									
938	38-53																									
939	62-54																									
940	70-55																									
941	46-56																									
942	11-57																									
943	16-58																									
944	39-59																									
945	13-60																									
946	61-60																									
947	23-61																									
948	08-62																									
949	41-63																									
950	25-64																									
951	12-65																									
952	51-66																									
953	14-67																									
954	56-68																									
955	18-69																									
956	32-70																									
957	06-71																									
958	54-72																									
959	19-73																									
960	15-74																									
961	67-75																									
962	96-76																									
963	89-77																									
964	99-78																									
965	98-79																									
966	101-80																									
967	93-81																									
968	97-82																									
969	103-83																									
970	92-84																									
971	90-85																									
972	87-86																									
973	102-87																									
974	86-88																									
975	91-89																									
976	95-90																									
977	88-91																									
978	94-92																									
979	100-93																									
980	HW39	1060	18.000	1125	9.2	1200.0	5.1																			
981	DWRG																									
982	SF10																									
983	TC27																									
984	WV205																									

#	Glass ID	TCLP Se	TCLP Zn	TCLP Al	TCLP B	TCLP Sb	TCLP Tl	TCLP V	Q PCT B (g/m²)	Q PCT Li (g/m²)	Q PCT Na (g/m²)	Q PCT Si (g/m²)	Q PCT pH	CCC PCT B (g/m²)	CCC PCT Li (g/m²)	CCC PCT Na (g/m²)	CCC PCT Si (g/m²)	CCC PCT pH	T1 (°C)
903	44-23																		
904	82-24																		
905	77-25																		
906	75-26																		
907	22-27																		
908	55-27																		
909	64-28																		
910	76-29																		
911	10-30																		
912	37-31																		
913	48-32																		
914	66-33																		
915	71-33																		
916	07-34																		
917	42-34																		
918	63-34																		
919	81-34																		
920	35-35																		
921	21-36																		
922	29-37																		
923	02-38																		
924	58-39																		
925	05-40																		
926	24-41																		
927	52-42																		
928	79-43																		
929	04-44																		
930	28-45																		
931	80-46																		
932	40-47																		
933	78-48																		
934	65-49																		
935	68-50																		
936	84-51																		
937	53-52																		
938	38-53																		
939	62-54																		
940	70-55																		
941	46-56																		
942	11-57																		
943	16-58																		
944	39-59																		
945	13-60																		
946	61-60																		
947	23-61																		
948	08-62																		
949	41-63																		
950	25-64																		
951	12-65																		
952	51-66																		
953	14-67																		
954	56-68																		
955	18-69																		
956	32-70																		
957	06-71																		
958	54-72																		
959	19-73																		
960	15-74																		
961	67-75																		
962	96-76																		
963	89-77																		
964	99-78																		
965	98-79																		
966	101-80																		
967	93-81																		
968	97-82																		
969	103-83																		
970	92-84																		
971	90-85																		
972	87-86																		
973	102-87																		
974	86-88																		
975	91-89																		
976	95-90																		
977	88-91																		
978	94-92																		
979	100-93																		
980	HW39																		
981	DWRG								0.345										
982	SF10								0.237										
983	TC27								0.331										
984	WV205								0.705										

#	Glass ID	EC1 (S/cm)	T2 (°C)	EC2 (S/cm)	T3 (°C)	EC3 (S/cm)	T4 (°C)	EC4 (S/cm)	T5 (°C)	EC5 (S/cm)	T6 (°C)	EC6 (S/cm)	A	B	To
903	44-23														
904	82-24														
905	77-25														
906	75-26														
907	22-27														
908	55-27														
909	64-28														
910	76-29														
911	10-30														
912	37-31														
913	48-32														
914	66-33														
915	71-33														
916	07-34														
917	42-34														
918	63-34														
919	81-34														
920	35-35														
921	21-36														
922	29-37														
923	02-38														
924	58-39														
925	05-40														
926	24-41														
927	52-42														
928	79-43														
929	04-44														
930	28-45														
931	80-46														
932	40-47														
933	78-48														
934	65-49														
935	68-50														
936	84-51														
937	53-52														
938	38-53														
939	62-54														
940	70-55														
941	46-56														
942	11-57														
943	16-58														
944	39-59														
945	13-60														
946	61-60														
947	23-61														
948	08-62														
949	41-63														
950	25-64														
951	12-65														
952	51-66														
953	14-67														
954	56-68														
955	18-69														
956	32-70														
957	06-71														
958	54-72														
959	19-73														
960	15-74														
961	67-75														
962	96-76														
963	89-77														
964	99-78														
965	98-79														
966	101-80														
967	93-81														
968	97-82														
969	103-83														
970	92-84														
971	90-85														
972	87-86														
973	102-87														
974	86-88														
975	91-89														
976	95-90														
977	88-91														
978	94-92														
979	100-93														
980	HW39														
981	DWRG														
982	SF10														
983	TC27														
984	WV205														

#	Glass ID	Study	Reference	Al2O3-t	B2O3-t	CaO-t	Fe2O3-t	FeO-t	K2O-t	Li2O-t	MgO-t	Na2O-t	NiO-t	P2O5-t	SiO2-t	ZrO2-t	Ag2O-t	As2O3-t	As2O5-t	BaO-t	BeO-t	Bi2O3-t	Br-t	CdO-t	Ce2O3-t	CeO2-t	Cl-t
985	WVCM42	WV Glasses by CUA and PNL	Johnston et al. 1990																								
986	WVCM44	WV Glasses by CUA and PNL	Johnston et al. 1990																								
987	WVCM45	WV Glasses by CUA and PNL	Johnston et al. 1990																								
988	WVCM46	WV Glasses by CUA and PNL	Johnston et al. 1990																								
989	WVCM47	WV Glasses by CUA and PNL	Johnston et al. 1990																								
990	WVCM48	WV Glasses by CUA and PNL	Johnston et al. 1990																								
991	WVCM50	WV Glasses by CUA and PNL	Johnston et al. 1990																								
992	WVCM53	WV Glasses by CUA and PNL	Johnston et al. 1990																								
993	WVCM55	WV Glasses by CUA and PNL	Johnston et al. 1990																								
994	WVCM56	WV Glasses by CUA and PNL	Johnston et al. 1990																								
995	WVCM57	WV Glasses by CUA and PNL	Johnston et al. 1990																								
996	WVCM59	WV Glasses by CUA and PNL	Johnston et al. 1990																								
997	WVUTH7	WV Glasses by CUA and PNL	Johnston et al. 1990																								
998	WVUTH8	WV Glasses by CUA and PNL	Johnston et al. 1990																								
999	WVUTH12	WV Glasses by CUA and PNL	Johnston et al. 1990																								
1000	WVUTH13	WV Glasses by CUA and PNL	Johnston et al. 1990																								
1001	WVUTH14	WV Glasses by CUA and PNL	Johnston et al. 1990																								
1002	WVUTH15	WV Glasses by CUA and PNL	Johnston et al. 1990																								
1003	WVUTH17	WV Glasses by CUA and PNL	Johnston et al. 1990																								
1004	WVUTH18	WV Glasses by CUA and PNL	Johnston et al. 1990																								
1005	WVUTH19	WV Glasses by CUA and PNL	Johnston et al. 1990																								
1006	WVUTH21	WV Glasses by CUA and PNL	Johnston et al. 1990																								
1007	WVUTH22	WV Glasses by CUA and PNL	Johnston et al. 1990																								
1008	WVUTH23	WV Glasses by CUA and PNL	Johnston et al. 1990																								
1009	WVUTH28	WV Glasses by CUA and PNL	Johnston et al. 1990																								
1010	WVUTH30	WV Glasses by CUA and PNL	Johnston et al. 1990																								
1011	WVUTH31	WV Glasses by CUA and PNL	Johnston et al. 1990																								
1012	WVUTH32	WV Glasses by CUA and PNL	Johnston et al. 1990																								
1013	WVUTH34	WV Glasses by CUA and PNL	Johnston et al. 1990																								
1014	WVUTH35	WV Glasses by CUA and PNL	Johnston et al. 1990																								
1015	WVUTH36	WV Glasses by CUA and PNL	Johnston et al. 1990																								
1016	WVUTH37	WV Glasses by CUA and PNL	Johnston et al. 1990																								
1017	WVUTH38	WV Glasses by CUA and PNL	Johnston et al. 1990																								
1018	WVUTH39	WV Glasses by CUA and PNL	Johnston et al. 1990																								
1019	WVUTH40	WV Glasses by CUA and PNL	Johnston et al. 1990																								
1020	WVUTH41	WV Glasses by CUA and PNL	Johnston et al. 1990																								
1021	WVUTH42	WV Glasses by CUA and PNL	Johnston et al. 1990																								
1022	WVUTH48	WV Glasses by CUA and PNL	Johnston et al. 1990																								
1023	WVUTH49	WV Glasses by CUA and PNL	Johnston et al. 1990																								
1024	WVUTH51	WV Glasses by CUA and PNL	Johnston et al. 1990																								
1025	WVUTH52	WV Glasses by CUA and PNL	Johnston et al. 1990																								
1026	WVUTH53	WV Glasses by CUA and PNL	Johnston et al. 1990																								
1027	WVUTH54	WV Glasses by CUA and PNL	Johnston et al. 1990																								
1028	WVUTH55	WV Glasses by CUA and PNL	Johnston et al. 1990																								
1029	WVUTH56	WV Glasses by CUA and PNL	Johnston et al. 1990																								
1030	WVUTH57	WV Glasses by CUA and PNL	Johnston et al. 1990																								
1031	WVUTH58	WV Glasses by CUA and PNL	Johnston et al. 1990																								
1032	WVUTH59	WV Glasses by CUA and PNL	Johnston et al. 1990																								
1033	WVUTH61	WV Glasses by CUA and PNL	Johnston et al. 1990																								
1034	WVUTH62	WV Glasses by CUA and PNL	Johnston et al. 1990																								
1035	WVUTH63	WV Glasses by CUA and PNL	Johnston et al. 1990																								
1036	WVUTH64	WV Glasses by CUA and PNL	Johnston et al. 1990																								
1037	WVUTH65	WV Glasses by CUA and PNL	Johnston et al. 1990																								
1038	WVUTH66	WV Glasses by CUA and PNL	Johnston et al. 1990																								
1039	WVUTH67	WV Glasses by CUA and PNL	Johnston et al. 1990																								
1040	WVUTH68	WV Glasses by CUA and PNL	Johnston et al. 1990																								
1041	WVUTH69	WV Glasses by CUA and PNL	Johnston et al. 1990																								
1042	WVUTH70	WV Glasses by CUA and PNL	Johnston et al. 1990																								
1043	WVUTH71	WV Glasses by CUA and PNL	Johnston et al. 1990																								
1044	WVUTH72	WV Glasses by CUA and PNL	Johnston et al. 1990																								
1045	WVUTH73	WV Glasses by CUA and PNL	Johnston et al. 1990																								
1046	WVUTH74	WV Glasses by CUA and PNL	Johnston et al. 1990																								
1047	WVUTH75	WV Glasses by CUA and PNL	Johnston et al. 1990																								
1048	WVUTH77	WV Glasses by CUA and PNL	Johnston et al. 1990																								
1049	WVUTH78	WV Glasses by CUA and PNL	Johnston et al. 1990																								
1050	WVUTH79	WV Glasses by CUA and PNL	Johnston et al. 1990																								
1051	WVUTH80	WV Glasses by CUA and PNL	Johnston et al. 1990																								
1052	WVUTH81	WV Glasses by CUA and PNL	Johnston et al. 1990																								
1053	WVUTH82	WV Glasses by CUA and PNL	Johnston et al. 1990																								
1054	WVUTH83	WV Glasses by CUA and PNL	Johnston et al. 1990																								
1055	WVUTH84	WV Glasses by CUA and PNL	Johnston et al. 1990																								
1056	WVUTH89	WV Glasses by CUA and PNL	Johnston et al. 1990																								
1057	WVUTH90	WV Glasses by CUA and PNL	Johnston et al. 1990																								
1058	WVUTH91	WV Glasses by CUA and PNL	Johnston et al. 1990																								
1059	WVUTH92	WV Glasses by CUA and PNL	Johnston et al. 1990																								
1060	WVUTH93	WV Glasses by CUA and PNL	Johnston et al. 1990																								
1061	WVUTH94	WV Glasses by CUA and PNL	Johnston et al. 1990																								
1062	WVUTH96	WV Glasses by CUA and PNL	Johnston et al. 1990																								
1063	WVUTH98	WV Glasses by CUA and PNL	Johnston et al. 1990																								
1064	WVUTH99	WV Glasses by CUA and PNL	Johnston et al. 1990																								
1065	WVUTH100	WV Glasses by CUA and PNL	Johnston et al. 1990																								
1066	WVUTH102	WV Glasses by CUA and PNL	Johnston et al. 1990																								

#	Glass ID	CoO-t	Co2O3-t	Cr2O3-t	Cs2O-t	CuO-t	Dy2O3-t	Eu2O3-t	F-t	Ga2O3-t	Gd2O3-t	HfO2-t	HgO-t	I-t	La2O3-t	MnO2-t	MnO-t	MoO-t	MoO2-t	MoO3-t	Nb2O5-t	Nd2O3-t	NpO2-t	PbO-t	PdO2-t	PdO-t	Pr2O3-t	Pr6O11-t	Rb2O-t	ReO-t
985	WVCM42																												
986	WVCM44																												
987	WVCM45																												
988	WVCM46																												
989	WVCM47																												
990	WVCM48																												
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992	WVCM53																												
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994	WVCM56																												
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996	WVCM59																												
997	WVUTH7																												
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999	WVUTH12																												
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1010	WVUTH30																												
1011	WVUTH31																												
1012	WVUTH32																												
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1015	WVUTH36																												
1016	WVUTH37																												
1017	WVUTH38																												
1018	WVUTH39																												
1019	WVUTH40																												
1020	WVUTH41																												
1021	WVUTH42																												
1022	WVUTH48																												
1023	WVUTH49																												
1024	WVUTH51																												
1025	WVUTH52																												
1026	WVUTH53																												
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1030	WVUTH57																												
1031	WVUTH58																												
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1033	WVUTH61																												
1034	WVUTH62																												
1035	WVUTH63																												
1036	WVUTH64																												
1037	WVUTH65																												
1038	WVUTH66																												
1039	WVUTH67																												
1040	WVUTH68																												
1041	WVUTH69																												
1042	WVUTH70																												
1043	WVUTH71																												
1044	WVUTH72																												
1045	WVUTH73																												
1046	WVUTH74																												
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1060	WVUTH93																												
1061	WVUTH94																												
1062	WVUTH96																												
1063	WVUTH98																												
1064	WVUTH99																												
1065	WVUTH100																												
1066	WVUTH102																												

#	Glass ID	ReO2-t	Re2O7-t	Rh2O3-t	RhO2-t	RuO2-t	Ru2O3-t	Sb2O3-t	Sb2O5-t	SeO2-t	Sm2O3-t	SnO-t	SnO2-t	SO3-t	SrO-t	Tc2O7-t	TeO2-t	ThO2-t	TiO2-t	Tl2O-t	Tl2O3-t	U3O8-t	UO2-t	UO3-t	V2O5-t	WO3-t	Y2O3-t	ZnO-t	Sum-t	Al2O3-a
985	WVCM42																											0.0000	0.0499
986	WVCM44																											0.0000	0.0649
987	WVCM45																											0.0000	0.0797
988	WVCM46																											0.0000	0.0796
989	WVCM47																											0.0000	0.0798
990	WVCM48																											0.0000	0.0861
991	WVCM50																											0.0000	0.0986
992	WVCM53																											0.0000	0.1021
993	WVCM55																											0.0000	0.1044
994	WVCM56																											0.0000	0.0883
995	WVCM57																											0.0000	0.0480
996	WVCM59																											0.0000	0.0647
997	WVUTH7																											0.0000	0.0815
998	WVUTH8																											0.0000	0.0285
999	WVUTH12																											0.0000	0.0995
1000	WVUTH13																											0.0000	0.1194
1001	WVUTH14																											0.0000	0.0995
1002	WVUTH15																											0.0000	0.0997
1003	WVUTH17																											0.0000	0.0986
1004	WVUTH18																											0.0000	0.0969
1005	WVUTH19																											0.0000	0.0967
1006	WVUTH21																											0.0000	0.1010
1007	WVUTH22																											0.0000	0.0966
1008	WVUTH23																											0.0000	0.0948
1009	WVUTH28																											0.0000	0.0986
1010	WVUTH30																											0.0000	0.0981
1011	WVUTH31																											0.0000	0.0983
1012	WVUTH32																											0.0000	0.1011
1013	WVUTH34																											0.0000	0.1004
1014	WVUTH35																											0.0000	0.1004
1015	WVUTH36																											0.0000	0.0987
1016	WVUTH37																											0.0000	0.1005
1017	WVUTH38																											0.0000	0.0987
1018	WVUTH39																											0.0000	0.1006
1019	WVUTH40																											0.0000	0.1384
1020	WVUTH41																											0.0000	0.0992
1021	WVUTH42																											0.0000	0.0988
1022	WVUTH48																											0.0000	0.0993
1023	WVUTH49																											0.0000	0.0992
1024	WVUTH51																											0.0000	0.0996
1025	WVUTH52																											0.0000	0.0996
1026	WVUTH53																											0.0000	0.0994
1027	WVUTH54																											0.0000	0.1004
1028	WVUTH55																											0.0000	0.0807
1029	WVUTH56																											0.0000	0.0993
1030	WVUTH57																											0.0000	0.0983
1031	WVUTH58																											0.0000	0.0984
1032	WVUTH59																											0.0000	0.0967
1033	WVUTH61																											0.0000	0.0963
1034	WVUTH62																											0.0000	0.0450
1035	WVUTH63																											0.0000	0.0450
1036	WVUTH64																											0.0000	0.0650
1037	WVUTH65																											0.0000	0.0644
1038	WVUTH66																											0.0000	0.0445
1039	WVUTH67																											0.0000	0.0741
1040	WVUTH68																											0.0000	0.0545
1041	WVUTH69																											0.0000	0.0840
1042	WVUTH70																											0.0000	0.0842
1043	WVUTH71																											0.0000	0.0989
1044	WVUTH72																											0.0000	0.0447
1045	WVUTH73																											0.0000	0.0445
1046	WVUTH74																											0.0000	0.0444
1047	WVUTH75																											0.0000	0.0637
1048	WVUTH77																											0.0000	0.0637
1049	WVUTH78																											0.0000	0.0645
1050	WVUTH79																											0.0000	0.0632
1051	WVUTH80																											0.0000	0.0447
1052	WVUTH81																											0.0000	0.0447
1053	WVUTH82																											0.0000	0.0447
1054	WVUTH83																											0.0000	0.0650
1055	WVUTH84																											0.0000	0.0450
1056	WVUTH89																											0.0000	0.0550
1057	WVUTH90																											0.0000	0.0650
1058	WVUTH91																											0.0000	0.0450
1059	WVUTH92																											0.0000	0.0649
1060	WVUTH93																											0.0000	0.0648
1061	WVUTH94																											0.0000	0.0580
1062	WVUTH96																											0.0000	0.0510
1063	WVUTH98																											0.0000	0.0648
1064	WVUTH99																											0.0000	0.0510
1065	WVUTH100																											0.0000	0.0649
1066	WVUTH102																											0.0000	0.0648

#	Glass ID	B2O3-a	CaO-a	Fe2O3-a	FeO-a	K2O-a	Li2O-a	MgO-a	Na2O-a	NiO-a	P2O5-a	SiO2-a	ZrO2-a	Ag2O-a	As2O3-a	As2O5-a	BaO-a	BeO-a	Bi2O3-a	Br-a	CdO-a	Ce2O3-a	CeO2-a	Cl-a	CoO-a	Co2O3-a	Cr2O3-a	Cs2O-a	CuO-a	F-a
985	WVCM42	0.0981	0.0096	0.1253		0.0187	0.0277	0.0129	0.1059		0.0247	0.4415					0.0022													
986	WVCM44	0.0903	0.0089	0.1155		0.0325	0.0275	0.0120	0.0988		0.0228	0.4480					0.0021													
987	WVCM45	0.0743	0.0075	0.1233		0.0157	0.0297	0.0131	0.1015		0.0250	0.4469					0.0018													
988	WVCM46	0.0992	0.0068	0.1214		0.0157	0.0202	0.0131	0.0890		0.0250	0.4473					0.0016													
989	WVCM47	0.1243	0.0060	0.1212		0.0128	0.0202	0.0132	0.0921		0.0250	0.4230					0.0013													
990	WVCM48	0.0960	0.0096	0.1311		0.0245	0.0293	0.0093	0.1071		0.0064	0.4101					0.0022													
991	WVCM50	0.1227	0.0082	0.1193		0.0160	0.0222	0.0079	0.0979		0.0247	0.3960					0.0019													
992	WVCM53	0.1262	0.0024	0.1223		0.0095	0.0204		0.1087		0.0261	0.4112																		
993	WVCM55	0.1336	0.0069	0.1264		0.0135	0.0459	0.0067	0.0857		0.0264	0.4199					0.0016													
994	WVCM56	0.1403	0.0081	0.1086		0.0158	0.0240	0.0088	0.0887		0.0055	0.4202					0.0019													
995	WVCM57	0.0944		0.1287							0.0252	0.4260																		
996	WVCM59	0.1029	0.0068	0.1204		0.0362	0.0316	0.0089	0.1117		0.0238	0.4093					0.0016													
997	WVUTH7	0.0931	0.0092	0.1163		0.0334	0.0282	0.0122	0.1018		0.0234	0.4191					0.0021													
998	WVUTH8	0.0934	0.0092	0.1166		0.0335	0.0283	0.0122	0.1021		0.0235	0.4204					0.0022													
999	WVUTH12	0.1234	0.0087	0.1197		0.0249	0.0268	0.0124	0.0978		0.0058	0.3984					0.0020													
1000	WVUTH13	0.1234	0.0087	0.1196		0.0249	0.0268	0.0125	0.0978		0.0058	0.3784					0.0020													
1001	WVUTH14	0.1236	0.0088	0.1198		0.0249	0.0268	0.0125	0.0979		0.0244	0.3790					0.0020													
1002	WVUTH15	0.1036	0.0087	0.1198		0.0249	0.0268	0.0125	0.0979		0.0246	0.3987					0.0020													
1003	WVUTH17	0.1227	0.0082	0.1193		0.0160	0.0222	0.0079	0.0979		0.0247	0.3960					0.0019													
1004	WVUTH18	0.1206	0.0080	0.1172		0.0157	0.0218	0.0078	0.0962		0.0243	0.3891					0.0019													
1005	WVUTH19	0.1203	0.0080	0.1169		0.0157	0.0217	0.0078	0.1156		0.0242	0.3882					0.0019													
1006	WVUTH21	0.1249	0.0083	0.1217		0.0162	0.0229	0.0080	0.0998		0.0254	0.3848					0.0019													
1007	WVUTH22	0.1408	0.0080	0.1168		0.0156	0.0217	0.0078	0.0958		0.0242	0.3878					0.0019													
1008	WVUTH23	0.1180	0.0079	0.1531		0.0154	0.0213	0.0076	0.0941		0.0238	0.3807					0.0180													
1009	WVUTH28	0.1027	0.0071	0.1194		0.0191	0.0195	0.0126	0.1175		0.0247	0.3960					0.0017													
1010	WVUTH30	0.1220	0.0081	0.1186		0.0159	0.0220	0.0079	0.0973		0.0246	0.3937					0.0019													
1011	WVUTH31	0.1223	0.0071	0.1190		0.0190	0.0211	0.0125	0.0891		0.0346	0.3946					0.0017													
1012	WVUTH32	0.1250	0.0083	0.1217		0.0162	0.0229	0.0080	0.0998		0.0254	0.3849					0.0019													
1013	WVUTH34	0.1241	0.0084	0.1202		0.0093	0.0207	0.0081	0.1069		0.0257	0.4043																		
1014	WVUTH35	0.1241	0.0084	0.1203		0.0093	0.0207		0.1069		0.0257	0.4043																		
1015	WVUTH36	0.1264	0.0081	0.1196		0.0128	0.0434	0.0088	0.0811		0.0249	0.3972					0.0015													
1016	WVUTH37	0.1287	0.0083	0.1217		0.0130	0.0442	0.0089	0.0825		0.0254	0.4043					0.0016													
1017	WVUTH38	0.1264	0.0081	0.1196		0.0128	0.0434	0.0088	0.0810		0.0249	0.3971					0.0015													
1018	WVUTH39	0.1288	0.0083	0.1218		0.0130	0.0442	0.0089	0.0826		0.0254	0.4046					0.0016													
1019	WVUTH40	0.1222	0.0080	0.1192		0.0157	0.0227	0.0078	0.0977		0.0251	0.3592					0.0019													
1020	WVUTH41	0.1221	0.0080	0.1591		0.0157	0.0227	0.0078	0.0976		0.0250	0.3588					0.0019													
1021	WVUTH42	0.1221	0.0083	0.1184		0.0092	0.0204	0.0159	0.1052		0.0253	0.3979																		
1022	WVUTH48	0.1221	0.0080	0.1192		0.0157	0.0227	0.0078	0.0977		0.0251	0.3984					0.0019													
1023	WVUTH49	0.1221	0.0080	0.1191		0.0157	0.0227	0.0078	0.0976		0.0250	0.3588					0.0019													
1024	WVUTH51	0.1231	0.0084	0.1193		0.0092	0.0205	0.0081	0.1060		0.0255	0.4010					0.0000													
1025	WVUTH52	0.1231	0.0024	0.1193		0.0092	0.0205	0.0141	0.1060		0.0255	0.4010					0.0000													
1026	WVUTH53	0.1272	0.0082	0.1204		0.0129	0.0437	0.0088	0.0816		0.0251	0.3997					0.0015													
1027	WVUTH54	0.1286	0.0083	0.1214		0.0142	0.0216	0.0079	0.0850		0.0252	0.4033					0.0017													
1028	WVUTH55	0.1283	0.0083	0.1212		0.0162	0.0225	0.0080	0.1021		0.0251	0.4023					0.0017													
1029	WVUTH56	0.1273	0.0082	0.1203		0.0161	0.0223	0.0080	0.1000		0.0148	0.3991					0.0017													
1030	WVUTH57	0.1252	0.0088	0.1190		0.0336	0.0289	0.0096	0.1047		0.0247	0.3751					0.0021													
1031	WVUTH58	0.1224	0.0081	0.1190		0.0159	0.0221	0.0079	0.0977		0.0247	0.3952					0.0019													
1032	WVUTH59	0.1202	0.0080	0.1369		0.0157	0.0217	0.0078	0.0959		0.0242	0.3880					0.0019													
1033	WVUTH61	0.1198	0.0080	0.1165		0.0156	0.0216	0.0077	0.0956		0.0241	0.4101					0.0019													
1034	WVUTH62	0.1137	0.0082	0.1205		0.0405	0.0348	0.0090	0.1261		0.0236	0.3991					0.0019													
1035	WVUTH63	0.0957	0.0082	0.1205		0.0341	0.0292	0.0090	0.1061		0.0236	0.4491					0.0019													
1036	WVUTH64	0.1065	0.0082	0.1205		0.0379	0.0326	0.0090	0.1181		0.0236	0.3991					0.0019													
1037	WVUTH65	0.0879	0.0082	0.1197		0.0313	0.0269	0.0089	0.0974		0.0235	0.4461					0.0019													
1038	WVUTH66	0.1031	0.0081	0.1194		0.0359	0.0306	0.0089	0.1107		0.0234	0.4299					0.0019													
1039	WVUTH67	0.1055	0.0081	0.1193		0.0364	0.0311	0.0089	0.1126		0.0234	0.3951					0.0019													
1040	WVUTH68	0.0923	0.0082	0.1196		0.0326	0.0279	0.0089	0.1012		0.0235	0.4457					0.0019													
1041	WVUTH69	0.1012	0.0082	0.1194		0.0352	0.0301	0.0089	0.1088		0.0234	0.3954					0.0019													
1042	WVUTH70	0.0923	0.0082	0.1196		0.0326	0.0279	0.0089	0.1012		0.0235	0.4160					0.0019													
1043	WVUTH71	0.0945	0.0082	0.1196		0.0332	0.0285	0.0089	0.1032		0.0235	0.3960					0.0019													
1044	WVUTH72	0.0878	0.0082	0.1197		0.0313	0.0269	0.0089	0.0974		0.0235	0.4660					0.0019													
1045	WVUTH73	0.1099	0.0081	0.1192		0.0378	0.0322	0.0089	0.1163		0.0234	0.4145					0.0019													
1046	WVUTH74	0.1186	0.0081	0.1190		0.0403	0.0343	0.0089	0.1238		0.0233	0.3940					0.0019													
1047	WVUTH75	0.1481	0.0081	0.1182		0.0309	0.0265	0.0088	0.0962		0.0232	0.3916					0.0019													
1048	WVUTH77	0.1482	0.0081	0.1182		0.0309	0.0265	0.0088	0.0962		0.0232	0.3915					0.0019													
1049	WVUTH78	0.0878	0.0082	0.1694		0.0313	0.0269	0.0089	0.0974		0.0235	0.3964					0.0019													
1050	WVUTH79	0.0862	0.0080	0.1175		0.0307	0.0264	0.0088	0.0956		0.0230	0.4375					0.0019													
1051	WVUTH80	0.0879	0.0082	0.1198		0.0313	0.0269	0.0089	0.0975		0.0235	0.4462					0.0019													
1052	WVUTH81	0.0879	0.0082	0.1197		0.0313	0.0269	0.0089	0.0974		0.0235	0.4461					0.0019													
1053	WVUTH82	0.0879	0.0082	0.1395		0.0313	0.0269	0.0089	0.0975		0.0235	0.4460					0.0019													
1054	WVUTH83	0.0885	0.0082	0.1206		0.0420	0.0283	0.0090	0.1286		0.0236	0.3992					0.0020													
1055	WVUTH84	0.1201	0.0082	0.1206		0.0409	0.0348	0.0090	0.1259		0.0236	0.3992					0.0020													
1056	WVUTH89	0.1045	0.0082	0.1206		0.0361	0.0310	0.0090	0.1120		0.0236	0.4242					0.0020													
1057	WVUTH90	0.0976	0.0082	0.1506		0.0342	0.0293	0.0090	0.1060		0.0236	0.3992					0.0020													
1058	WVUTH91	0.1203	0.0082	0.1206		0.0700	0.0348	0.0090	0.0981		0.0236	0.3992					0.0020													
1059	WVUTH92	0.1018	0.0069	0.1205		0.0371	0.0313	0.0089	0.1134		0.0238	0.4096					0.0016													
1060	WVUTH93	0.1241	0.0068	0.0905		0.0442	0.0382	0.0089	0.1366		0.0238	0.3801					0.0016													
1061	WVUTH94	0.1058	0.0076	0.1106		0.0382	0.0323	0.0083	0.1234		0.0217	0.4151					0.0018													
1062	WVUTH96	0.1476	0.0081	0.1191		0.0330	0.0281	0.0089	0.1015		0.0233	0.3941					0.0019													
1063	WVUTH98	0.1175	0.0068	0.1106		0.0416	0.0360	0.0089	0.1286		0.0238	0.3801					0.0016													
1064	WVUTH99	0.1162	0.0081	0.1191		0.0395	0.0335	0.0089	0.1211		0.0233	0.3941					0.0019													
1065	WVUTH100	0.1019	0.0068	0.1205		0.0371	0.0313	0.0089	0.1135		0.0239	0.4097					0.0016													
1066	WVUTH102	0.1017	0.0080	0.1202		0.0370	0.0312	0.0087	0.1131		0.0229	0.4087					0.0019													

#	Glass ID	Ga2O3-a	Gd2O3-a	I-a	La2O3-a	MnO2-a	MnO-a	MoO-a	MoO3-a	Nb2O5-a	Nd2O3-a	NpO2-a	PbO-a	PdO2-a	PdO-a	Pr2O3-a	Pr6O11-a	PuO2-a	Rb2O-a	ReO-a	ReO2-a	Re2O7-a	Rh2O3-a	RhO2-a	RuO2-a	Sb2O3-a	Sb2O5-a	SeO2-a
985	WVCM42					0.0142																						
986	WVCM44					0.0131																						
987	WVCM45					0.0130																						
988	WVCM46					0.0130																						
989	WVCM47					0.0131																						
990	WVCM48					0.0142																						
991	WVCM50					0.0121																						
992	WVCM53					0.0100																						
993	WVCM55					0.0103																						
994	WVCM56					0.0120																						
995	WVCM57					0.0130																						
996	WVCM59					0.0101																						
997	WVUTH7					0.0136																						
998	WVUTH8					0.0136																						
999	WVUTH12					0.0129																						
1000	WVUTH13					0.0129																						
1001	WVUTH14					0.0130																						
1002	WVUTH15					0.0130																						
1003	WVUTH17					0.0121																						
1004	WVUTH18					0.0119																						
1005	WVUTH19					0.0119																						
1006	WVUTH21					0.0122																						
1007	WVUTH22					0.0118																						
1008	WVUTH23					0.0116																						
1009	WVUTH28					0.0128																						
1010	WVUTH30					0.0120																						
1011	WVUTH31					0.0128																						
1012	WVUTH32					0.0122																						
1013	WVUTH34					0.0099																						
1014	WVUTH35					0.0099																						
1015	WVUTH36					0.0121																						
1016	WVUTH37					0.0123																						
1017	WVUTH38					0.0121																						
1018	WVUTH39					0.0123																						
1019	WVUTH40					0.0119																						
1020	WVUTH41					0.0119																						
1021	WVUTH42					0.0097																						
1022	WVUTH48					0.0119																						
1023	WVUTH49					0.0119																						
1024	WVUTH51					0.0098																						
1025	WVUTH52					0.0098																						
1026	WVUTH53					0.0098																						
1027	WVUTH54					0.0123																						
1028	WVUTH55					0.0123																						
1029	WVUTH56					0.0122																						
1030	WVUTH57					0.0121																						
1031	WVUTH58					0.0121																						
1032	WVUTH59					0.0119																						
1033	WVUTH61					0.0118																						
1034	WVUTH62					0.0122																						
1035	WVUTH63					0.0122																						
1036	WVUTH64					0.0122																						
1037	WVUTH65					0.0121																						
1038	WVUTH66					0.0121																						
1039	WVUTH67					0.0121																						
1040	WVUTH68					0.0121																						
1041	WVUTH69					0.0121																						
1042	WVUTH70					0.0121																						
1043	WVUTH71					0.0121																						
1044	WVUTH72					0.0121																						
1045	WVUTH73					0.0121																						
1046	WVUTH74					0.0120																						
1047	WVUTH75					0.0120																						
1048	WVUTH77					0.0120																						
1049	WVUTH78					0.0121																						
1050	WVUTH79					0.0119																						
1051	WVUTH80					0.0121																						
1052	WVUTH81					0.0121																						
1053	WVUTH82					0.0121																						
1054	WVUTH83					0.0122																						
1055	WVUTH84					0.0122																						
1056	WVUTH89					0.0122																						
1057	WVUTH90					0.0122																						
1058	WVUTH91					0.0122																						
1059	WVUTH92					0.0102																						
1060	WVUTH93					0.0102																						
1061	WVUTH94					0.0112																						
1062	WVUTH96					0.0120																						
1063	WVUTH98					0.0102																						
1064	WVUTH99					0.0120																						
1065	WVUTH100					0.0102																						
1066	WVUTH102					0.0118																						

#	Glass ID	Sm2O3-a	SnO-a	SnO2-a	SO3-a	SrO-a	Tc2O7-a	TeO2-a	ThO2-a	TiO2-a	Tl2O-a	Tl2O3-a	U3O8-a	UO2-a	UO3-a	V2O5-a	WO3-a	Y2O3-a	ZnO-a	Sum-a	T_M (°C)	$T_{L,G}$ (°C)	$T_{L,U}$ (°C)	$T_{1\%}$ (°C)	Primary Phase	$C_{650°C}$	$C_{700°C}$	$C_{750°C}$
985	WVCM42								0.0356					0.0059						0.9722								
986	WVCM44								0.0326					0.0054						0.9744								
987	WVCM45								0.0358					0.0059						0.9732								
988	WVCM46								0.0357					0.0059						0.9735								
989	WVCM47								0.0358					0.0060						0.9738								
990	WVCM48								0.0387					0.0064						0.9710								
991	WVCM50								0.0352					0.0061						0.9688								
992	WVCM53								0.0361					0.0059						0.9809								
993	WVCM55								0.0000					0.0000						0.9813								
994	WVCM56								0.0391					0.0066						0.9679								
995	WVCM57								0.0380					0.0062						0.7795								
996	WVCM59								0.0360					0.0058						0.9698								
997	WVUTH7								0.0338					0.0056						0.9733								
998	WVUTH8								0.0339					0.0056						0.9230								
999	WVUTH12								0.0353					0.0059						0.9735								
1000	WVUTH13								0.0353					0.0059						0.9734								
1001	WVUTH14								0.0354					0.0059						0.9735								
1002	WVUTH15								0.0354					0.0059						0.9735								
1003	WVUTH17								0.0352					0.0061						0.9688								
1004	WVUTH18								0.0519					0.0060						0.9693								
1005	WVUTH19								0.0345					0.0060						0.9694								
1006	WVUTH21								0.0359					0.0061						0.9691								
1007	WVUTH22								0.0345					0.0060						0.9693								
1008	WVUTH23								0.0339					0.0059						0.9861								
1009	WVUTH28								0.0352					0.0058						0.9727								
1010	WVUTH30								0.0350					0.0119						0.9690								
1011	WVUTH31								0.0351					0.0058						0.9730								
1012	WVUTH32								0.0359					0.0061						0.9694								
1013	WVUTH34								0.0355					0.0058						0.9793								
1014	WVUTH35								0.0355					0.0058						0.9713								
1015	WVUTH36								0.0349					0.0000						0.9695								
1016	WVUTH37								0.0178					0.0000						0.9692								
1017	WVUTH38								0.0000					0.0000						0.9344								
1018	WVUTH39								0.0000					0.0000						0.9521								
1019	WVUTH40								0.0352					0.0058						0.9708								
1020	WVUTH41								0.0352					0.0058						0.9708								
1021	WVUTH42								0.0349					0.0057						0.9718								
1022	WVUTH48								0.0352					0.0058						0.9708								
1023	WVUTH49								0.0352					0.0058						0.9308								
1024	WVUTH51								0.0352					0.0058						0.9715								
1025	WVUTH52								0.0352					0.0058						0.9715								
1026	WVUTH53								0.0351					0.0060						0.9794								
1027	WVUTH54								0.0352					0.0060						0.9711								
1028	WVUTH55								0.0358					0.0061						0.9706								
1029	WVUTH56								0.0355					0.0060						0.9708								
1030	WVUTH57								0.0349					0.0059						0.9829								
1031	WVUTH58								0.0351					0.0061						0.9666								
1032	WVUTH59								0.0345					0.0060						0.9694								
1033	WVUTH61								0.0344					0.0060						0.9694								
1034	WVUTH62								0.0356					0.0058						0.9760								
1035	WVUTH63								0.0356					0.0058						0.9760								
1036	WVUTH64								0.0356					0.0058						0.9760								
1037	WVUTH65								0.0353					0.0058						0.9694								
1038	WVUTH66								0.0352					0.0058						0.9695								
1039	WVUTH67								0.0352					0.0058						0.9695								
1040	WVUTH68								0.0353					0.0058						0.9695								
1041	WVUTH69								0.0352					0.0058						0.9696								
1042	WVUTH70								0.0353					0.0058						0.9695								
1043	WVUTH71								0.0353					0.0058						0.9696								
1044	WVUTH72								0.0353					0.0058						0.9695								
1045	WVUTH73								0.0352					0.0058						0.9698								
1046	WVUTH74								0.0351					0.0058						0.9695								
1047	WVUTH75								0.0349					0.0057						0.9698								
1048	WVUTH77								0.0349					0.0057						0.9698								
1049	WVUTH78								0.0353					0.0058						0.9694								
1050	WVUTH79								0.0538					0.0057						0.9702								
1051	WVUTH80								0.0549					0.0058						0.9696								
1052	WVUTH81								0.0353					0.0058						0.9497								
1053	WVUTH82								0.0353					0.0058						0.9695								
1054	WVUTH83								0.0356					0.0058						0.9686								
1055	WVUTH84								0.0356					0.0058						0.9829								
1056	WVUTH89								0.0356					0.0058						0.9798								
1057	WVUTH90								0.0356					0.0058						0.9783								
1058	WVUTH91								0.0356					0.0058						0.9844								
1059	WVUTH92								0.0351					0.0058						0.9709								
1060	WVUTH93								0.0351					0.0058						0.9707								
1061	WVUTH94								0.0327					0.0053						0.9720								
1062	WVUTH96								0.0352					0.0057						0.9695								
1063	WVUTH98								0.0351					0.0058						0.9714								
1064	WVUTH99								0.0352					0.0052						0.9691								
1065	WVUTH100								0.0351					0.0058						0.9712								
1066	WVUTH102								0.0346					0.0056						0.9702								

#	Glass ID	$C_{800°C}$	$C_{850°C}$	$C_{900°C}$	$C_{950°C}$	$C_{1000°C}$	$C_{1050°C}$	$C_{1100°C}$	$C_{1150°C}$	$C_{1200°C}$	Quenched Visual/OM	Quenched XRD	CCC XRD	ρ (g/cm³)	Fulc Visc A	Fulc Visc B	Fulc Visc To	Arrh Visc E	Arrh Visc F	T1 (°C)	V1 (Pa·s)
985	WVCM42																				
986	WVCM44																				
987	WVCM45																				
988	WVCM46																				
989	WVCM47																				
990	WVCM48																				
991	WVCM50																				
992	WVCM53																				
993	WVCM55																				
994	WVCM56																				
995	WVCM57																				
996	WVCM59																				
997	WVUTH7																				
998	WVUTH8																				
999	WVUTH12																				
1000	WVUTH13																				
1001	WVUTH14																				
1002	WVUTH15																				
1003	WVUTH17																				
1004	WVUTH18																				
1005	WVUTH19																				
1006	WVUTH21																				
1007	WVUTH22																				
1008	WVUTH23																				
1009	WVUTH28																				
1010	WVUTH30																				
1011	WVUTH31																				
1012	WVUTH32																				
1013	WVUTH34																				
1014	WVUTH35																				
1015	WVUTH36																				
1016	WVUTH37																				
1017	WVUTH38																				
1018	WVUTH39																				
1019	WVUTH40																				
1020	WVUTH41																				
1021	WVUTH42																				
1022	WVUTH48																				
1023	WVUTH49																				
1024	WVUTH51																				
1025	WVUTH52																				
1026	WVUTH53																				
1027	WVUTH54																				
1028	WVUTH55																				
1029	WVUTH56																				
1030	WVUTH57																				
1031	WVUTH58																				
1032	WVUTH59																				
1033	WVUTH61																				
1034	WVUTH62																				
1035	WVUTH63																				
1036	WVUTH64																				
1037	WVUTH65																				
1038	WVUTH66																				
1039	WVUTH67																				
1040	WVUTH68																				
1041	WVUTH69																				
1042	WVUTH70																				
1043	WVUTH71																				
1044	WVUTH72																				
1045	WVUTH73																				
1046	WVUTH74																				
1047	WVUTH75																				
1048	WVUTH77																				
1049	WVUTH78																				
1050	WVUTH79																				
1051	WVUTH80																				
1052	WVUTH81																				
1053	WVUTH82																				
1054	WVUTH83																				
1055	WVUTH84																				
1056	WVUTH89																				
1057	WVUTH90																				
1058	WVUTH91																				
1059	WVUTH92																				
1060	WVUTH93																				
1061	WVUTH94																				
1062	WVUTH96																				
1063	WVUTH98																				
1064	WVUTH99																				
1065	WVUTH100																				
1066	WVUTH102																				

#	Glass ID	T2 (°C)	V2 (Pa·s)	T3 (°C)	V3 (Pa·s)	T4 (°C)	V4 (Pa·s)	T5 (°C)	V5 (Pa·s)	T6 (°C)	V6 (Pa·s)	T7 (°C)	V7 (Pa·s)	T8 (°C)	V8 (Pa·s)	T9 (°C)	V9 (Pa·s)	T10 (°C)	V10 (Pa·s)	TCLP Ag	TCLP As	TCLP Ba	TCLP Cd	TCLP Cr	TCLP Ni	TCLP Pb
985	WVCM42																									
986	WVCM44																									
987	WVCM45																									
988	WVCM46																									
989	WVCM47																									
990	WVCM48																									
991	WVCM50																									
992	WVCM53																									
993	WVCM55																									
994	WVCM56																									
995	WVCM57																									
996	WVCM59																									
997	WVUTH7																									
998	WVUTH8																									
999	WVUTH12																									
1000	WVUTH13																									
1001	WVUTH14																									
1002	WVUTH15																									
1003	WVUTH17																									
1004	WVUTH18																									
1005	WVUTH19																									
1006	WVUTH21																									
1007	WVUTH22																									
1008	WVUTH23																									
1009	WVUTH28																									
1010	WVUTH30																									
1011	WVUTH31																									
1012	WVUTH32																									
1013	WVUTH34																									
1014	WVUTH35																									
1015	WVUTH36																									
1016	WVUTH37																									
1017	WVUTH38																									
1018	WVUTH39																									
1019	WVUTH40																									
1020	WVUTH41																									
1021	WVUTH42																									
1022	WVUTH48																									
1023	WVUTH49																									
1024	WVUTH51																									
1025	WVUTH52																									
1026	WVUTH53																									
1027	WVUTH54																									
1028	WVUTH55																									
1029	WVUTH56																									
1030	WVUTH57																									
1031	WVUTH58																									
1032	WVUTH59																									
1033	WVUTH61																									
1034	WVUTH62																									
1035	WVUTH63																									
1036	WVUTH64																									
1037	WVUTH65																									
1038	WVUTH66																									
1039	WVUTH67																									
1040	WVUTH68																									
1041	WVUTH69																									
1042	WVUTH70																									
1043	WVUTH71																									
1044	WVUTH72																									
1045	WVUTH73																									
1046	WVUTH74																									
1047	WVUTH75																									
1048	WVUTH77																									
1049	WVUTH78																									
1050	WVUTH79																									
1051	WVUTH80																									
1052	WVUTH81																									
1053	WVUTH82																									
1054	WVUTH83																									
1055	WVUTH84																									
1056	WVUTH89																									
1057	WVUTH90																									
1058	WVUTH91																									
1059	WVUTH92																									
1060	WVUTH93																									
1061	WVUTH94																									
1062	WVUTH96																									
1063	WVUTH98																									
1064	WVUTH99																									
1065	WVUTH100																									
1066	WVUTH102																									

#	Glass ID	TCLP Se	TCLP Zn	TCLP Al	TCLP B	TCLP Sb	TCLP Tl	TCLP V	Q PCT B (g/m²)	Q PCT Li (g/m²)	Q PCT Na (g/m²)	Q PCT Si (g/m²)	Q PCT pH	CCC PCT B (g/m²)	CCC PCT Li (g/m²)	CCC PCT Na (g/m²)	CCC PCT Si (g/m²)	CCC PCT pH	T1 (°C)
985	WVCM42								0.482										
986	WVCM44								0.413										
987	WVCM45								0.202										
988	WVCM46								0.146										
989	WVCM47								0.163										
990	WVCM48								0.282										
991	WVCM50								0.206										
992	WVCM53								0.268										
993	WVCM55								0.286										
994	WVCM56								0.189										
995	WVCM57								0.334										
996	WVCM59								0.622										
997	WVUTH7								0.249										
998	WVUTH8								0.349										
999	WVUTH12								0.215										
1000	WVUTH13								0.238										
1001	WVUTH14								0.250										
1002	WVUTH15								0.201										
1003	WVUTH17								0.174										
1004	WVUTH18								0.194										
1005	WVUTH19								0.268										
1006	WVUTH21								0.236										
1007	WVUTH22								0.243										
1008	WVUTH23								0.206										
1009	WVUTH28								0.213										
1010	WVUTH30								0.216										
1011	WVUTH31								0.234										
1012	WVUTH32								0.416										
1013	WVUTH34								0.251										
1014	WVUTH35								0.221										
1015	WVUTH36								0.223										
1016	WVUTH37								0.298										
1017	WVUTH38								0.231										
1018	WVUTH39								0.211										
1019	WVUTH40								0.227										
1020	WVUTH41								0.222										
1021	WVUTH42								0.228										
1022	WVUTH48								0.208										
1023	WVUTH49								0.177										
1024	WVUTH51								0.230										
1025	WVUTH52								0.244										
1026	WVUTH53								0.244										
1027	WVUTH54								0.168										
1028	WVUTH55								0.285										
1029	WVUTH56								0.197										
1030	WVUTH57								0.250										
1031	WVUTH58								0.201										
1032	WVUTH59								0.208										
1033	WVUTH61								0.201										
1034	WVUTH62								0.926										
1035	WVUTH63								0.408										
1036	WVUTH64								0.469										
1037	WVUTH65								0.246										
1038	WVUTH66								0.408										
1039	WVUTH67								0.314										
1040	WVUTH68								0.298										
1041	WVUTH69								0.251										
1042	WVUTH70								0.245										
1043	WVUTH71								0.231										
1044	WVUTH72								0.253										
1045	WVUTH73								0.548										
1046	WVUTH74								0.807										
1047	WVUTH75								0.281										
1048	WVUTH77								0.358										
1049	WVUTH78								0.325										
1050	WVUTH79								0.275										
1051	WVUTH80								0.363										
1052	WVUTH81								0.315										
1053	WVUTH82								0.385										
1054	WVUTH83								0.478										
1055	WVUTH84								1.113										
1056	WVUTH89								0.452										
1057	WVUTH90								0.349										
1058	WVUTH91								0.864										
1059	WVUTH92								0.304										
1060	WVUTH93								1.294										
1061	WVUTH94								0.421										
1062	WVUTH96								0.393										
1063	WVUTH98								0.684										
1064	WVUTH99								0.629										
1065	WVUTH100								0.346										
1066	WVUTH102								0.327										

#	Glass ID	EC1 (S/cm)	T2 (°C)	EC2 (S/cm)	T3 (°C)	EC3 (S/cm)	T4 (°C)	EC4 (S/cm)	T5 (°C)	EC5 (S/cm)	T6 (°C)	EC6 (S/cm)	A	B	To
985	WVCM42														
986	WVCM44														
987	WVCM45														
988	WVCM46														
989	WVCM47														
990	WVCM48														
991	WVCM50														
992	WVCM53														
993	WVCM55														
994	WVCM56														
995	WVCM57														
996	WVCM59														
997	WVUTH7														
998	WVUTH8														
999	WVUTH12														
1000	WVUTH13														
1001	WVUTH14														
1002	WVUTH15														
1003	WVUTH17														
1004	WVUTH18														
1005	WVUTH19														
1006	WVUTH21														
1007	WVUTH22														
1008	WVUTH23														
1009	WVUTH28														
1010	WVUTH30														
1011	WVUTH31														
1012	WVUTH32														
1013	WVUTH34														
1014	WVUTH35														
1015	WVUTH36														
1016	WVUTH37														
1017	WVUTH38														
1018	WVUTH39														
1019	WVUTH40														
1020	WVUTH41														
1021	WVUTH42														
1022	WVUTH48														
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1061	WVUTH94														
1062	WVUTH96														
1063	WVUTH98														
1064	WVUTH99														
1065	WVUTH100														
1066	WVUTH102														

#	Glass ID	Study	Reference	Al2O3-t	B2O3-t	CaO-t	Fe2O3-t	FeO-t	K2O-t	Li2O-t	MgO-t	Na2O-t	NiO-t	P2O5-t	SiO2-t	ZrO2-t	Ag2O-t	As2O3-t	As2O5-t	BaO-t	BeO-t	Bi2O3-t	Br-t	CdO-t	Ce2O3-t	CeO2-t	Cl-t
1067	WVUTH103	WV Glasses by CUA and PNL	Johnston et al. 1990																								
1068	CUOD	WV Glasses by CUA and PNL	Johnston et al. 1990																								
1069	CUOI	WV Glasses by CUA and PNL	Johnston et al. 1990																								
1070	CUOJ	WV Glasses by CUA and PNL	Johnston et al. 1990																								
1071	CUOK	WV Glasses by CUA and PNL	Johnston et al. 1990																								
1072	CUOL	WV Glasses by CUA and PNL	Johnston et al. 1990																								
1073	CUOB	WV Glasses by CUA and PNL	Johnston et al. 1990	0.0670	0.0960	0.0060	0.1140		0.0340	0.0300	0.0130	0.1070	0.0070	0.0240	0.4380	0.0300				0.0060						0.0020	
1074	CUOC	WV Glasses by CUA and PNL	Johnston et al. 1990	0.0310	0.0930	0.0060	0.1110		0.0330	0.0290	0.0120	0.1030	0.0070	0.0230	0.4240	0.0950				0.0060						0.0020	
1075	CUOE	WV Glasses by CUA and PNL	Johnston et al. 1990	0.0320	0.0970	0.0060	0.1150		0.0340	0.0300	0.0130	0.1070	0.0070	0.0240	0.4700	0.0300				0.0060						0.0020	
1076	CUOF	WV Glasses by CUA and PNL	Johnston et al. 1990	0.0310	0.0940	0.0060	0.1120		0.0330	0.0290	0.0120	0.1040	0.0070	0.0240	0.4850	0.0290				0.0060						0.0020	
1077	CUOG	WV Glasses by CUA and PNL	Johnston et al. 1990	0.0320	0.0980	0.0060	0.1160		0.0340	0.0300	0.0130	0.1080	0.0070	0.0250	0.4450	0.0500				0.0060						0.0020	
1078	CUOH	WV Glasses by CUA and PNL	Johnston et al. 1990	0.0320	0.0970	0.0060	0.1400		0.0340	0.0300	0.0130	0.1080	0.0070	0.0240	0.4430	0.0300				0.0060						0.0020	
1079	CUOO	WV Glasses by CUA and PNL	Johnston et al. 1990	0.0330	0.1000	0.0060	0.1180		0.0350	0.0310	0.0130	0.1100	0.0070	0.0250	0.4520	0.0310				0.0060						0.0020	
1080	CUOP	WV Glasses by CUA and PNL	Johnston et al. 1990	0.0310	0.0940	0.0060	0.1120		0.0330	0.0290	0.0120	0.1040	0.0070	0.0240	0.4850	0.0290				0.0060						0.0020	
1081	CUOR	WV Glasses by CUA and PNL	Johnston et al. 1990	0.0320	0.0980	0.0060	0.1160		0.0340	0.0300	0.0130	0.1080	0.0070	0.0250	0.4640	0.0300				0.0060						0.0020	
1082	CUOU	WV Glasses by CUA and PNL	Johnston et al. 1990	0.0330	0.0990	0.0060	0.1170		0.0350	0.0310	0.0130	0.1090	0.0070	0.0250	0.4490	0.0410				0.0060						0.0020	
1083	CUOV	WV Glasses by CUA and PNL	Johnston et al. 1990	0.0320	0.0970	0.0060	0.1150		0.0340	0.0300	0.0130	0.1070	0.0070	0.0240	0.4400	0.0590				0.0060						0.0020	
1084	CU30	WV Glasses by CUA and PNL	Johnston et al. 1990	0.0520	0.0980	0.0060	0.1160		0.0340	0.0300	0.0130	0.1080	0.0070	0.0250	0.4450	0.0300				0.0060						0.0020	
1085	CU31	WV Glasses by CUA and PNL	Johnston et al. 1990	0.0610	0.0970	0.0060	0.1150		0.0340	0.0300	0.0130	0.1070	0.0070	0.0240	0.4400	0.0300				0.0060						0.0020	
1086	CU33	WV Glasses by CUA and PNL	Johnston et al. 1990	0.0790	0.0950	0.0060	0.1130		0.0330	0.0300	0.0120	0.1050	0.0070	0.0240	0.4320	0.0300				0.0060						0.0020	
1087	CU34	WV Glasses by CUA and PNL	Johnston et al. 1990	0.0880	0.0940	0.0060	0.1120		0.0330	0.0290	0.0120	0.1040	0.0070	0.0240	0.4280	0.0290				0.0060						0.0020	
1088	CU35	WV Glasses by CUA and PNL	Johnston et al. 1990	0.0320	0.0980	0.0060	0.1160		0.0340	0.0300	0.0130	0.1080	0.0070	0.0250	0.4450	0.0300				0.0060						0.0020	
1089	CU36	WV Glasses by CUA and PNL	Johnston et al. 1990	0.0320	0.0960	0.0060	0.1140		0.0340	0.0300	0.0130	0.1060	0.0070	0.0240	0.4360	0.0300				0.0060						0.0020	
1090	CU37	WV Glasses by CUA and PNL	Johnston et al. 1990	0.0310	0.0940	0.0060	0.1120		0.0330	0.0290	0.0120	0.1040	0.0070	0.0240	0.4280	0.0290				0.0060						0.0020	
1091	CU38	WV Glasses by CUA and PNL	Johnston et al. 1990	0.0320	0.0980	0.0060	0.1160		0.0340	0.0300	0.0130	0.1080	0.0070	0.0250	0.4450	0.0300				0.0060						0.0020	
1092	CU39	WV Glasses by CUA and PNL	Johnston et al. 1990	0.0320	0.0960	0.0060	0.1140		0.0340	0.0300	0.0130	0.1060	0.0070	0.0240	0.4360	0.0300				0.0060						0.0020	
1093	CU40	WV Glasses by CUA and PNL	Johnston et al. 1990	0.0310	0.0940	0.0060	0.1120		0.0330	0.0290	0.0120	0.1040	0.0070	0.0240	0.4280	0.0290				0.0060						0.0020	
1094	CU41	WV Glasses by CUA and PNL	Johnston et al. 1990	0.0320	0.0980	0.0060	0.1160		0.0340	0.0300	0.0130	0.1080	0.0070	0.0250	0.4450	0.0300				0.0060						0.0020	
1095	CU42	WV Glasses by CUA and PNL	Johnston et al. 1990	0.0320	0.0960	0.0060	0.1140		0.0340	0.0300	0.0130	0.1060	0.0070	0.0240	0.4360	0.0300				0.0060						0.0020	
1096	CU43	WV Glasses by CUA and PNL	Johnston et al. 1990	0.0310	0.0940	0.0060	0.1120		0.0330	0.0290	0.0120	0.1040	0.0070	0.0240	0.4280	0.0290				0.0060						0.0020	
1097	CU44	WV Glasses by CUA and PNL	Johnston et al. 1990	0.0320	0.0980	0.0060	0.1160		0.0340	0.0300	0.0130	0.1080	0.0070	0.0250	0.4450	0.0300				0.0060						0.0020	
1098	CU46	WV Glasses by CUA and PNL	Johnston et al. 1990	0.0310	0.0940	0.0060	0.1120		0.0330	0.0290	0.0120	0.1040	0.0070	0.0240	0.4280	0.0290				0.0060						0.0020	
1099	CU47	WV Glasses by CUA and PNL	Johnston et al. 1990	0.0320	0.0980	0.0060	0.1160		0.0340	0.0300	0.0130	0.1080	0.0270	0.0250	0.4450	0.0300				0.0060						0.0020	
1100	CU49	WV Glasses by CUA and PNL	Johnston et al. 1990	0.0310	0.0940	0.0060	0.1120		0.0330	0.0290	0.0120	0.1040	0.0630	0.0240	0.4280	0.0290				0.0060						0.0020	
1101	CU50	WV Glasses by CUA and PNL	Johnston et al. 1990	0.0320	0.0980	0.0060	0.1160		0.0340	0.0300	0.0130	0.1080	0.0070	0.0250	0.4450	0.0300				0.0060						0.0020	
1102	CU52	WV Glasses by CUA and PNL	Johnston et al. 1990	0.0310	0.0940	0.0060	0.1120		0.0330	0.0290	0.0120	0.1040	0.0070	0.0240	0.4280	0.0290				0.0060						0.0020	
1103	CU53	WV Glasses by CUA and PNL	Johnston et al. 1990																								
1104	CU54	WV Glasses by CUA and PNL	Johnston et al. 1990																								
1105	CU55	WV Glasses by CUA and PNL	Johnston et al. 1990																								
1106	CU56	WV Glasses by CUA and PNL	Johnston et al. 1990																								
1107	CU57	WV Glasses by CUA and PNL	Johnston et al. 1990																								
1108	CU58	WV Glasses by CUA and PNL	Johnston et al. 1990																								
1109	PNL 1	WVDP Support	Olson 1993 and 1994	0.0771	0.1656	0.0048	0.1545		0.0313	0.0232	0.0089	0.0572	0.0025	0.0120	0.3949	0.0132				0.0026					0.0031		
1110	PNL 2	WVDP Support	Olson 1993 and 1994	0.0429	0.1656	0.0048	0.0859		0.0688	0.0232	0.0089	0.1028	0.0025	0.0120	0.4146	0.0132				0.0026					0.0031		
1111	PNL 3	WVDP Support	Olson 1993 and 1994	0.0771	0.1656	0.0048	0.0859		0.0688	0.0510	0.0089	0.1028	0.0025	0.0120	0.3526	0.0132				0.0026					0.0031		
1112	PNL 4	WVDP Support	Olson 1993 and 1994	0.0429	0.0922	0.0048	0.1545		0.0688	0.0232	0.0089	0.0572	0.0025	0.0120	0.4650	0.0132				0.0026					0.0031		
1113	PNL 5	WVDP Support	Olson 1993 and 1994	0.0429	0.1656	0.0048	0.0859		0.0313	0.0510	0.0089	0.0572	0.0025	0.0120	0.4699	0.0132				0.0026					0.0031		
1114	PNL 6	WVDP Support	Olson 1993 and 1994	0.0771	0.0922	0.0048	0.0859		0.0313	0.0432	0.0089	0.1028	0.0025	0.0120	0.4713	0.0132				0.0026					0.0031		
1115	PNL 7	WVDP Support	Olson 1993 and 1994	0.0771	0.0922	0.0048	0.0859		0.0688	0.0232	0.0089	0.0572	0.0025	0.0120	0.4638	0.0132				0.0026					0.0031		
1116	PNL 8	WVDP Support	Olson 1993 and 1994	0.0429	0.1652	0.0048	0.1545		0.0313	0.0232	0.0089	0.1028	0.0025	0.0120	0.3483	0.0132				0.0026					0.0031		
1117	PNL 9	WVDP Support	Olson 1993 and 1994	0.0771	0.0922	0.0048	0.1545		0.0688	0.0245	0.0089	0.1028	0.0025	0.0120	0.3483	0.0132				0.0026					0.0031		
1118	PNL 10	WVDP Support	Olson 1993 and 1994	0.0429	0.0922	0.0048	0.0859		0.0313	0.0510	0.0089	0.1028	0.0025	0.0120	0.4621	0.0132				0.0026					0.0031		
1119	Alkali1	WVDP Support	Olson 1993 and 1994	0.0657	0.1050	0.0048	0.1250		0.0470	0.0360	0.0089	0.0740	0.0025	0.0120	0.4276	0.0145				0.0026					0.0031		
1120	Alkali2	WVDP Support	Olson 1993 and 1994	0.0590	0.1460	0.0048	0.1242		0.0460	0.0410	0.0089	0.0760	0.0025	0.0120	0.3880	0.0144				0.0026					0.0031		
1121	Alkali3	WVDP Support	Olson 1993 and 1994	0.0596	0.1330	0.0048	0.1300		0.0480	0.0340	0.0089	0.0820	0.0025	0.0120	0.4000	0.0152				0.0026					0.0031		
1122	Alkali4	WVDP Support	Olson 1993 and 1994	0.0635	0.1110	0.0048	0.1150		0.0450	0.0350	0.0089	0.0780	0.0025	0.0120	0.4350	0.0153				0.0026					0.0031		
1123	Alkali5	WVDP Support	Olson 1993 and 1994	0.0620	0.1450	0.0048	0.1100		0.0460	0.0365	0.0089	0.0800	0.0025	0.0120	0.4043	0.0125				0.0026					0.0031		
1124	Alkali6	WVDP Support	Olson 1993 and 1994	0.0644	0.1180	0.0048	0.1350		0.0510	0.0380	0.0089	0.0775	0.0025	0.0120	0.4025	0.0139				0.0026					0.0031		
1125	Alkali7	WVDP Support	Olson 1993 and 1994	0.0580	0.1390	0.0048	0.1150		0.0540	0.0400	0.0089	0.0815	0.0025	0.0120	0.3900	0.0160				0.0026					0.0031		
1126	Alkali8	WVDP Support	Olson 1993 and 1994	0.0560	0.1250	0.0048	0.1150		0.0550	0.0330	0.0089	0.0900	0.0025	0.0120	0.4070	0.0144				0.0026					0.0031		
1127	Alkali9	WVDP Support	Olson 1993 and 1994	0.0667	0.1250	0.0048	0.1065		0.0510	0.0340	0.0089	0.0720	0.0025	0.0120	0.4215	0.0162				0.0026					0.0031		
1128	Ref6Qtr2	WVDP Support	Olson 1993 and 1994	0.0600	0.1289	0.0048	0.1202		0.0500	0.0371	0.0089	0.0800	0.0025	0.0120	0.4098	0.0132				0.0026					0.0031		
1129	WVDG-1	West Valley CVS Glasses PC	Olson et al. 1994																								
1130	WVDG-2	West Valley CVS Glasses PC	Olson et al. 1994																								
1131	WVDG-3	West Valley CVS Glasses PC	Olson et al. 1994																								
1132	WVDG-4	West Valley CVS Glasses PC	Olson et al. 1994																								
1133	WVDG-5	West Valley CVS Glasses PC	Olson et al. 1994																								
1134	WVDG-6	West Valley CVS Glasses PC	Olson et al. 1994																								
1135	WVDG-7	West Valley CVS Glasses PC	Olson et al. 1994																								
1136	WVDG-8	West Valley CVS Glasses PC	Olson et al. 1994																								
1137	WVDG-11R	West Valley CVS Glasses PC	Olson et al. 1994																								
1138	WVDG-12R	West Valley CVS Glasses PC	Olson et al. 1994																								
1139	WVDG-13R	West Valley CVS Glasses PC	Olson et al. 1994																								
1140	WVDG-14R	West Valley CVS Glasses PC	Olson et al. 1994																								
1141	WVDG-15	West Valley CVS Glasses PC	Olson et al. 1994																								
1142	WVDG-16	West Valley CVS Glasses PC	Olson et al. 1994																								
1143	WVDG-17	West Valley CVS Glasses PC	Olson et al. 1994																								
1144	WVDG-18	West Valley CVS Glasses PC	Olson et al. 1994																								
1145	WVDG-19	West Valley CVS Glasses PC	Olson et al. 1994																								
1146	WVDG-20	West Valley CVS Glasses PC	Olson et al. 1994																								
1147	WVDG-21	West Valley CVS Glasses PC	Olson et al. 1994																								
1148	WVDG-22	West Valley CVS Glasses PC	Olson et al. 1994																								

#	Glass ID	CoO-t	Co2O3-t	Cr2O3-t	Cs2O-t	CuO-t	Dy2O3-t	Eu2O3-t	F-t	Ga2O3-t	Gd2O3-t	HfO2-t	HgO-t	I-t	La2O3-t	MnO2-t	MnO-t	MoO-t	MoO2-t	MoO3-t	Nb2O5-t	Nd2O3-t	NpO2-t	PbO-t	PdO2-t	PdO-t	Pr2O3-t	Pr6O11-t	Rb2O-t	ReO-t
1067	WVUTH103																												
1068	CUOD																												
1069	CUOI																												
1070	CUOJ																												
1071	CUOK																												
1072	CUOL																												
1073	CUOB			0.0020	0.0010	0.0000									0.0000	0.0130						0.0000							
1074	CUOC			0.0020	0.0010	0.0000									0.0000	0.0130						0.0000							
1075	CUOE			0.0020	0.0010	0.0000									0.0000	0.0140						0.0000							
1076	CUOF			0.0020	0.0010	0.0000									0.0000	0.0130						0.0000							
1077	CUOG			0.0020	0.0010	0.0000									0.0000	0.0140						0.0000							
1078	CUOH			0.0020	0.0010	0.0000									0.0000	0.0140						0.0000							
1079	CUOO			0.0020	0.0010	0.0000									0.0000	0.0140						0.0000							
1080	CUOP			0.0020	0.0010	0.0000									0.0000	0.0130						0.0000							
1081	CUOR			0.0020	0.0010	0.0000									0.0000	0.0140						0.0000							
1082	CUOU			0.0020	0.0010	0.0000									0.0000	0.0140						0.0000							
1083	CUOV			0.0020	0.0010	0.0000									0.0000	0.0140						0.0000							
1084	CU30			0.0020	0.0010	0.0000									0.0000	0.0140						0.0000							
1085	CU31			0.0020	0.0010	0.0000									0.0000	0.0140						0.0000							
1086	CU33			0.0020	0.0010	0.0000									0.0000	0.0130						0.0000							
1087	CU34			0.0020	0.0010	0.0000									0.0000	0.0130						0.0000							
1088	CU35			0.0020	0.0010	0.0000									0.0000	0.0140						0.0000							
1089	CU36			0.0020	0.0010	0.0000									0.0000	0.0130						0.0000							
1090	CU37			0.0020	0.0010	0.0000									0.0000	0.0130						0.0000							
1091	CU38			0.0220	0.0010	0.0000									0.0000	0.0140						0.0000							
1092	CU39			0.0410	0.0010	0.0000									0.0000	0.0130						0.0000							
1093	CU40			0.0590	0.0010	0.0000									0.0000	0.0130						0.0000							
1094	CU41			0.0020	0.0010	0.0000									0.0000	0.0140						0.0000							
1095	CU42			0.0020	0.0010	0.0000									0.0000	0.0130						0.0000							
1096	CU43			0.0020	0.0010	0.0000									0.0000	0.0130						0.0000							
1097	CU44			0.0020	0.0010	0.0200									0.0000	0.0140						0.0000							
1098	CU46			0.0020	0.0010	0.0570									0.0000	0.0130						0.0000							
1099	CU47			0.0020	0.0010	0.0000									0.0000	0.0140						0.0000							
1100	CU49			0.0020	0.0010	0.0000									0.0000	0.0130						0.0000							
1101	CU50			0.0020	0.0010	0.0000									0.0200	0.0140						0.0000							
1102	CU52			0.0020	0.0010	0.0000									0.0570	0.0130						0.0000							
1103	CU53																												
1104	CU54																												
1105	CU55																												
1106	CU56																												
1107	CU57																												
1108	CU58																												
1109	PNL 1			0.0014													0.0082												
1110	PNL 2			0.0014													0.0082												
1111	PNL 3			0.0014													0.0082												
1112	PNL 4			0.0014													0.0082												
1113	PNL 5			0.0014													0.0082												
1114	PNL 6			0.0014													0.0082												
1115	PNL 7			0.0014													0.0082												
1116	PNL 8			0.0014													0.0082												
1117	PNL 9			0.0014													0.0082												
1118	PNL 10			0.0014													0.0082												
1119	Alkali1			0.0014													0.0082												
1120	Alkali2			0.0014													0.0082												
1121	Alkali3			0.0014													0.0082												
1122	Alkali4			0.0014													0.0082												
1123	Alkali5			0.0014													0.0082												
1124	Alkali6			0.0014													0.0082												
1125	Alkali7			0.0014													0.0082												
1126	Alkali8			0.0014													0.0082												
1127	Alkali9			0.0014													0.0082												
1128	Ref6Qtr2			0.0014	0.0000	0.0000									0.0000		0.0082			0.0000		0.0000				0.0000		0.0000		
1129	WVDG-1																												
1130	WVDG-2																												
1131	WVDG-3																												
1132	WVDG-4																												
1133	WVDG-5																												
1134	WVDG-6																												
1135	WVDG-7																												
1136	WVDG-8																												
1137	WVDG-11R																												
1138	WVDG-12R																												
1139	WVDG-13R																												
1140	WVDG-14R																												
1141	WVDG-15																												
1142	WVDG-16																												
1143	WVDG-17																												
1144	WVDG-18																												
1145	WVDG-19																												
1146	WVDG-20																												
1147	WVDG-21																												
1148	WVDG-22																												

#	Glass ID	ReO2-t	Re2O7-t	Rh2O3-t	RhO2-t	RuO2-t	Ru2O3-t	Sb2O3-t	Sb2O5-t	SeO2-t	Sm2O3-t	SnO-t	SnO2-t	SO3-t	SrO-t	Tc2O7-t	TeO2-t	ThO2-t	TiO2-t	Tl2O-t	Tl2O3-t	U3O8-t	UO2-t	UO3-t	V2O5-t	WO3-t	Y2O3-t	ZnO-t	Sum-t	Al2O3-a
1067	WVUTH103																											0.0000	0.0509
1068	CUOD																											0.0000	0.0681
1069	CUOI																											0.0000	0.0602
1070	CUOJ																											0.0000	0.0321
1071	CUOK																											0.0000	0.0648
1072	CUOL																											0.0000	0.0312
1073	CUOB													0.0010				0.0000	0.0100				0.0000				0.0000	1.0010	0.0668
1074	CUOC													0.0010				0.0000	0.0090				0.0000				0.0000	1.0010	0.0309
1075	CUOE													0.0010				0.0000	0.0100				0.0000				0.0000	1.0010	0.0321
1076	CUOF													0.0010				0.0000	0.0090				0.0000				0.0000	1.0000	0.0312
1077	CUOG													0.0010				0.0000	0.0100				0.0000				0.0000	1.0000	0.0325
1078	CUOH													0.0010				0.0000	0.0100				0.0000				0.0000	1.0000	0.0323
1079	CUOO													0.0010				0.0000	0.0100				0.0000				0.0000	0.9970	
1080	CUOP													0.0010				0.0000	0.0090				0.0000				0.0000	1.0000	0.0312
1081	CUOR													0.0010				0.0000	0.0100				0.0000				0.0000	0.9990	0.0325
1082	CUOU													0.0010				0.0000	0.0100				0.0000				0.0000	1.0010	
1083	CUOV													0.0010				0.0000	0.0100				0.0000				0.0000	1.0000	
1084	CU30													0.0010				0.0000	0.0100				0.0000				0.0000	1.0000	
1085	CU31													0.0010				0.0000	0.0100				0.0000				0.0000	1.0000	
1086	CU33													0.0010				0.0000	0.0100				0.0000				0.0000	1.0010	
1087	CU34													0.0010				0.0000	0.0090				0.0000				0.0000	1.0000	
1088	CU35													0.0010				0.0000	0.0300				0.0000				0.0000	1.0000	
1089	CU36													0.0010				0.0000	0.0480				0.0000				0.0000	1.0010	
1090	CU37													0.0010				0.0000	0.0660				0.0000				0.0000	1.0000	
1091	CU38													0.0010				0.0000	0.0100				0.0000				0.0000	1.0000	
1092	CU39													0.0010				0.0000	0.0100				0.0000				0.0000	1.0020	
1093	CU40													0.0010				0.0000	0.0090				0.0000				0.0000	1.0000	
1094	CU41													0.0010				0.0000	0.0100				0.0000				0.0200	1.0000	
1095	CU42													0.0010				0.0000	0.0100				0.0000				0.0390	1.0020	
1096	CU43													0.0010				0.0000	0.0090				0.0000				0.0570	1.0000	
1097	CU44													0.0010				0.0000	0.0100				0.0000				0.0000	1.0000	
1098	CU46													0.0010				0.0000	0.0090				0.0000				0.0000	1.0000	
1099	CU47													0.0010				0.0000	0.0100				0.0000				0.0000	1.0000	
1100	CU49													0.0010				0.0000	0.0090				0.0000				0.0000	0.9990	
1101	CU50													0.0010				0.0000	0.0100				0.0000				0.0000	1.0000	
1102	CU52													0.0010				0.0000	0.0090				0.0000				0.0000	1.0000	
1103	CU53																											0.0000	0.0594
1104	CU54																											0.0000	0.0586
1105	CU55																											0.0000	0.0569
1106	CU56																											0.0000	0.0584
1107	CU57																											0.0000	0.0599
1108	CU58																											0.0000	0.0330
1109	PNL 1													0.0023	0.0025			0.0178	0.0080				0.0063				0.0026	1.0000	0.0824
1110	PNL 2													0.0023	0.0025			0.0178	0.0080				0.0063				0.0026	1.0000	0.0469
1111	PNL 3													0.0023	0.0025			0.0178	0.0080				0.0063				0.0026	1.0000	0.0870
1112	PNL 4													0.0023	0.0025			0.0178	0.0080				0.0063				0.0026	1.0000	0.0448
1113	PNL 5													0.0023	0.0025			0.0178	0.0080				0.0063				0.0026	1.0000	0.0453
1114	PNL 6													0.0023	0.0025			0.0178	0.0080				0.0063				0.0026	1.0000	0.0804
1115	PNL 7													0.0023	0.0025			0.0534	0.0080				0.0063				0.0026	1.0000	0.0806
1116	PNL 8													0.0023	0.0025			0.0534	0.0080				0.0063				0.0026	1.0000	0.0481
1117	PNL 9													0.0023	0.0025			0.0534	0.0080				0.0063				0.0026	1.0000	0.0818
1118	PNL 10													0.0023	0.0025			0.0534	0.0080				0.0063				0.0026	1.0000	0.0487
1119	Alkali1													0.0023	0.0025			0.0400	0.0080				0.0063				0.0026	1.0000	0.0654
1120	Alkali2													0.0023	0.0025			0.0402	0.0080				0.0063				0.0026	1.0000	0.0600
1121	Alkali3													0.0023	0.0025			0.0330	0.0080				0.0063				0.0026	1.0000	0.0607
1122	Alkali4													0.0023	0.0025			0.0370	0.0080				0.0063				0.0026	1.0000	0.0640
1123	Alkali5													0.0023	0.0025			0.0385	0.0080				0.0063				0.0026	1.0000	0.0626
1124	Alkali6													0.0023	0.0025			0.0345	0.0080				0.0063				0.0026	1.0000	0.0654
1125	Alkali7													0.0023	0.0025			0.0413	0.0080				0.0063				0.0026	1.0000	0.0587
1126	Alkali8													0.0023	0.0025			0.0394	0.0080				0.0063				0.0026	1.0000	0.0569
1127	Alkali9													0.0023	0.0025			0.0419	0.0080				0.0063				0.0026	1.0000	0.0676
1128	Ref6Qtr2				0.0000	0.0000					0.0000			0.0023	0.0025			0.0356	0.0080				0.0063			0.0000	0.0026	1.0000	0.0620
1129	WVDG-1																											0.0000	0.0874
1130	WVDG-2																											0.0000	0.0861
1131	WVDG-3																											0.0000	0.0716
1132	WVDG-4																											0.0000	0.0838
1133	WVDG-5																											0.0000	0.0690
1134	WVDG-6																											0.0000	0.0855
1135	WVDG-7																											0.0000	0.0884
1136	WVDG-8																											0.0000	0.0901
1137	WVDG-11R																											0.0000	0.1046
1138	WVDG-12R																											0.0000	0.1052
1139	WVDG-13R																											0.0000	0.1058
1140	WVDG-14R																											0.0000	0.1058
1141	WVDG-15																											0.0000	0.0960
1142	WVDG-16																											0.0000	0.0943
1143	WVDG-17																											0.0000	0.0943
1144	WVDG-18																											0.0000	0.0947
1145	WVDG-19																											0.0000	0.1223
1146	WVDG-20																											0.0000	0.1224
1147	WVDG-21																											0.0000	0.1251
1148	WVDG-22																											0.0000	0.1250

#	Glass ID	B2O3-a	CaO-a	Fe2O3-a	FeO-a	K2O-a	Li2O-a	MgO-a	Na2O-a	NiO-a	P2O5-a	SiO2-a	ZrO2-a	Ag2O-a	As2O3-a	As2O5-a	BaO-a	BeO-a	Bi2O3-a	Br-a	CdO-a	Ce2O3-a	CeO2-a	Cl-a	CoO-a	Co2O3-a	Cr2O3-a	Cs2O-a	CuO-a	F-a
1067	WVUTH103	0.0872	0.0081	0.1189		0.0455	0.0381	0.0089	0.1396		0.0233	0.3937					0.0019														
1068	CUOD	0.0947		0.1122							0.0238	0.4298																			
1069	CUOI	0.0951		0.1127							0.0239	0.4320																			
1070	CUOJ	0.0970		0.1149							0.0244	0.4501																			
1071	CUOK	0.0950		0.1125							0.0238	0.4473																			
1072	CUOL	0.0942		0.1117							0.0237	0.4468																			
1073	CUOB	0.0964		0.1142							0.0242	0.4378																			
1074	CUOC	0.0933		0.1105							0.0234	0.4235																			
1075	CUOE	0.0970		0.1149							0.0244	0.4696																			
1076	CUOF	0.0942		0.1117							0.0237	0.4846																			
1077	CUOG	0.0980		0.1160							0.0246	0.4447																			
1078	CUOH	0.0975		0.1399							0.0245	0.4425																			
1079	CUOO																														
1080	CUOP	0.0942		0.1117							0.0237	0.4846																			
1081	CUOR	0.0980		0.1160							0.0246	0.4644																			
1082	CUOU																														
1083	CUOV																														
1084	CU30																														
1085	CU31																														
1086	CU33																														
1087	CU34																														
1088	CU35																														
1089	CU36																														
1090	CU37																														
1091	CU38																														
1092	CU39																														
1093	CU40																														
1094	CU41																														
1095	CU42																														
1096	CU43																														
1097	CU44																														
1098	CU46																														
1099	CU47																														
1100	CU49																														
1101	CU50																														
1102	CU52																														
1103	CU53	0.0949		0.1125							0.0238	0.4310																			
1104	CU54	0.0942		0.1115							0.0236	0.4275																			
1105	CU55	0.0923		0.1094							0.0232	0.4191																			
1106	CU56	0.0939		0.1112							0.0236	0.4261																			
1107	CU57	0.0955		0.1131							0.0240	0.4334																			
1108	CU58	0.0996		0.1180							0.0250	0.4522																			
1109	PNL 1	0.1656	0.0051	0.1611		0.0274	0.0233	0.0082	0.0574	0.0028	0.0128	0.3857	0.0133				0.0027					0.0031					0.0012			
1110	PNL 2	0.1656	0.0055	0.0943		0.0655	0.0233	0.0083	0.1003	0.0029	0.0132	0.4048	0.0136				0.0027					0.0031					0.0015			
1111	PNL 3	0.1656	0.0082	0.0897		0.0644	0.0466	0.0079	0.1119	0.0027	0.0105	0.3385	0.0125				0.0026					0.0031					0.0014			
1112	PNL 4	0.0922	0.0058	0.1633		0.0623	0.0222	0.0078	0.0564	0.0027	0.0137	0.4614	0.0131				0.0025					0.0031					0.0014			
1113	PNL 5	0.1657	0.0061	0.0919		0.0279	0.0487	0.0080	0.0551	0.0028	0.0130	0.4669	0.0140				0.0026					0.0031					0.0015			
1114	PNL 6	0.0922	0.0052	0.0910		0.0289	0.0415	0.0080	0.0988	0.0028	0.0120	0.4712	0.0133				0.0026					0.0031					0.0014			
1115	PNL 7	0.0922	0.0059	0.0905		0.0622	0.0225	0.0078	0.0589	0.0028	0.0132	0.4602	0.0134				0.0025					0.0031					0.0014			
1116	PNL 8	0.1652	0.0062	0.1605		0.0302	0.0221	0.0080	0.1031	0.0027	0.0119	0.3385	0.0133				0.0026					0.0031					0.0014			
1117	PNL 9	0.0922	0.0068	0.1615		0.0644	0.0241	0.0079	0.1021	0.0027	0.0105	0.3429	0.0131				0.0027					0.0031					0.0014			
1118	PNL 10	0.0922	0.0049	0.0928		0.0293	0.0500	0.0080	0.0996	0.0027	0.0136	0.4541	0.0136				0.0027					0.0031					0.0015			
1119	Alkali1	0.1050	0.0085	0.1271		0.0449	0.0372	0.0080	0.0754	0.0027	0.0099	0.4252	0.0128				0.0025					0.0031					0.0015			
1120	Alkali2	0.1460	0.0088	0.1269		0.0436	0.0424	0.0082	0.0818	0.0027	0.0103	0.3792	0.0119				0.0026					0.0031					0.0015			
1121	Alkali3	0.1330	0.0073	0.1351		0.0470	0.0365	0.0082	0.0823	0.0028	0.0084	0.3984	0.0090				0.0026					0.0031					0.0015			
1122	Alkali4	0.1110	0.0085	0.1195		0.0435	0.0363	0.0080	0.0779	0.0027	0.0118	0.4302	0.0119				0.0025					0.0031					0.0015			
1123	Alkali5	0.1450	0.0073	0.1151		0.0429	0.0385	0.0081	0.0810	0.0028	0.0106	0.3993	0.0104				0.0025					0.0031					0.0015			
1124	Alkali6	0.1180	0.0075	0.1407		0.0501	0.0405	0.0081	0.0785	0.0027	0.0114	0.3933	0.0112				0.0025					0.0031					0.0015			
1125	Alkali7	0.1390	0.0084	0.1211		0.0517	0.0421	0.0080	0.0807	0.0027	0.0120	0.3831	0.0137				0.0025					0.0031					0.0015			
1126	Alkali8	0.1251	0.0078	0.1205		0.0544	0.0352	0.0082	0.0889	0.0027	0.0112	0.3995	0.0121				0.0026					0.0031					0.0015			
1127	Alkali9	0.1250	0.0089	0.1122		0.0506	0.0362	0.0080	0.0718	0.0027	0.0110	0.4148	0.0116				0.0025					0.0031					0.0014			
1128	Ref6Qtr2	0.1289	0.0064	0.1250		0.0499	0.0392	0.0080	0.0797	0.0028	0.0117	0.4022	0.0109				0.0025					0.0031					0.0015			
1129	WVDG-1	0.1215	0.0068	0.1174		0.0116	0.0174	0.0132	0.0913	0.0031	0.0258	0.4325	0.0059				0.0005						0.0007				0.0019	0.0005	0.0000	
1130	WVDG-2	0.1217	0.0083	0.1172		0.0091	0.0176	0.0130	0.0904	0.0027	0.0260	0.4360	0.0056				0.0005						0.0007				0.0020	0.0005	0.0000	
1131	WVDG-3	0.0933	0.0063	0.1081		0.0192	0.0234	0.0170	0.0982	0.0036	0.0241	0.4546	0.0064				0.0007						0.0010				0.0029	0.0006	0.0000	
1132	WVDG-4	0.1177	0.0068	0.1106		0.0171	0.0171	0.0129	0.1147	0.0027	0.0254	0.4194	0.0054				0.0005						0.0007				0.0020	0.0005	0.0000	
1133	WVDG-5	0.1241	0.0068	0.1191		0.0150	0.0176	0.0135	0.0910	0.0030	0.0263	0.4443	0.0060				0.0005						0.0009				0.0021	0.0005	0.0000	
1134	WVDG-6	0.1215	0.0069	0.1155		0.0070	0.0171	0.0129	0.0913	0.0028	0.0356	0.4342	0.0056				0.0005						0.0005				0.0019	0.0005	0.0000	
1135	WVDG-7	0.1215	0.0065	0.1155		0.0127	0.0171	0.0128	0.0868	0.0028	0.0251	0.4303	0.0062				0.0005						0.0007				0.0020	0.0004	0.0000	
1136	WVDG-8	0.0751	0.0067	0.1229		0.0171	0.0184	0.0139	0.0938	0.0030	0.0268	0.4583	0.0057				0.0005						0.0010				0.0019	0.0014	0.0000	
1137	WVDG-11R	0.1097	0.0062	0.1190		0.0267	0.0263	0.0125	0.0952	0.0031	0.0248	0.4061	0.0046				0.0005						0.0007				0.0017	0.0009	0.0000	
1138	WVDG-12R	0.1082	0.0063	0.1182		0.0285	0.0257	0.0125	0.0958	0.0029	0.0252	0.4016	0.0054				0.0005						0.0007				0.0017	0.0010	0.0000	
1139	WVDG-13R	0.1078	0.0061	0.1190		0.0287	0.0259	0.0126	0.0938	0.0031	0.0250	0.4018	0.0052				0.0005						0.0007				0.0017	0.0012	0.0000	
1140	WVDG-14R	0.1098	0.0061	0.1199		0.0219	0.0261	0.0125	0.0951	0.0029	0.0250	0.4020	0.0073				0.0005						0.0007				0.0017	0.0013	0.0000	
1141	WVDG-15	0.1258	0.0136	0.0880		0.0164	0.0273	0.0127	0.1017	0.0053	0.0133	0.3979	0.0069				0.0033						0.0124				0.0024	0.0012	0.0002	
1142	WVDG-16	0.1261	0.0137	0.1442		0.0131	0.0191	0.0122	0.0864	0.0016	0.0323	0.3995	0.0021				0.0032						0.0038				0.0007	0.0004	0.0008	
1143	WVDG-17	0.0978	0.0143	0.0887		0.0207	0.0234	0.0129	0.1057	0.0058	0.0124	0.3957	0.0075				0.0032						0.0136				0.0026	0.0013	0.0002	
1144	WVDG-18	0.1062	0.0054	0.1444		0.0175	0.0244	0.0044	0.1114	0.0017	0.0155	0.4320	0.0022				0.0011						0.0039				0.0008	0.0004	0.0002	
1145	WVDG-19	0.1008	0.0131	0.1420		0.0197	0.0207	0.0128	0.0988	0.0016	0.0135	0.3601	0.0021				0.0032						0.0038				0.0007	0.0004	0.0007	
1146	WVDG-20	0.1062	0.0134	0.0875		0.0223	0.0204	0.0142	0.0863	0.0058	0.0334	0.3995	0.0075				0.0031						0.0135				0.0026	0.0013	0.0002	
1147	WVDG-21	0.1005	0.0050	0.1467		0.0123	0.0231	0.0053	0.1046	0.0017	0.0338	0.3754	0.0022				0.0011						0.0039				0.0008	0.0004	0.0007	
1148	WVDG-22	0.1157	0.0050	0.1403		0.0184	0.0182	0.0048	0.0831	0.0057	0.0143	0.3738	0.0073				0.0011						0.0132				0.0026	0.0013	0.0002	

#	Glass ID	Ga2O3-a	Gd2O3-a	I-a	La2O3-a	MnO2-a	MnO-a	MoO-a	MoO3-a	Nb2O5-a	Nd2O3-a	NpO2-a	PbO-a	PdO2-a	PdO-a	Pr2O3-a	Pr6O11-a	PuO2-a	Rb2O-a	ReO-a	ReO2-a	Re2O7-a	Rh2O3-a	RhO2-a	RuO2-a	Sb2O3-a	Sb2O5-a	SeO2-a
1067	WVUTH103					0.0120																						
1068	CUOD					0.0132																						
1069	CUOI					0.0133																						
1070	CUOJ					0.0135																						
1071	CUOK					0.0132																						
1072	CUOL					0.0131																						
1073	CUOB					0.0134																						
1074	CUOC					0.0130																						
1075	CUOE					0.0135																						
1076	CUOF					0.0131																						
1077	CUOG					0.0136																						
1078	CUOH					0.0136																						
1079	CUOO																											
1080	CUOP					0.0131																						
1081	CUOR					0.0136																						
1082	CUOU																											
1083	CUOV																											
1084	CU30																											
1085	CU31																											
1086	CU33																											
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1090	CU37																											
1091	CU38																											
1092	CU39																											
1093	CU40																											
1094	CU41																											
1095	CU42																											
1096	CU43																											
1097	CU44																											
1098	CU46																											
1099	CU47																											
1100	CU49																											
1101	CU50																											
1102	CU52																											
1103	CU53					0.0132																						
1104	CU54					0.0131																						
1105	CU55					0.0129																						
1106	CU56					0.0131																						
1107	CU57					0.0133																						
1108	CU58					0.0136																						
1109	PNL 1						0.0087																					
1110	PNL 2						0.0089																					
1111	PNL 3						0.0083																					
1112	PNL 4						0.0085																					
1113	PNL 5						0.0084																					
1114	PNL 6						0.0085																					
1115	PNL 7						0.0083																					
1116	PNL 8						0.0084																					
1117	PNL 9						0.0083																					
1118	PNL 10						0.0085																					
1119	Alkali1						0.0094																					
1120	Alkali2						0.0093																					
1121	Alkali3						0.0095																					
1122	Alkali4						0.0093																					
1123	Alkali5						0.0093																					
1124	Alkali6						0.0095																					
1125	Alkali7						0.0093																					
1126	Alkali8						0.0093																					
1127	Alkali9						0.0092																					
1128	Ref6Qtr2						0.0091																					
1129	WVDG-1				0.0004	0.0130			0.0001		0.0000			0.0000			0.0003							0.0000	0.0000			
1130	WVDG-2				0.0004	0.0132			0.0001		0.0000			0.0001			0.0003							0.0001	0.0008			
1131	WVDG-3				0.0005	0.0176			0.0000		0.0000			0.0001			0.0000							0.0001	0.0007			
1132	WVDG-4				0.0004	0.0130			0.0001		0.0000			0.0000			0.0003							0.0000	0.0000			
1133	WVDG-5				0.0004	0.0136			0.0001		0.0000			0.0000			0.0003							0.0000	0.0000			
1134	WVDG-6				0.0004	0.0130			0.0001		0.0000			0.0000			0.0003							0.0000	0.0000			
1135	WVDG-7				0.0004	0.0129			0.0001		0.0000			0.0000			0.0003							0.0000	0.0000			
1136	WVDG-8				0.0004	0.0137			0.0001		0.0000			0.0000			0.0003							0.0000	0.0000			
1137	WVDG-11R				0.0003	0.0132			0.0001		0.0000			0.0001			0.0003							0.0001	0.0008			
1138	WVDG-12R				0.0003	0.0131			0.0001		0.0000			0.0001			0.0003							0.0001	0.0008			
1139	WVDG-13R				0.0003	0.0131			0.0001		0.0000			0.0001			0.0003							0.0001	0.0008			
1140	WVDG-14R				0.0003	0.0131			0.0001		0.0000			0.0001			0.0003							0.0001	0.0008			
1141	WVDG-15				0.0007	0.0251			0.0007		0.0024						0.0007											
1142	WVDG-16				0.0002	0.0223			0.0002		0.0007						0.0002											
1143	WVDG-17				0.0008	0.0249			0.0008		0.0026						0.0008											
1144	WVDG-18				0.0002	0.0054			0.0002		0.0008						0.0002											
1145	WVDG-19				0.0002	0.0050			0.0002		0.0007						0.0002											
1146	WVDG-20				0.0007	0.0052			0.0007		0.0026						0.0007											
1147	WVDG-21				0.0002	0.0250			0.0002		0.0008						0.0002											
1148	WVDG-22				0.0007	0.0246			0.0007		0.0026						0.0007											

#	Glass ID	Sm2O3-a	SnO-a	SnO2-a	SO3-a	SrO-a	Tc2O7-a	TeO2-a	ThO2-a	TiO2-a	Tl2O-a	Tl2O3-a	U3O8-a	UO2-a	UO3-a	V2O5-a	WO3-a	Y2O3-a	ZnO-a	Sum-a	T_M (°C)	$T_{L,G}$ (°C)	$T_{L,U}$ (°C)	$T_{1\%}$ (°C)	Primary Phase	$C_{650°C}$	$C_{700°C}$	$C_{750°C}$
1067	WVUTH103								0.0351					0.0057						0.9689								
1068	CUOD								0.0000					0.0000						0.7418								
1069	CUOI								0.0000					0.0000						0.7372								
1070	CUOJ								0.0000					0.0000						0.7320								
1071	CUOK								0.0000					0.0000						0.7566								
1072	CUOL								0.0000					0.0000						0.7207								
1073	CUOB								0.0000					0.0000						0.7528								
1074	CUOC								0.0000					0.0000						0.6946								
1075	CUOE								0.0000					0.0000						0.7515								
1076	CUOF								0.0000					0.0000						0.7585								
1077	CUOG								0.0000					0.0000						0.7294								
1078	CUOH								0.0000					0.0000						0.7503								
1079	CUOO																			0.0000								
1080	CUOP								0.0000					0.0000						0.7585								
1081	CUOR								0.0000					0.0000						0.7491								
1082	CUOU																			0.0000								
1083	CUOV																			0.0000								
1084	CU30																			0.0000								
1085	CU31																			0.0000								
1086	CU33																			0.0000								
1087	CU34																			0.0000								
1088	CU35																			0.0000								
1089	CU36																			0.0000								
1090	CU37																			0.0000								
1091	CU38																			0.0000								
1092	CU39																			0.0000								
1093	CU40																			0.0000								
1094	CU41																			0.0000								
1095	CU42																			0.0000								
1096	CU43																			0.0000								
1097	CU44																			0.0000								
1098	CU46																			0.0000								
1099	CU47																			0.0000								
1100	CU49																			0.0000								
1101	CU50																			0.0000								
1102	CU52																			0.0000								
1103	CU53								0.0000					0.0000						0.7348								
1104	CU54								0.0000					0.0000						0.7285								
1105	CU55								0.0000					0.0000						0.7138								
1106	CU56								0.0000					0.0000						0.7263								
1107	CU57								0.0000					0.0000						0.7392								
1108	CU58								0.0000					0.0000						0.7414								
1109	PNL 1				0.0023	0.0025			0.0178	0.0076					0.0063				0.0027	1.0000								
1110	PNL 2				0.0023	0.0026			0.0178	0.0079					0.0063				0.0027	1.0000								
1111	PNL 3				0.0023	0.0024			0.0178	0.0073					0.0063				0.0030	1.0000								
1112	PNL 4				0.0023	0.0024			0.0178	0.0074					0.0063				0.0026	1.0000								
1113	PNL 5				0.0023	0.0024			0.0178	0.0075					0.0063				0.0027	1.0000								
1114	PNL 6				0.0023	0.0025			0.0178	0.0076					0.0063				0.0026	1.0000								
1115	PNL 7				0.0023	0.0025			0.0534	0.0074					0.0063				0.0026	1.0000								
1116	PNL 8				0.0023	0.0025			0.0534	0.0074					0.0063				0.0028	1.0000								
1117	PNL 9				0.0023	0.0025			0.0534	0.0074					0.0063				0.0026	1.0000								
1118	PNL 10				0.0023	0.0024			0.0534	0.0076					0.0063				0.0027	1.0000								
1119	Alkali1				0.0023	0.0025			0.0400	0.0076					0.0063				0.0027	1.0000								
1120	Alkali2				0.0023	0.0025			0.0402	0.0076					0.0063				0.0028	1.0000								
1121	Alkali3				0.0023	0.0025			0.0330	0.0078					0.0063				0.0027	1.0000								
1122	Alkali4				0.0023	0.0024			0.0370	0.0076					0.0063				0.0027	1.0000								
1123	Alkali5				0.0023	0.0025			0.0385	0.0077					0.0063				0.0027	1.0000								
1124	Alkali6				0.0023	0.0025			0.0345	0.0077					0.0063				0.0027	1.0000								
1125	Alkali7				0.0023	0.0024			0.0413	0.0076					0.0063				0.0026	1.0001								
1126	Alkali8				0.0023	0.0025			0.0394	0.0078					0.0063				0.0027	1.0000								
1127	Alkali9				0.0023	0.0025			0.0419	0.0076					0.0063				0.0028	1.0000								
1128	Ref6Qtr2				0.0023	0.0025			0.0356	0.0076					0.0063				0.0028	1.0000								
1129	WVDG-1	0.0003			0.0030	0.0003			0.0286	0.0096				0.0054				0.0002	0.0000	0.9987								
1130	WVDG-2	0.0003			0.0030	0.0003			0.0280	0.0096				0.0053				0.0002	0.0000	0.9991								
1131	WVDG-3	0.0000			0.0027	0.0004			0.0273	0.0122				0.0054				0.0003	0.0000	0.9983								
1132	WVDG-4	0.0003			0.0029	0.0003			0.0294	0.0090				0.0054				0.0002	0.0000	0.9986								
1133	WVDG-5	0.0003			0.0031	0.0003			0.0311	0.0097				0.0057				0.0002	0.0000	1.0045								
1134	WVDG-6	0.0003			0.0030	0.0003			0.0275	0.0093				0.0053				0.0002	0.0000	0.9990								
1135	WVDG-7	0.0003			0.0029	0.0003			0.0383	0.0096				0.0046				0.0002	0.0000	0.9992								
1136	WVDG-8	0.0003			0.0032	0.0003			0.0275	0.0101				0.0058				0.0002	0.0005	0.9990								
1137	WVDG-11R	0.0003			0.0031	0.0003			0.0220	0.0095				0.0063				0.0002	0.0002	0.9994								
1138	WVDG-12R	0.0003			0.0030	0.0003			0.0253	0.0094				0.0065				0.0001	0.0006	0.9997								
1139	WVDG-13R	0.0003			0.0031	0.0003			0.0248	0.0096				0.0069				0.0002	0.0000	0.9989								
1140	WVDG-14R	0.0003			0.0030	0.0003			0.0259	0.0096				0.0064				0.0002	0.0000	0.9991								
1141	WVDG-15	0.0003			0.0040	0.0003			0.0166	0.0144				0.0092				0.0003	0.0002	0.9993								
1142	WVDG-16	0.0001			0.0012	0.0001			0.0160	0.0044				0.0013				0.0001	0.0002	1.0005								
1143	WVDG-17	0.0004			0.0043	0.0004			0.0469	0.0158				0.0008				0.0004	0.0006	0.9996								
1144	WVDG-18	0.0001			0.0013	0.0001			0.0196	0.0046				0.0009				0.0001	0.0000	0.9997								
1145	WVDG-19	0.0001			0.0012	0.0001			0.0524	0.0044				0.0093				0.0001	0.0000	0.9902								
1146	WVDG-20	0.0004			0.0043	0.0004			0.0187	0.0157				0.0095				0.0004	0.0002	0.9991								
1147	WVDG-21	0.0001			0.0012	0.0001			0.0159	0.0046				0.0092				0.0001	0.0006	1.0008								
1148	WVDG-22	0.0004			0.0042	0.0004			0.0175	0.0154				0.0011				0.0004	0.0002	0.9989								

#	Glass ID	$C_{800°C}$	$C_{850°C}$	$C_{900°C}$	$C_{950°C}$	$C_{1000°C}$	$C_{1050°C}$	$C_{1100°C}$	$C_{1150°C}$	$C_{1200°C}$	Quenched Visual/OM	Quenched XRD	CCC XRD	ρ (g/cm³)	Fulc Visc A	Fulc Visc B	Fulc Visc To	Arrh Visc E	Arrh Visc F	T1 (°C)	V1 (Pa·s)
1067	WVUTH103																				
1068	CUOD																				
1069	CUOI																				
1070	CUOJ																				
1071	CUOK																				
1072	CUOL																				
1073	CUOB																				
1074	CUOC																				
1075	CUOE																				
1076	CUOF																				
1077	CUOG																				
1078	CUOH																				
1079	CUOO																				
1080	CUOP																				
1081	CUOR																				
1082	CUOU																				
1083	CUOV																				
1084	CU30																				
1085	CU31																				
1086	CU33																				
1087	CU34																				
1088	CU35																				
1089	CU36																				
1090	CU37																				
1091	CU38																				
1092	CU39																				
1093	CU40																				
1094	CU41																				
1095	CU42																				
1096	CU43																				
1097	CU44																				
1098	CU46																				
1099	CU47																				
1100	CU49																				
1101	CU50																				
1102	CU52																				
1103	CU53																				
1104	CU54																				
1105	CU55																				
1106	CU56																				
1107	CU57																				
1108	CU58																				
1109	PNL 1																			1237.0	3.750
1110	PNL 2																	-10.648	16505.6	1140.0	2.810
1111	PNL 3																	-10.072	14240.3	1141.0	1.010
1112	PNL 4																	-11.093	19472.6	1143.0	12.740
1113	PNL 5																	-10.165	16344.4	1144.0	3.810
1114	PNL 6																	-10.164	17073.5	1147.0	6.430
1115	PNL 7																	-11.608	20887.1	1138.0	20.620
1116	PNL 8																	-10.837	16210.4	1141.0	1.950
1117	PNL 9																	-10.574	16798.6	1140.0	3.420
1118	PNL 10																	-9.327	14981.6	1143.0	2.840
1119	Alkali1																	-10.660	17664.8	1144.0	6.130
1120	Alkali2																	-10.481	16203.9	1145.0	2.530
1121	Alkali3																	-10.680	16755.4	1138.0	3.150
1122	Alkali4																	-10.578	17572.1	1143.0	5.960
1123	Alkali5																	-10.391	16467.0	1144.0	3.400
1124	Alkali6																	-10.727	16900.4	1138.0	3.260
1125	Alkali7																	-10.145	15626.3	1140.0	2.460
1126	Alkali8																	-10.471	16491.7	1141.0	3.120
1127	Alkali9																	-10.632	17553.9	1142.0	5.470
1128	Ref6Qtr2																	-10.727	16958.7	1130.0	3.830
1129	WVDG-1																				
1130	WVDG-2																				
1131	WVDG-3																				
1132	WVDG-4																				
1133	WVDG-5																				
1134	WVDG-6																				
1135	WVDG-7																				
1136	WVDG-8																				
1137	WVDG-11R																				
1138	WVDG-12R																				
1139	WVDG-13R																				
1140	WVDG-14R																				
1141	WVDG-15																				
1142	WVDG-16																				
1143	WVDG-17																				
1144	WVDG-18																				
1145	WVDG-19																				
1146	WVDG-20																				
1147	WVDG-21																				
1148	WVDG-22																				

#	Glass ID	T2 (°C)	V2 (Pa·s)	T3 (°C)	V3 (Pa·s)	T4 (°C)	V4 (Pa·s)	T5 (°C)	V5 (Pa·s)	T6 (°C)	V6 (Pa·s)	T7 (°C)	V7 (Pa·s)	T8 (°C)	V8 (Pa·s)	T9 (°C)	V9 (Pa·s)	T10 (°C)	V10 (Pa·s)	TCLP Ag	TCLP As	TCLP Ba	TCLP Cd	TCLP Cr	TCLP Ni	TCLP Pb
1067	WVUTH103																									
1068	CUOD																									
1069	CUOI																									
1070	CUOJ																									
1071	CUOK																									
1072	CUOL																									
1073	CUOB																									
1074	CUOC																									
1075	CUOE																									
1076	CUOF																									
1077	CUOG																									
1078	CUOH																									
1079	CUOO																									
1080	CUOP																									
1081	CUOR																									
1082	CUOU																									
1083	CUOV																									
1084	CU30																									
1085	CU31																									
1086	CU33																									
1087	CU34																									
1088	CU35																									
1089	CU36																									
1090	CU37																									
1091	CU38																									
1092	CU39																									
1093	CU40																									
1094	CU41																									
1095	CU42																									
1096	CU43																									
1097	CU44																									
1098	CU46																									
1099	CU47																									
1100	CU49																									
1101	CU50																									
1102	CU52																									
1103	CU53																									
1104	CU54																									
1105	CU55																									
1106	CU56																									
1107	CU57																									
1108	CU58																									
1109	PNL 1	1145	7.210																							
1110	PNL 2	1051	6.090	1239	1.4	1147.0	2.6	945.0	18.6																	
1111	PNL 3	1052	1.920	1237	0.5	1147.0	1.0	945.0	5.1																	
1112	PNL 4	(1052)	(15.9)	1241	6.4	1147.0	13.6	944.0	140.2																	
1113	PNL 5	1052	8.070	1242	2.0	1148.0	3.8	950.0	26.0																	
1114	PNL 6	1051	13.890	1147	6.2	1242.0	3.2	948.0	49.0																	
1115	PNL 7	1238	10.690	1145	22.0	1046.0	66.3	946.0	272.0																	
1116	PNL 8	1046	4.190	1237	0.9	1146.0	1.7	946.0	11.9																	
1117	PNL 9	1241	1.730	1148	3.7	1042.0	8.7	946.0	25.5																	
1118	PNL 10	1051	6.110	1239	1.5	1148.0	5.8	945.0	20.0																	
1119	Alkali1	1241	2.870	1148	5.7	1047.0	14.4	945.0	48.7																	
1120	Alkali2	1054	5.530	1242	1.3	1148.0	2.5	947.0	16.8																	
1121	Alkali3	1050	6.900	1236	1.6	1147.0	3.2	946.0	22.3																	
1122	Alkali4	1050	13.870	1240	3.0	1147.0	6.1	945.0	49.6																	
1123	Alkali5	1053	7.270	1242	1.7	1148.0	3.3	947.0	23.1																	
1124	Alkali6	1051	7.220	1237	1.7	1145.0	3.3	946.0	24.3																	
1125	Alkali7	1045	5.350	1238	1.3	1137.0	2.5	943.0	15.4																	
1126	Alkali8	1052	6.930	1241	1.6	1148.0	3.1	945.0	22.4																	
1127	Alkali9	1052	12.870	1241	2.8	1149.0	5.6	945.0	46.4																	
1128	Ref6Qtr2	1049	7.920	1131	3.8	1237.0	1.7	948.0	24.4																	
1129	WVDG-1																									
1130	WVDG-2																									
1131	WVDG-3																									
1132	WVDG-4																									
1133	WVDG-5																									
1134	WVDG-6																									
1135	WVDG-7																									
1136	WVDG-8																									
1137	WVDG-11R																									
1138	WVDG-12R																									
1139	WVDG-13R																									
1140	WVDG-14R																									
1141	WVDG-15																									
1142	WVDG-16																									
1143	WVDG-17																									
1144	WVDG-18																									
1145	WVDG-19																									
1146	WVDG-20																									
1147	WVDG-21																									
1148	WVDG-22																									

#	Glass ID	TCLP Se	TCLP Zn	TCLP Al	TCLP B	TCLP Sb	TCLP Tl	TCLP V	Q PCT B (g/m²)	Q PCT Li (g/m²)	Q PCT Na (g/m²)	Q PCT Si (g/m²)	Q PCT pH	CCC PCT B (g/m²)	CCC PCT Li (g/m²)	CCC PCT Na (g/m²)	CCC PCT Si (g/m²)	CCC PCT pH	T1 (°C)
1067	WVUTH103								0.878										
1068	CUOD								0.220										
1069	CUOI								0.211										
1070	CUOJ								0.374										
1071	CUOK								0.202										
1072	CUOL								0.271										
1073	CUOB								0.213	0.226	0.202	0.107	9.600						
1074	CUOC								0.218	0.241	0.204	0.092	9.800						
1075	CUOE								0.412	0.395	0.346	0.135	9.800						
1076	CUOF								0.351	0.419	0.313	0.135	9.800						
1077	CUOG								0.414	0.391	0.343	0.123	9.900						
1078	CUOH								0.672	0.581	0.502	0.167	10.100						
1079	CUOO								0.617	0.521	0.338	0.159	10.000						
1080	CUOP								0.334	0.386	0.299	0.132	9.800						
1081	CUOR								0.522	0.552	0.453	0.163	10.000						
1082	CUOU								0.364	0.371	0.344	0.130	9.800						
1083	CUOV								0.249	0.305	0.270	0.103	9.800						
1084	CU30								0.276	0.330	0.276	0.111	9.800						
1085	CU31								0.266	0.301	0.288	0.121	9.800						
1086	CU33								0.230	0.251	0.234	0.116	9.900						
1087	CU34								0.207	0.256	0.224	0.104	9.900						
1088	CU35								0.973	0.825	0.808	0.229	10.200						
1089	CU36								0.444	0.491	0.413	0.158	10.100						
1090	CU37								0.379	0.382	0.367	0.159	10.000						
1091	CU38								0.578	0.538	0.501	0.191	9.900						
1092	CU39								0.481	0.445	0.463	0.166	10.000						
1093	CU40								0.540	0.497	0.525	0.184	10.100						
1094	CU41								1.955	1.471	1.510	0.312	10.200						
1095	CU42								1.566	1.245	1.303	0.265	10.200						
1096	CU43								1.764	1.499	1.321	0.322	10.400						
1097	CU44								0.879	0.703	0.693	0.216	10.100						
1098	CU46								0.579	0.560	0.542	0.157	9.600						
1099	CU47								2.891	2.038	1.747	0.382	10.400						
1100	CU49								3.331	2.490	2.390	0.356	10.400						
1101	CU50								0.706	0.825	0.849	0.185	7.700						
1102	CU52								1.040	0.935	0.929	0.218	10.200						
1103	CU53								0.268										
1104	CU54								0.349										
1105	CU55								0.361										
1106	CU56								0.349										
1107	CU57								0.332										
1108	CU58								0.823										
1109	PNL 1								0.544	0.504	0.328	0.102	9.260						
1110	PNL 2								4.044	2.702	2.426	0.189	9.960						
1111	PNL 3								3.266	2.265	1.897	0.184	11.450						
1112	PNL 4								0.239	0.250	0.190	0.113	9.890						
1113	PNL 5								1.267	0.881	0.658	0.152	9.730						
1114	PNL 6								0.269	0.266	0.225	0.131	10.240						
1115	PNL 7								0.186	0.200	0.145	0.092	9.870						
1116	PNL 8								1.575	1.197	0.962	0.112	9.750						
1117	PNL 9								0.431	0.385	0.377	0.138	10.790						
1118	PNL 10								0.757	0.495	0.467	0.195	10.980						
1119	Alkali1								0.251	0.217	0.280	0.128	10.240						
1120	Alkali2								0.647	0.430	0.474	0.115	10.180						
1121	Alkali3								0.454	0.316	0.355	0.111	10.130						
1122	Alkali4								0.274	0.195	0.257	0.111	10.130						
1123	Alkali5								0.636	0.421	0.477	0.105	10.090						
1124	Alkali6								0.328	0.240	0.302	0.116	10.270						
1125	Alkali7								0.889	0.567	0.586	0.117	10.330						
1126	Alkali8								0.468	0.350	0.412	0.124	10.280						
1127	Alkali9								0.284	0.208	0.271	0.111	10.000						
1128	Ref6Qtr2								0.415	0.353	0.317	0.113	10.210						
1129	WVDG-1								0.180	0.250	0.159	0.127	9.400						
1130	WVDG-2								0.207	0.311	0.181	0.133	9.340						
1131	WVDG-3								0.238	0.291	0.233	0.139	9.770						
1132	WVDG-4								0.261	0.303	0.266	0.134	9.780						
1133	WVDG-5								0.214	0.285	0.198	0.128	9.460						
1134	WVDG-6								0.199	0.303	0.169	0.131	9.500						
1135	WVDG-7								0.180	0.267	0.169	0.125	9.370						
1136	WVDG-8								0.173	0.273	0.174	0.121	9.730						
1137	WVDG-11R								0.205	0.246	0.204	0.122	9.810						
1138	WVDG-12R								0.217	0.263	0.214	0.123	9.810						
1139	WVDG-13R								0.237	0.279	0.243	0.128	9.740						
1140	WVDG-14R								0.288	0.333	0.302	0.136	9.950						
1141	WVDG-15								0.296	0.300	0.264	0.132	9.890						
1142	WVDG-16								0.189	0.235	0.165	0.090	9.420						
1143	WVDG-17								0.292	0.292	0.273	0.128	10.120						
1144	WVDG-18								0.225	0.269	0.219	0.137	9.940						
1145	WVDG-19								0.214	0.282	0.207	0.124	9.970						
1146	WVDG-20								0.160	0.242	0.139	0.113	9.460						
1147	WVDG-21								0.225	0.252	0.222	0.152	9.710						
1148	WVDG-22								0.210	0.300	0.179	0.145	9.390						

#	Glass ID	EC1 (S/cm)	T2 (°C)	EC2 (S/cm)	T3 (°C)	EC3 (S/cm)	T4 (°C)	EC4 (S/cm)	T5 (°C)	EC5 (S/cm)	T6 (°C)	EC6 (S/cm)	A	B	To
1067	WVUTH103														
1068	CUOD														
1069	CUOI														
1070	CUOJ														
1071	CUOK														
1072	CUOL														
1073	CUOB														
1074	CUOC														
1075	CUOE														
1076	CUOF														
1077	CUOG														
1078	CUOH														
1079	CUOO														
1080	CUOP														
1081	CUOR														
1082	CUOU														
1083	CUOV														
1084	CU30														
1085	CU31														
1086	CU33														
1087	CU34														
1088	CU35														
1089	CU36														
1090	CU37														
1091	CU38														
1092	CU39														
1093	CU40														
1094	CU41														
1095	CU42														
1096	CU43														
1097	CU44														
1098	CU46														
1099	CU47														
1100	CU49														
1101	CU50														
1102	CU52														
1103	CU53														
1104	CU54														
1105	CU55														
1106	CU56														
1107	CU57														
1108	CU58														
1109	PNL 1														
1110	PNL 2														
1111	PNL 3														
1112	PNL 4														
1113	PNL 5														
1114	PNL 6														
1115	PNL 7														
1116	PNL 8														
1117	PNL 9														
1118	PNL 10														
1119	Alkali1														
1120	Alkali2														
1121	Alkali3														
1122	Alkali4														
1123	Alkali5														
1124	Alkali6														
1125	Alkali7														
1126	Alkali8														
1127	Alkali9														
1128	Ref6Qtr2														
1129	WVDG-1														
1130	WVDG-2														
1131	WVDG-3														
1132	WVDG-4														
1133	WVDG-5														
1134	WVDG-6														
1135	WVDG-7														
1136	WVDG-8														
1137	WVDG-11R														
1138	WVDG-12R														
1139	WVDG-13R														
1140	WVDG-14R														
1141	WVDG-15														
1142	WVDG-16														
1143	WVDG-17														
1144	WVDG-18														
1145	WVDG-19														
1146	WVDG-20														
1147	WVDG-21														
1148	WVDG-22														

#	Glass ID	Study	Reference	Al2O3-t	B2O3-t	CaO-t	Fe2O3-t	FeO-t	K2O-t	Li2O-t	MgO-t	Na2O-t	NiO-t	P2O5-t	SiO2-t	ZrO2-t	Ag2O-t	As2O3-t	As2O5-t	BaO-t	BeO-t	Bi2O3-t	Br-t	CdO-t	Ce2O3-t	CeO2-t	Cl-t
1149	WVDG-23	West Valley CVS Glasses PC	Olson et al. 1994																								
1150	WVDG-24	West Valley CVS Glasses PC	Olson et al. 1994																								
1151	WVDG-25	West Valley CVS Glasses PC	Olson et al. 1994																								
1152	WVDG-26	West Valley CVS Glasses PC	Olson et al. 1994																								
1153	WVDG-27	West Valley CVS Glasses PC	Olson et al. 1994																								
1154	WVDG-28	West Valley CVS Glasses PC	Olson et al. 1994																								
1155	WVDG-29	West Valley CVS Glasses PC	Olson et al. 1994																								
1156	WVDG-30	West Valley CVS Glasses PC	Olson et al. 1994																								
1157	WVDG-33	West Valley CVS Glasses PC	Olson et al. 1994																								
1158	WVDG-34	West Valley CVS Glasses PC	Olson et al. 1994																								
1159	WVDG-35	West Valley CVS Glasses PC	Olson et al. 1994																								
1160	WVDG-36	West Valley CVS Glasses PC	Olson et al. 1994																								
1161	WVDG-37	West Valley CVS Glasses PC	Olson et al. 1994																								
1162	WVDG-38	West Valley CVS Glasses PC	Olson et al. 1994																								
1163	WVDG-39	West Valley CVS Glasses PC	Olson et al. 1994																								
1164	WVDG-40	West Valley CVS Glasses PC	Olson et al. 1994																								
1165	WVDG-41	West Valley CVS Glasses PC	Olson et al. 1994																								
1166	WVDG-42	West Valley CVS Glasses PC	Olson et al. 1994																								
1167	WVDG-43	West Valley CVS Glasses PC	Olson et al. 1994																								
1168	WVDG-44	West Valley CVS Glasses PC	Olson et al. 1994																								
1169	WVDG-45	West Valley CVS Glasses PC	Olson et al. 1994																								
1170	WVDG-46	West Valley CVS Glasses PC	Olson et al. 1994																								
1171	WVDG-47	West Valley CVS Glasses PC	Olson et al. 1994																								
1172	WVDG-48	West Valley CVS Glasses PC	Olson et al. 1994																								
1173	WVDG-40	West Valley WQR	WVNS 1995																								
1174	WVDG-46	West Valley WQR	WVNS 1995																								
1175	FY92#5	West Valley WQR	WVNS 1995																								
1176	FY92#6	West Valley WQR	WVNS 1995																								
1177	FY92#7	West Valley WQR	WVNS 1995																								
1178	FY92#9	West Valley WQR	WVNS 1995																								
1179	FY92#10	West Valley WQR	WVNS 1995																								
1180	FY92Ref5	West Valley WQR	WVNS 1995																								
1181	Ratio2	West Valley WQR	WVNS 1995																								
1182	Ratio4	West Valley WQR	WVNS 1995																								
1183	Ratio5	West Valley WQR	WVNS 1995																								
1184	LoTh2	West Valley WQR	WVNS 1995																								
1185	LoTh4	West Valley WQR	WVNS 1995																								
1186	LoTh5	West Valley WQR	WVNS 1995																								
1187	HiFe2	West Valley WQR	WVNS 1995																								
1188	HiFe3	West Valley WQR	WVNS 1995																								
1189	HiFe4	West Valley WQR	WVNS 1995																								
1190	PNL190	West Valley WQR	WVNS 1995																								
1191	FY93#1	West Valley WQR	WVNS 1995																								
1192	FY93#2	West Valley WQR	WVNS 1995																								
1193	FY93#3	West Valley WQR	WVNS 1995																								
1194	FY93#4	West Valley WQR	WVNS 1995																								
1195	FY93#5	West Valley WQR	WVNS 1995																								
1196	FY93#6	West Valley WQR	WVNS 1995																								
1197	FY93#7	West Valley WQR	WVNS 1995																								
1198	FY93#8	West Valley WQR	WVNS 1995																								
1199	FY93#9	West Valley WQR	WVNS 1995																								
1200	FY93#10	West Valley WQR	WVNS 1995																								
1201	FY94#1	West Valley WQR	WVNS 1995																								
1202	FY94#2	West Valley WQR	WVNS 1995																								
1203	FY94#3	West Valley WQR	WVNS 1995																								
1204	FY94#4	West Valley WQR	WVNS 1995																								
1205	FY94#5	West Valley WQR	WVNS 1995																								
1206	FY94#6	West Valley WQR	WVNS 1995																								
1207	FY94#7	West Valley WQR	WVNS 1995																								
1208	FY94#8	West Valley WQR	WVNS 1995																								
1209	FY94#9	West Valley WQR	WVNS 1995																								
1210	FY94#10	West Valley WQR	WVNS 1995																								
1211	Sigma1	West Valley WQR	WVNS 1995																								
1212	Sigma2	West Valley WQR	WVNS 1995																								
1213	Sigma3	West Valley WQR	WVNS 1995																								
1214	Sigma4	West Valley WQR	WVNS 1995																								
1215	Sigma5	West Valley WQR	WVNS 1995																								
1216	Sigma6	West Valley WQR	WVNS 1995																								
1217	Sigma7	West Valley WQR	WVNS 1995																								
1218	Sigma8	West Valley WQR	WVNS 1995																								
1219	Sigma9	West Valley WQR	WVNS 1995																								
1220	Sigma10	West Valley WQR	WVNS 1995																								
1221	1	Canonical Correlation (Ramse	Oksoy et al. 1994	0.1545	0.1583	0.0000	0.0000					0.1409			0.5463												
1222	2	Canonical Correlation (Ramse	Oksoy et al. 1994	0.1578	0.0539	0.0868	0.0000					0.1438			0.5578												
1223	4	Canonical Correlation (Ramse	Oksoy et al. 1994	0.1563	0.0534	0.0000	0.0000					0.2376			0.5527												
1224	5	Canonical Correlation (Ramse	Oksoy et al. 1994	0.0000	0.1701	0.0913	0.0000					0.1514			0.5872												
1225	6	Canonical Correlation (Ramse	Oksoy et al. 1994	0.0000	0.1455	0.0000	0.2225					0.1296			0.5024												
1226	7	Canonical Correlation (Ramse	Oksoy et al. 1994	0.0000	0.1685	0.0000	0.0000					0.2500			0.5816												
1227	8	Canonical Correlation (Ramse	Oksoy et al. 1994	0.0000	0.0494	0.0797	0.2268					0.1320			0.5120												
1228	9	Canonical Correlation (Ramse	Oksoy et al. 1994	0.0000	0.0574	0.0925	0.0000					0.2555			0.5946												
1229	10	Canonical Correlation (Ramse	Oksoy et al. 1994	0.0000	0.0490	0.0000	0.2249					0.2182			0.5078												
1230	11	Canonical Correlation (Ramse	Oksoy et al. 1994	0.1555	0.1592	0.0855	0.0000					0.1418			0.4581												

#	Glass ID	CoO-t	Co2O3-t	Cr2O3-t	Cs2O-t	CuO-t	Dy2O3-t	Eu2O3-t	F-t	Ga2O3-t	Gd2O3-t	HfO2-t	HgO-t	I-t	La2O3-t	MnO2-t	MnO-t	MoO-t	MoO2-t	MoO3-t	Nb2O5-t	Nd2O3-t	NpO2-t	PbO-t	PdO2-t	PdO-t	Pr2O3-t	Pr6O11-t	Rb2O-t	ReO-t
1149	WVDG-23																												
1150	WVDG-24																												
1151	WVDG-25																												
1152	WVDG-26																												
1153	WVDG-27																												
1154	WVDG-28																												
1155	WVDG-29																												
1156	WVDG-30																												
1157	WVDG-33																												
1158	WVDG-34																												
1159	WVDG-35																												
1160	WVDG-36																												
1161	WVDG-37																												
1162	WVDG-38																												
1163	WVDG-39																												
1164	WVDG-40																												
1165	WVDG-41																												
1166	WVDG-42																												
1167	WVDG-43																												
1168	WVDG-44																												
1169	WVDG-45																												
1170	WVDG-46																												
1171	WVDG-47																												
1172	WVDG-48																												
1173	WVDG-40																												
1174	WVDG-46																												
1175	FY92#5																												
1176	FY92#6																												
1177	FY92#7																												
1178	FY92#9																												
1179	FY92#10																												
1180	FY92Ref5																												
1181	Ratio2																												
1182	Ratio4																												
1183	Ratio5																												
1184	LoTh2																												
1185	LoTh4																												
1186	LoTh5																												
1187	HiFe2																												
1188	HiFe3																												
1189	HiFe4																												
1190	PNL190																												
1191	FY93#1																												
1192	FY93#2																												
1193	FY93#3																												
1194	FY93#4																												
1195	FY93#5																												
1196	FY93#6																												
1197	FY93#7																												
1198	FY93#8																												
1199	FY93#9																												
1200	FY93#10																												
1201	FY94#1																												
1202	FY94#2																												
1203	FY94#3																												
1204	FY94#4																												
1205	FY94#5																												
1206	FY94#6																												
1207	FY94#7																												
1208	FY94#8																												
1209	FY94#9																												
1210	FY94#10																												
1211	Sigma1																												
1212	Sigma2																												
1213	Sigma3																												
1214	Sigma4																												
1215	Sigma5																												
1216	Sigma6																												
1217	Sigma7																												
1218	Sigma8																												
1219	Sigma9																												
1220	Sigma10																												
1221	1																												
1222	2																												
1223	4																												
1224	5																												
1225	6																												
1226	7																												
1227	8																												
1228	9																												
1229	10																												
1230	11																												

#	Glass ID	ReO2-t	Re2O7-t	Rh2O3-t	RhO2-t	RuO2-t	Ru2O3-t	Sb2O3-t	Sb2O5-t	SeO2-t	Sm2O3-t	SnO-t	SnO2-t	SO3-t	SrO-t	Tc2O7-t	TeO2-t	ThO2-t	TiO2-t	Tl2O-t	Tl2O3-t	U3O8-t	UO2-t	UO3-t	V2O5-t	WO3-t	Y2O3-t	ZnO-t	Sum-t	Al2O3-a
1149	WVDG-23																											0.0000	0.0942
1150	WVDG-24																											0.0000	0.1232
1151	WVDG-25																											0.0000	0.0930
1152	WVDG-26																											0.0000	0.1227
1153	WVDG-27																											0.0000	0.1217
1154	WVDG-28																											0.0000	0.0968
1155	WVDG-29																											0.0000	0.0928
1156	WVDG-30																											0.0000	0.1007
1157	WVDG-33																											0.0000	0.0822
1158	WVDG-34																											0.0000	0.0517
1159	WVDG-35																											0.0000	0.1002
1160	WVDG-36																											0.0000	0.0569
1161	WVDG-37																											0.0000	0.0998
1162	WVDG-38																											0.0000	0.1024
1163	WVDG-39																											0.0000	0.1005
1164	WVDG-40																											0.0000	0.0609
1165	WVDG-41																											0.0000	0.0592
1166	WVDG-42																											0.0000	0.0555
1167	WVDG-43																											0.0000	0.1004
1168	WVDG-44																											0.0000	0.0832
1169	WVDG-45																											0.0000	0.1021
1170	WVDG-46																											0.0000	0.0700
1171	WVDG-47																											0.0000	0.0569
1172	WVDG-48																											0.0000	0.0943
1173	WVDG-40																											0.0000	0.0609
1174	WVDG-46																											0.0000	0.0700
1175	FY92#5																											0.0000	0.0714
1176	FY92#6																											0.0000	0.0486
1177	FY92#7																											0.0000	0.0486
1178	FY92#9																											0.0000	0.0486
1179	FY92#10																											0.0000	0.0714
1180	FY92Ref5																											0.0000	0.0645
1181	Ratio2																											0.0000	0.0667
1182	Ratio4																											0.0000	0.0570
1183	Ratio5																											0.0000	0.0520
1184	LoTh2																											0.0000	0.0621
1185	LoTh4																											0.0000	0.0608
1186	LoTh5																											0.0000	0.0548
1187	HiFe2																											0.0000	0.0534
1188	HiFe3																											0.0000	0.0555
1189	HiFe4																											0.0000	0.0545
1190	PNL190																											0.0000	0.0490
1191	FY93#1																											0.0000	0.0771
1192	FY93#2																											0.0000	0.0429
1193	FY93#3																											0.0000	0.0771
1194	FY93#4																											0.0000	0.0429
1195	FY93#5																											0.0000	0.0429
1196	FY93#6																											0.0000	0.0771
1197	FY93#7																											0.0000	0.0771
1198	FY93#8																											0.0000	0.0429
1199	FY93#9																											0.0000	0.0771
1200	FY93#10																											0.0000	0.0429
1201	FY94#1																											0.0000	0.0740
1202	FY94#2																											0.0000	0.0740
1203	FY94#3																											0.0000	0.0566
1204	FY94#4																											0.0000	0.0430
1205	FY94#5																											0.0000	0.0550
1206	FY94#6																											0.0000	0.0771
1207	FY94#7																											0.0000	0.0630
1208	FY94#8																											0.0000	0.0440
1209	FY94#9																											0.0000	0.0460
1210	FY94#10																											0.0000	0.0612
1211	Sigma1																											0.0000	0.0429
1212	Sigma2																											0.0000	0.0429
1213	Sigma3																											0.0000	0.0460
1214	Sigma4																											0.0000	0.0490
1215	Sigma5																											0.0000	0.0460
1216	Sigma6																											0.0000	0.0470
1217	Sigma7																											0.0000	0.0510
1218	Sigma8																											0.0000	0.0480
1219	Sigma9																											0.0000	0.0520
1220	Sigma10																											0.0000	0.0500
1221	1																											1.0000	0.1614
1222	2																											1.0000	0.1633
1223	4																											1.0000	0.1721
1224	5																											1.0000	0.0568
1225	6																											1.0000	0.0421
1226	7																											1.0000	0.0101
1227	8																											1.0000	0.0367
1228	9																											1.0000	0.0020
1229	10																											1.0000	0.0240
1230	11																											1.0000	0.1675

#	Glass ID	B2O3-a	CaO-a	Fe2O3-a	FeO-a	K2O-a	Li2O-a	MgO-a	Na2O-a	NiO-a	P2O5-a	SiO2-a	ZrO2-a	Ag2O-a	As2O3-a	As2O5-a	BaO-a	BeO-a	Bi2O3-a	Br-a	CdO-a	Ce2O3-a	CeO2-a	Cl-a	CoO-a	Co2O3-a	Cr2O3-a	Cs2O-a	CuO-a	F-a
1149	WVDG-23	0.1248	0.0050	0.1424		0.0186	0.0180	0.0054	0.0823	0.0018	0.0330	0.3931	0.0024				0.0011						0.0042				0.0008	0.0004	0.0000	
1150	WVDG-24	0.1322	0.0048	0.0867		0.0252	0.0205	0.0056	0.0956	0.0017	0.0141	0.4210	0.0022				0.0011						0.0040				0.0008	0.0004	0.0002	
1151	WVDG-25	0.1090	0.0050	0.0867		0.0202	0.0203	0.0053	0.0909	0.0019	0.0313	0.4500	0.0024				0.0010						0.0044				0.0008	0.0004	0.0002	
1152	WVDG-26	0.1338	0.0134	0.0867		0.0264	0.0200	0.0135	0.0909	0.0019	0.0162	0.4095	0.0025				0.0030						0.0045				0.0009	0.0004	0.0003	
1153	WVDG-27	0.1258	0.0049	0.0868		0.0245	0.0228	0.0062	0.1014	0.0062	0.0348	0.3672	0.0080				0.0011						0.0144				0.0028	0.0014	0.0008	
1154	WVDG-28	0.1066	0.0048	0.1211		0.0135	0.0205	0.0062	0.0886	0.0059	0.0153	0.4338	0.0077				0.0011						0.0138				0.0027	0.0013	0.0008	
1155	WVDG-29	0.1145	0.0133	0.0874		0.0184	0.0257	0.0136	0.1074	0.0019	0.0327	0.4468	0.0024				0.0032						0.0044				0.0008	0.0004	0.0002	
1156	WVDG-30	0.1188	0.0084	0.1148		0.0181	0.0210	0.0101	0.0963	0.0035	0.0242	0.4006	0.0045				0.0020						0.0080				0.0016	0.0008	0.0004	
1157	WVDG-33	0.0903	0.0040	0.1145		0.0344	0.0291	0.0098	0.1051	0.0029	0.0247	0.4250	0.0037				0.0006						0.0067				0.0013	0.0007	0.0004	
1158	WVDG-34	0.1081	0.0018	0.0977		0.0362	0.0307	0.0045	0.1107	0.0082	0.0187	0.4000	0.0106				0.0003						0.0191				0.0037	0.0019	0.0011	
1159	WVDG-35	0.0715	0.0070	0.1498		0.0371	0.0314	0.0174	0.1134	0.0014	0.0006	0.3800	0.0018				0.0010						0.0032				0.0006	0.0003	0.0002	
1160	WVDG-36	0.1080	0.0016	0.1466		0.0254	0.0215	0.0040	0.0775	0.0081	0.0059	0.4110	0.0104				0.0002						0.0188				0.0037	0.0018	0.0010	
1161	WVDG-37	0.0778	0.0014	0.0977		0.0390	0.0330	0.0036	0.1191	0.0080	0.0050	0.4200	0.0103				0.0002						0.0186				0.0036	0.0018	0.0010	
1162	WVDG-38	0.0758	0.0016	0.0967		0.0326	0.0276	0.0039	0.0995	0.0083	0.0060	0.4090	0.0107				0.0000						0.0193				0.0037	0.0019	0.0011	
1163	WVDG-39	0.1122	0.0066	0.0928		0.0362	0.0306	0.0164	0.1104	0.0022	0.0381	0.3800	0.0028				0.0009						0.0051				0.0010	0.0005	0.0003	
1164	WVDG-40	0.0753	0.0072	0.1535		0.0317	0.0269	0.0178	0.0968	0.0018	0.0060	0.4436	0.0023				0.0010						0.0042				0.0008	0.0004	0.0002	
1165	WVDG-41	0.0726	0.0020	0.0948		0.0375	0.0317	0.0051	0.1144	0.0021	0.0380	0.4500	0.0027				0.0003						0.0048				0.0009	0.0005	0.0003	
1166	WVDG-42	0.0675	0.0068	0.0953		0.0347	0.0294	0.0017	0.1060	0.0080	0.0368	0.4000	0.0103				0.0010						0.0185				0.0036	0.0018	0.0010	
1167	WVDG-43	0.1243	0.0020	0.0953		0.0268	0.0227	0.0049	0.0817	0.0018	0.0239	0.4200	0.0023				0.0003						0.0041				0.0008	0.0004	0.0002	
1168	WVDG-44	0.1150	0.0019	0.1581		0.0353	0.0299	0.0048	0.1079	0.0017	0.0062	0.3800	0.0022				0.0003						0.0040				0.0008	0.0004	0.0002	
1169	WVDG-45	0.0713	0.0016	0.1551		0.0384	0.0325	0.0040	0.1173	0.0018	0.0390	0.3800	0.0023				0.0002						0.0041				0.0008	0.0004	0.0002	
1170	WVDG-46	0.1223	0.0068	0.1039		0.0337	0.0286	0.0167	0.1030	0.0016	0.0059	0.4500	0.0021				0.0010						0.0037				0.0007	0.0004	0.0002	
1171	WVDG-47	0.1121	0.0016	0.1494		0.0267	0.0226	0.0040	0.0818	0.0015	0.0393	0.4500	0.0020				0.0002						0.0036				0.0007	0.0004	0.0002	
1172	WVDG-48	0.1056	0.0068	0.0924		0.0268	0.0227	0.0167	0.0818	0.0088	0.0428	0.3800	0.0114				0.0010						0.0205				0.0040	0.0020	0.0011	
1173	WVDG-40	0.0753	0.0072	0.1535		0.0317	0.0269	0.0178	0.0968	0.0018	0.0060	0.4436	0.0023				0.0010					0.0040					0.0008	0.0004	0.0002	
1174	WVDG-46	0.1223	0.0068	0.1039		0.0337	0.0286	0.0167	0.1030	0.0016	0.0059	0.4500	0.0021				0.0010					0.0035					0.0007	0.0004	0.0002	
1175	FY92#5	0.1044	0.0048	0.1430		0.0688	0.0510	0.0089	0.0875	0.0025	0.0120	0.3688	0.0132				0.0026					0.0031					0.0014	0.0000	0.0000	
1176	FY92#6	0.1044	0.0048	0.0974		0.0688	0.0232	0.0089	0.1028	0.0025	0.0120	0.4497	0.0132				0.0026					0.0031					0.0014	0.0000	0.0000	
1177	FY92#7	0.1044	0.0048	0.1430		0.0688	0.0232	0.0089	0.0572	0.0025	0.0120	0.4497	0.0132				0.0026					0.0031					0.0014	0.0000	0.0000	
1178	FY92#9	0.1044	0.0048	0.1430		0.0313	0.0510	0.0089	0.0572	0.0025	0.0120	0.4416	0.0132				0.0026					0.0031					0.0014	0.0000	0.0000	
1179	FY92#10	0.1534	0.0048	0.0974		0.0688	0.0232	0.0089	0.0572	0.0025	0.0120	0.4057	0.0132				0.0026					0.0031					0.0014	0.0000	0.0000	
1180	FY92Ref5	0.1289	0.0068	0.1202		0.0318	0.0271	0.0089	0.0982	0.0025	0.0237	0.4116	0.0032				0.0016					0.0015					0.0014	0.0008	0.0003	
1181	Ratio2	0.1100	0.0048	0.1606		0.0550	0.0370	0.0089	0.0880	0.0025	0.0120	0.3900	0.0120				0.0026					0.0031					0.0014	0.0000	0.0000	
1182	Ratio4	0.1120	0.0048	0.1008		0.0560	0.0410	0.0089	0.0720	0.0025	0.0120	0.4340	0.0190				0.0026					0.0031					0.0014	0.0000	0.0000	
1183	Ratio5	0.1460	0.0048	0.1298		0.0500	0.0410	0.0089	0.0900	0.0025	0.0120	0.3880	0.0100				0.0026					0.0031					0.0014	0.0000	0.0000	
1184	LoTh2	0.1170	0.0048	0.1300		0.0450	0.0392	0.0089	0.0890	0.0025	0.0120	0.4250	0.0135				0.0026					0.0031					0.0014	0.0000	0.0000	
1185	LoTh4	0.1380	0.0048	0.1050		0.0480	0.0330	0.0089	0.0890	0.0025	0.0120	0.4310	0.0120				0.0026					0.0031					0.0014	0.0000	0.0000	
1186	LoTh5	0.1433	0.0048	0.1380		0.0437	0.0325	0.0089	0.0700	0.0025	0.0120	0.4170	0.0115				0.0026					0.0031					0.0014	0.0000	0.0000	
1187	HiFe2	0.1100	0.0048	0.1550		0.0540	0.0400	0.0089	0.0880	0.0025	0.0120	0.3926	0.0114				0.0026					0.0031					0.0014	0.0000	0.0000	
1188	HiFe3	0.1123	0.0048	0.1470		0.0575	0.0424	0.0089	0.0920	0.0025	0.0120	0.3879	0.0112				0.0026					0.0031					0.0014	0.0000	0.0000	
1189	HiFe4	0.1470	0.0048	0.1360		0.0435	0.0415	0.0089	0.0830	0.0025	0.0120	0.3880	0.0093				0.0026					0.0031					0.0014	0.0000	0.0000	
1190	PNL190	0.1040	0.0048	0.0970		0.0688	0.0510	0.0089	0.1030	0.0025	0.0120	0.4040	0.0130				0.0026					0.0031					0.0014	0.0000	0.0000	
1191	FY93#1	0.1656	0.0048	0.1545		0.0313	0.0232	0.0089	0.0572	0.0025	0.0120	0.3949	0.0132				0.0026					0.0031					0.0014			
1192	FY93#2	0.1656	0.0048	0.0859		0.0688	0.0232	0.0089	0.1028	0.0025	0.0120	0.4146	0.0132				0.0026					0.0031					0.0014			
1193	FY93#3	0.1656	0.0048	0.0859		0.0688	0.0510	0.0089	0.1028	0.0025	0.0120	0.3526	0.0132				0.0026					0.0031					0.0014			
1194	FY93#4	0.0922	0.0048	0.1545		0.0688	0.0232	0.0089	0.0572	0.0025	0.0120	0.4650	0.0132				0.0026					0.0031					0.0014			
1195	FY93#5	0.1656	0.0048	0.0859		0.0313	0.0510	0.0089	0.0572	0.0025	0.0120	0.4699	0.0132				0.0026					0.0031					0.0014			
1196	FY93#6	0.0922	0.0048	0.0859		0.0313	0.0432	0.0089	0.1028	0.0025	0.0120	0.4713	0.0132				0.0026					0.0031					0.0014			
1197	FY93#7	0.0922	0.0048	0.0859		0.0688	0.0232	0.0089	0.0572	0.0025	0.0120	0.4638	0.0132				0.0026					0.0031					0.0014			
1198	FY93#8	0.1652	0.0048	0.1545		0.0313	0.0232	0.0089	0.1028	0.0025	0.0120	0.3483	0.0132				0.0026					0.0031					0.0014			
1199	FY93#9	0.0922	0.0048	0.1545		0.0688	0.0245	0.0089	0.1028	0.0025	0.0120	0.3483	0.0132				0.0026					0.0031					0.0014			
1200	FY93#10	0.0922	0.0048	0.0859		0.0313	0.0510	0.0089	0.1028	0.0025	0.0120	0.4621	0.0132				0.0026					0.0031					0.0014			
1201	FY94#1	0.0900	0.0048	0.0661		0.0600	0.0280	0.0089	0.0840	0.0025	0.0120	0.4774	0.0073				0.0026					0.0031					0.0014	0.0000	0.0000	
1202	FY94#2	0.0709	0.0048	0.1743		0.0590	0.0400	0.0089	0.0520	0.0025	0.0120	0.4300	0.0073				0.0026					0.0031					0.0014	0.0000	0.0000	
1203	FY94#3	0.1869	0.0048	0.1100		0.0460	0.0280	0.0089	0.1100	0.0025	0.0120	0.3700	0.0073				0.0026					0.0031					0.0014	0.0000	0.0000	
1204	FY94#4	0.1710	0.0048	0.1695		0.0530	0.0460	0.0089	0.0910	0.0025	0.0120	0.3450	0.0073				0.0026					0.0031					0.0014	0.0000	0.0000	
1205	FY94#5	0.0709	0.0048	0.0661		0.0660	0.0445	0.0089	0.1070	0.0025	0.0120	0.4770	0.0173				0.0026					0.0031					0.0014	0.0000	0.0000	
1206	FY94#6	0.0709	0.0048	0.1743		0.0420	0.0470	0.0089	0.0600	0.0025	0.0120	0.3928	0.0191				0.0026					0.0031					0.0014	0.0000	0.0000	
1207	FY94#7	0.1753	0.0048	0.0661		0.0400	0.0240	0.0089	0.0660	0.0025	0.0120	0.4350	0.0184				0.0026					0.0031					0.0014	0.0000	0.0000	
1208	FY94#8	0.1800	0.0048	0.1743		0.0380	0.0380	0.0089	0.0854	0.0025	0.0120	0.3450	0.0191				0.0026					0.0031					0.0014	0.0000	0.0000	
1209	FY94#9	0.1350	0.0048	0.1400		0.0640	0.0340	0.0089	0.0612	0.0025	0.0120	0.4126	0.0180				0.0026					0.0031					0.0014	0.0000	0.0000	
1210	FY94#10	0.1869	0.0048	0.0661		0.0313	0.0480	0.0089	0.0780	0.0025	0.0120	0.4200	0.0073				0.0026					0.0031					0.0014	0.0000	0.0000	
1211	Sigma1	0.1869	0.0048	0.1168		0.0688	0.0510	0.0089	0.1100	0.0025	0.0120	0.3422	0.0073				0.0026					0.0031					0.0014	0.0000	0.0000	
1212	Sigma2	0.1869	0.0048	0.0741		0.0688	0.0510	0.0089	0.1100	0.0025	0.0120	0.3422	0.0073				0.0026					0.0031					0.0014	0.0000	0.0000	
1213	Sigma3	0.0761	0.0048	0.1743		0.0670	0.0490	0.0089	0.1090	0.0025	0.0120	0.3672	0.0078				0.0026					0.0031					0.0014	0.0000	0.0000	
1214	Sigma4	0.1850	0.0048	0.1107		0.0640	0.0500	0.0089	0.1030	0.0025	0.0120	0.3550	0.0081				0.0026					0.0031					0.0014	0.0000	0.0000	
1215	Sigma5	0.1800	0.0048	0.1208		0.0670	0.0490	0.0089	0.1050	0.0025	0.0120	0.3500	0.0080				0.0026					0.0031					0.0014	0.0000	0.0000	
1216	Sigma6	0.1750	0.0048	0.1036		0.0650	0.0480	0.0089	0.1010	0.0025	0.0120	0.3650	0.0082				0.0026					0.0031					0.0014	0.0000	0.0000	
1217	Sigma7	0.1700	0.0048	0.1125		0.0660	0.0495	0.0089	0.1070	0.0025	0.0120	0.3600	0.0078				0.0026					0.0031					0.0014	0.0000	0.0000	
1218	Sigma8	0.1600	0.0048	0.1299		0.0630	0.0485	0.0089	0.0970	0.0025	0.0120	0.3700	0.0084				0.0026					0.0031					0.0014	0.0000	0.0000	
1219	Sigma9	0.1550	0.0048	0.0938		0.0610	0.0475	0.0089	0.0990	0.0025	0.0120	0.3750	0.0085				0.0026					0.0031					0.0014	0.0000	0.0000	
1220	Sigma10	0.1580	0.0048	0.0845		0.0620	0.0470	0.0089	0.0950	0.0025	0.0120	0.3800	0.0083				0.0026					0.0031					0.0014	0.0000	0.0000	
1221	1	0.1482	0.0000	0.0000	0.0000				0.1406			0.5498																		
1222	2	0.0533	0.0895	0.0000	0.0000				0.1463			0.5475																		
1223	4	0.0456	0.0000	0.0000	0.0000				0.2319			0.5504																		
1224	5	0.1514	0.0859	0.0000	0.0000				0.1420			0.5638																		
1225	6	0.1271	0.0000	0.1937	0.0256				0.1214			0.4900																		
1226	7	0.1618	0.0000	0.0000	0.0000				0.2546			0.5734																		
1227	8	0.0469	0.0748	0.1886	0.0297				0.1260			0.4973																		
1228	9	0.0564	0.0926	0.0000	0.0000				0.2597			0.5894																		
1229	10	0.0408	0.0000	0.1814	0.0302				0.2270			0.4966																		
1230	11	0.1628	0.0884	0.0000	0.0000				0.1425			0.4388																		

#	Glass ID	Ga2O3-a	Gd2O3-a	I-a	La2O3-a	MnO2-a	MnO-a	MoO-a	MoO3-a	Nb2O5-a	Nd2O3-a	NpO2-a	PbO-a	PdO2-a	PdO-a	Pr2O3-a	Pr6O11-a	PuO2-a	Rb2O-a	ReO-a	ReO2-a	Re2O7-a	Rh2O3-a	RhO2-a	RuO2-a	Sb2O3-a	Sb2O5-a	SeO2-a
1149	WVDG-23				0.0002	0.0051			0.0002		0.0008						0.0002											
1150	WVDG-24				0.0002	0.0244			0.0002		0.0008						0.0002											
1151	WVDG-25				0.0002	0.0240			0.0002		0.0008						0.0002											
1152	WVDG-26				0.0003	0.0055			0.0003		0.0009						0.0003											
1153	WVDG-27				0.0008	0.0051			0.0008		0.0028						0.0008											
1154	WVDG-28				0.0008	0.0052			0.0008		0.0027						0.0008											
1155	WVDG-29				0.0002	0.0050			0.0002		0.0008						0.0002											
1156	WVDG-30				0.0004	0.0120			0.0004		0.0016						0.0004											
1157	WVDG-33				0.0004	0.0128			0.0004		0.0013			0.0000			0.0004							0.0000	0.0000			
1158	WVDG-34				0.0011	0.0198			0.0011		0.0037			0.0000			0.0011							0.0000	0.0000			
1159	WVDG-35				0.0002	0.0195			0.0002		0.0006			0.0000			0.0002							0.0000	0.0000			
1160	WVDG-36				0.0010	0.0012			0.0010		0.0037			0.0000			0.0010							0.0000	0.0000			
1161	WVDG-37				0.0010	0.0013			0.0010		0.0036			0.0000			0.0010							0.0000	0.0000			
1162	WVDG-38				0.0011	0.0161			0.0011		0.0037			0.0000			0.0011							0.0000	0.0000			
1163	WVDG-39				0.0003	0.0011			0.0003		0.0010			0.0000			0.0003							0.0000	0.0000			
1164	WVDG-40				0.0002	0.0012			0.0002		0.0008						0.0002											
1165	WVDG-41				0.0003	0.0012			0.0003		0.0009			0.0000			0.0003							0.0000	0.0000			
1166	WVDG-42				0.0010	0.0195			0.0010		0.0036			0.0000			0.0010							0.0000	0.0000			
1167	WVDG-43				0.0002	0.0194			0.0002		0.0008			0.0000			0.0002							0.0000	0.0000			
1168	WVDG-44				0.0002	0.0013			0.0002		0.0008			0.0000			0.0002							0.0000	0.0000			
1169	WVDG-45				0.0002	0.0201			0.0002		0.0008			0.0000			0.0002							0.0000	0.0000			
1170	WVDG-46				0.0002	0.0196			0.0002		0.0007						0.0002											
1171	WVDG-47				0.0002	0.0194			0.0002		0.0007			0.0000			0.0002							0.0000	0.0000			
1172	WVDG-48				0.0011	0.0012			0.0011		0.0040			0.0000			0.0011							0.0000	0.0000			
1173	WVDG-40				0.0002		0.0010		0.0002		0.0008				0.0000		0.0002							0.0000	0.0000			
1174	WVDG-46				0.0002		0.0160		0.0002		0.0007				0.0000		0.0002							0.0000	0.0000			
1175	FY92#5				0.0000		0.0082		0.0000		0.0000				0.0000		0.0000							0.0000	0.0000			
1176	FY92#6				0.0000		0.0082		0.0000		0.0000				0.0000		0.0000							0.0000	0.0000			
1177	FY92#7				0.0000		0.0082		0.0000		0.0000				0.0000		0.0000							0.0000	0.0000			
1178	FY92#9				0.0000		0.0082		0.0000		0.0000				0.0000		0.0000							0.0000	0.0000			
1179	FY92#10				0.0000		0.0082		0.0000		0.0000				0.0000		0.0000							0.0000	0.0000			
1180	FY92Ref5				0.0004		0.0082		0.0004		0.0014				0.0003		0.0004							0.0002	0.0008			
1181	Ratio2				0.0000		0.0082		0.0000		0.0000				0.0000		0.0000							0.0000	0.0000			
1182	Ratio4				0.0000		0.0082		0.0000		0.0000				0.0000		0.0000							0.0000	0.0000			
1183	Ratio5				0.0000		0.0082		0.0000		0.0000				0.0000		0.0000							0.0000	0.0000			
1184	LoTh2				0.0000		0.0082		0.0000		0.0000				0.0000		0.0000							0.0000	0.0000			
1185	LoTh4				0.0000		0.0082		0.0000		0.0000				0.0000		0.0000							0.0000	0.0000			
1186	LoTh5				0.0000		0.0082		0.0000		0.0000				0.0000		0.0000							0.0000	0.0000			
1187	HiFe2				0.0000		0.0082		0.0000		0.0000				0.0000		0.0000							0.0000	0.0000			
1188	HiFe3				0.0000		0.0082		0.0000		0.0000				0.0000		0.0000							0.0000	0.0000			
1189	HiFe4				0.0000		0.0082		0.0000		0.0000				0.0000		0.0000							0.0000	0.0000			
1190	PNL190				0.0000		0.0082		0.0000		0.0000				0.0000		0.0000							0.0000	0.0000			
1191	FY93#1						0.0082																					
1192	FY93#2						0.0082																					
1193	FY93#3						0.0082																					
1194	FY93#4						0.0082																					
1195	FY93#5						0.0082																					
1196	FY93#6						0.0082																					
1197	FY93#7						0.0082																					
1198	FY93#8						0.0082																					
1199	FY93#9						0.0082																					
1200	FY93#10						0.0082																					
1201	FY94#1				0.0000		0.0082		0.0000						0.0000		0.0000							0.0000	0.0000			
1202	FY94#2				0.0000		0.0082		0.0000						0.0000		0.0000							0.0000	0.0000			
1203	FY94#3				0.0000		0.0082		0.0000						0.0000		0.0000							0.0000	0.0000			
1204	FY94#4				0.0000		0.0082		0.0000						0.0000		0.0000							0.0000	0.0000			
1205	FY94#5				0.0000		0.0082		0.0000						0.0000		0.0000							0.0000	0.0000			
1206	FY94#6				0.0000		0.0082		0.0000						0.0000		0.0000							0.0000	0.0000			
1207	FY94#7				0.0000		0.0082		0.0000						0.0000		0.0000							0.0000	0.0000			
1208	FY94#8				0.0000		0.0082		0.0000						0.0000		0.0000							0.0000	0.0000			
1209	FY94#9				0.0000		0.0082		0.0000						0.0000		0.0000							0.0000	0.0000			
1210	FY94#10				0.0000		0.0082		0.0000						0.0000		0.0000							0.0000	0.0000			
1211	Sigma1				0.0000		0.0082		0.0000						0.0000		0.0000							0.0000	0.0000			
1212	Sigma2				0.0000		0.0082		0.0000						0.0000		0.0000							0.0000	0.0000			
1213	Sigma3				0.0000		0.0082		0.0000						0.0000		0.0000							0.0000	0.0000			
1214	Sigma4				0.0000		0.0082		0.0000						0.0000		0.0000							0.0000	0.0000			
1215	Sigma5				0.0000		0.0082		0.0000						0.0000		0.0000							0.0000	0.0000			
1216	Sigma6				0.0000		0.0082		0.0000						0.0000		0.0000							0.0000	0.0000			
1217	Sigma7				0.0000		0.0082		0.0000						0.0000		0.0000							0.0000	0.0000			
1218	Sigma8				0.0000		0.0082		0.0000						0.0000		0.0000							0.0000	0.0000			
1219	Sigma9				0.0000		0.0082		0.0000						0.0000		0.0000							0.0000	0.0000			
1220	Sigma10				0.0000		0.0082		0.0000						0.0000		0.0000							0.0000	0.0000			
1221	1																											
1222	2																											
1223	4																											
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1229	10																											
1230	11																											

#	Glass ID	Sm2O3-a	SnO-a	SnO2-a	SO3-a	SrO-a	Tc2O7-a	TeO2-a	ThO2-a	TiO2-a	Tl2O-a	Tl2O3-a	U3O8-a	UO2-a	UO3-a	V2O5-a	WO3-a	Y2O3-a	ZnO-a	Sum-a	T_M (°C)	$T_{L,G}$ (°C)	$T_{L,U}$ (°C)	$T_{1\%}$ (°C)	Primary Phase	$C_{650°C}$	$C_{700°C}$	$C_{750°C}$
1149	WVDG-23	0.0001			0.0014	0.0001			0.0495	0.0050				0.0093				0.0001	0.0002	0.9997								
1150	WVDG-24	0.0001			0.0013	0.0001			0.0188	0.0047				0.0093				0.0001	0.0002	0.9997								
1151	WVDG-25	0.0001			0.0014	0.0001			0.0436	0.0051				0.0010				0.0001	0.0000	0.9996								
1152	WVDG-26	0.0001			0.0014	0.0001			0.0380	0.0053				0.0010				0.0001	0.0002	1.0001								
1153	WVDG-27	0.0004			0.0046	0.0004			0.0346	0.0168				0.0011				0.0004	0.0006	1.0000								
1154	WVDG-28	0.0004			0.0044	0.0004			0.0172	0.0161				0.0096				0.0004	0.0006	0.9999								
1155	WVDG-29	0.0001			0.0014	0.0001			0.0193	0.0051				0.0010				0.0001	0.0002	0.9996								
1156	WVDG-30	0.0002			0.0026	0.0002			0.0326	0.0094				0.0059				0.0002	0.0003	1.0000								
1157	WVDG-33	0.0002			0.0021	0.0002			0.0337	0.0078				0.0050				0.0002	0.0003	1.0002								
1158	WVDG-34	0.0005			0.0061	0.0005			0.0192	0.0223				0.0183				0.0005	0.0008	1.0000								
1159	WVDG-35	0.0001			0.0010	0.0001			0.0278	0.0038				0.0240				0.0001	0.0001	0.9946								
1160	WVDG-36	0.0005			0.0060	0.0005			0.0581	0.0219				0.0013				0.0005	0.0008	0.9999								
1161	WVDG-37	0.0005			0.0060	0.0005			0.0209	0.0216				0.0014				0.0005	0.0008	1.0000								
1162	WVDG-38	0.0005			0.0061	0.0005			0.0413	0.0225				0.0009				0.0005	0.0008	0.9963								
1163	WVDG-39	0.0001			0.0016	0.0001			0.0511	0.0060				0.0010				0.0001	0.0002	0.9998								
1164	WVDG-40	0.0001			0.0013	0.0001			0.0419	0.0049				0.0182				0.0001	0.0002	0.9998								
1165	WVDG-41	0.0001			0.0015	0.0001			0.0527	0.0056				0.0199				0.0001	0.0002	1.0001								
1166	WVDG-42	0.0005			0.0059	0.0005			0.0500	0.0216				0.0012				0.0005	0.0008	0.9850								
1167	WVDG-43	0.0001			0.0013	0.0001			0.0414	0.0048				0.0192				0.0001	0.0002	0.9999								
1168	WVDG-44	0.0001			0.0013	0.0001			0.0371	0.0047				0.0215				0.0001	0.0002	0.9997								
1169	WVDG-45	0.0001			0.0013	0.0001			0.0179	0.0048				0.0010				0.0001	0.0002	0.9981								
1170	WVDG-46	0.0001			0.0012	0.0001			0.0216	0.0042				0.0011				0.0001	0.0002	1.0001								
1171	WVDG-47	0.0001			0.0011	0.0001			0.0195	0.0042				0.0012				0.0001	0.0002	1.0002								
1172	WVDG-48	0.0006			0.0066	0.0006			0.0206	0.0239				0.0190				0.0006	0.0009	1.0000								
1173	WVDG-40	0.0001			0.0013	0.0001			0.0419	0.0049			0.0189					0.0001	0.0002	1.0001								
1174	WVDG-46	0.0001			0.0012	0.0001			0.0216	0.0043			0.0011					0.0001	0.0002	0.9965								
1175	FY92#5	0.0000			0.0023	0.0025			0.0267	0.0080			0.0062					0.0000	0.0026	0.9999								
1176	FY92#6	0.0000			0.0023	0.0025			0.0267	0.0080			0.0062					0.0000	0.0026	0.9999								
1177	FY92#7	0.0000			0.0023	0.0025			0.0267	0.0080			0.0062					0.0000	0.0026	0.9999								
1178	FY92#9	0.0000			0.0023	0.0025			0.0445	0.0080			0.0062					0.0000	0.0026	0.9999								
1179	FY92#10	0.0000			0.0023	0.0025			0.0445	0.0080			0.0062					0.0000	0.0026	0.9999								
1180	FY92Ref5	0.0003			0.0023	0.0025			0.0356	0.0080			0.0061					0.0002	0.0002	1.0004								
1181	Ratio2	0.0000			0.0023	0.0025			0.0130	0.0080			0.0062					0.0000	0.0026	0.9974								
1182	Ratio4	0.0000			0.0023	0.0025			0.0430	0.0080			0.0062					0.0000	0.0026	0.9999								
1183	Ratio5	0.0000			0.0023	0.0025			0.0280	0.0080			0.0062					0.0000	0.0026	0.9999								
1184	LoTh2	0.0000			0.0023	0.0025			0.0140	0.0080			0.0062					0.0000	0.0026	0.9999								
1185	LoTh4	0.0000			0.0023	0.0025			0.0180	0.0080			0.0062					0.0000	0.0026	0.9999								
1186	LoTh5	0.0000			0.0023	0.0025			0.0240	0.0080			0.0062					0.0000	0.0026	0.9999								
1187	HiFe2	0.0000			0.0023	0.0025			0.0304	0.0080			0.0062					0.0000	0.0026	0.9999								
1188	HiFe3	0.0000			0.0023	0.0025			0.0290	0.0080			0.0062					0.0000	0.0026	0.9999								
1189	HiFe4	0.0000			0.0023	0.0025			0.0320	0.0080			0.0062					0.0000	0.0026	0.9999								
1190	PNL190	0.0000			0.0023	0.0025			0.0450	0.0080			0.0062					0.0000	0.0026	0.9999								
1191	FY93#1				0.0023	0.0025			0.0178	0.0080			0.0062						0.0026	0.9999								
1192	FY93#2				0.0023	0.0025			0.0178	0.0080			0.0062						0.0026	0.9999								
1193	FY93#3				0.0023	0.0025			0.0178	0.0080			0.0062						0.0026	0.9999								
1194	FY93#4				0.0023	0.0025			0.0178	0.0080			0.0062						0.0026	0.9999								
1195	FY93#5				0.0023	0.0025			0.0178	0.0080			0.0062						0.0026	0.9999								
1196	FY93#6				0.0023	0.0025			0.0178	0.0080			0.0062						0.0026	0.9999								
1197	FY93#7				0.0023	0.0025			0.0534	0.0080			0.0062						0.0026	0.9999								
1198	FY93#8				0.0023	0.0025			0.0534	0.0080			0.0062						0.0026	0.9999								
1199	FY93#9				0.0023	0.0025			0.0534	0.0080			0.0062						0.0026	0.9999								
1200	FY93#10				0.0023	0.0025			0.0534	0.0080			0.0062						0.0026	0.9999								
1201	FY94#1	0.0000			0.0023	0.0025			0.0480	0.0080			0.0062					0.0000	0.0026	0.9999								
1202	FY94#2	0.0000			0.0023	0.0025			0.0273	0.0080			0.0062					0.0000	0.0026	0.9999								
1203	FY94#3	0.0000			0.0023	0.0025			0.0200	0.0080			0.0062					0.0000	0.0026	0.9999								
1204	FY94#4	0.0000			0.0023	0.0025			0.0090	0.0080			0.0062					0.0000	0.0026	0.9999								
1205	FY94#5	0.0000			0.0023	0.0025			0.0310	0.0080			0.0062					0.0000	0.0026	0.9999								
1206	FY94#6	0.0000			0.0023	0.0025			0.0516	0.0080			0.0062					0.0000	0.0026	0.9999								
1207	FY94#7	0.0000			0.0023	0.0025			0.0470	0.0080			0.0062					0.0000	0.0026	0.9999								
1208	FY94#8	0.0000			0.0023	0.0025			0.0110	0.0080			0.0062					0.0000	0.0026	0.9999								
1209	FY94#9	0.0000			0.0023	0.0025			0.0240	0.0080			0.0062					0.0000	0.0026	0.9999								
1210	FY94#10	0.0000			0.0023	0.0025			0.0360	0.0080			0.0062					0.0000	0.0026	0.9999								
1211	Sigma1	0.0000			0.0023	0.0025			0.0089	0.0080			0.0062					0.0000	0.0026	0.9999								
1212	Sigma2	0.0000			0.0023	0.0025			0.0516	0.0080			0.0062					0.0000	0.0026	0.9999								
1213	Sigma3	0.0000			0.0023	0.0025			0.0384	0.0080			0.0062					0.0000	0.0026	0.9999								
1214	Sigma4	0.0000			0.0023	0.0025			0.0100	0.0080			0.0062					0.0000	0.0026	0.9999								
1215	Sigma5	0.0000			0.0023	0.0025			0.0090	0.0080			0.0062					0.0000	0.0026	0.9999								
1216	Sigma6	0.0000			0.0023	0.0025			0.0220	0.0080			0.0062					0.0000	0.0026	0.9999								
1217	Sigma7	0.0000			0.0023	0.0025			0.0110	0.0080			0.0062					0.0000	0.0026	0.9999								
1218	Sigma8	0.0000			0.0023	0.0025			0.0100	0.0080			0.0062					0.0000	0.0026	0.9999								
1219	Sigma9	0.0000			0.0023	0.0025			0.0430	0.0080			0.0062					0.0000	0.0026	0.9999								
1220	Sigma10	0.0000			0.0023	0.0025			0.0500	0.0080			0.0062					0.0000	0.0026	0.9999								
1221	1																			1.0000								
1222	2																			0.9999								
1223	4																			1.0000								
1224	5																			0.9999								
1225	6																			0.9999								
1226	7																			0.9999								
1227	8																			1.0000								
1228	9																			1.0001								
1229	10																			1.0000								
1230	11																			1.0000								

#	Glass ID	$C_{800°C}$	$C_{850°C}$	$C_{900°C}$	$C_{950°C}$	$C_{1000°C}$	$C_{1050°C}$	$C_{1100°C}$	$C_{1150°C}$	$C_{1200°C}$	Quenched Visual/OM	Quenched XRD	CCC XRD	ρ (g/cm³)	Fulc Visc A	Fulc Visc B	Fulc Visc To	Arrh Visc E	Arrh Visc F	T1 (°C)	V1 (Pa·s)
1149	WVDG-23																				
1150	WVDG-24																				
1151	WVDG-25																				
1152	WVDG-26																				
1153	WVDG-27																				
1154	WVDG-28																				
1155	WVDG-29																				
1156	WVDG-30																				
1157	WVDG-33																				
1158	WVDG-34																				
1159	WVDG-35																				
1160	WVDG-36																				
1161	WVDG-37																				
1162	WVDG-38																				
1163	WVDG-39																				
1164	WVDG-40																				
1165	WVDG-41																				
1166	WVDG-42																				
1167	WVDG-43																				
1168	WVDG-44																				
1169	WVDG-45																				
1170	WVDG-46																				
1171	WVDG-47																				
1172	WVDG-48																				
1173	WVDG-40																				
1174	WVDG-46																				
1175	FY92#5																				
1176	FY92#6																				
1177	FY92#7																				
1178	FY92#9																				
1179	FY92#10																				
1180	FY92Ref5																				
1181	Ratio2																	-10.164	15260.5	1146.0	1.790
1182	Ratio4																	-10.583	17165.6	1144.0	4.550
1183	Ratio5																	-10.696	16675.3	1144.0	2.770
1184	LoTh2																	-10.372	16482.7	1144.0	3.440
1185	LoTh4																	-10.422	16805.5	1146.0	3.920
1186	LoTh5																	-10.691	17189.8	1141.0	4.190
1187	HiFe2																	-9.571	14750.1	1185.0	1.760
1188	HiFe3																	-10.350	15917.1	1145.0	2.310
1189	HiFe4																	-10.253	15473.3	1142.0	1.940
1190	PNL190																	-10.013	14801.8	1144.0	1.490
1191	FY93#1																				
1192	FY93#2																				
1193	FY93#3																				
1194	FY93#4																				
1195	FY93#5																				
1196	FY93#6																				
1197	FY93#7																				
1198	FY93#8																				
1199	FY93#9																				
1200	FY93#10																				
1201	FY94#1																				
1202	FY94#2																				
1203	FY94#3																				
1204	FY94#4																				
1205	FY94#5																				
1206	FY94#6																				
1207	FY94#7																				
1208	FY94#8																				
1209	FY94#9																				
1210	FY94#10																				
1211	Sigma1																				
1212	Sigma2																				
1213	Sigma3																				
1214	Sigma4																				
1215	Sigma5																				
1216	Sigma6																				
1217	Sigma7																				
1218	Sigma8																				
1219	Sigma9																				
1220	Sigma10																				
1221	1																				
1222	2																				
1223	4																				
1224	5																				
1225	6																				
1226	7																				
1227	8																				
1228	9																				
1229	10																				
1230	11																				

#	Glass ID	T2 (°C)	V2 (Pa·s)	T3 (°C)	V3 (Pa·s)	T4 (°C)	V4 (Pa·s)	T5 (°C)	V5 (Pa·s)	T6 (°C)	V6 (Pa·s)	T7 (°C)	V7 (Pa·s)	T8 (°C)	V8 (Pa·s)	T9 (°C)	V9 (Pa·s)	T10 (°C)	V10 (Pa·s)	TCLP Ag	TCLP As	TCLP Ba	TCLP Cd	TCLP Cr	TCLP Ni	TCLP Pb
1149	WVDG-23																									
1150	WVDG-24																									
1151	WVDG-25																									
1152	WVDG-26																									
1153	WVDG-27																									
1154	WVDG-28																									
1155	WVDG-29																									
1156	WVDG-30																									
1157	WVDG-33																									
1158	WVDG-34																									
1159	WVDG-35																									
1160	WVDG-36																									
1161	WVDG-37																									
1162	WVDG-38																									
1163	WVDG-39																									
1164	WVDG-40																									
1165	WVDG-41																									
1166	WVDG-42																									
1167	WVDG-43																									
1168	WVDG-44																									
1169	WVDG-45																									
1170	WVDG-46																									
1171	WVDG-47																									
1172	WVDG-48																									
1173	WVDG-40																									
1174	WVDG-46																									
1175	FY92#5																									
1176	FY92#6																									
1177	FY92#7																									
1178	FY92#9																									
1179	FY92#10																									
1180	FY92Ref5																									
1181	Ratio2	1052	3.740	1242	0.9	1149.0	1.7	946.0	10.8																	
1182	Ratio4	1051	10.500	1239	2.2	1146.0	4.5	943.0	35.1																	
1183	Ratio5	1100	4.210	1051	6.6	1146.0	2.8	1194.0	2.0	1243.0	1.4	1148.0	2.9	1003.0	11.0	952.0	18.7									
1184	LoTh2	1099	5.010	1050	7.7	1146.0	3.4	1195.0	2.4	1243.0	1.7	1148.0	3.5	1003.0	12.9	953.0	22.3									
1185	LoTh4	1051	8.960	1243	2.1	1148.0	4.1	946.0	30.6																	
1186	LoTh5	1049	9.460	1238	2.1	1146.0	4.2	945.0	32.1																	
1187	HiFe2	1241	1.210	1148	2.2	1051.0	4.6	944.0	13.2																	
1188	HiFe3	1052	5.140	1240	1.2	1148.0	2.4	944.0	15.7																	
1189	HiFe4	1099	2.730	1050	4.2	1145.0	1.9	1195.0	1.4	1243.0	1.0	1147.0	1.8	1002.0	6.6	951.0	11.2									
1190	PNL190	1052	3.090	1240	0.8	1148.0	1.5	944.0	8.8																	
1191	FY93#1																									
1192	FY93#2																									
1193	FY93#3																									
1194	FY93#4																									
1195	FY93#5																									
1196	FY93#6																									
1197	FY93#7																									
1198	FY93#8																									
1199	FY93#9																									
1200	FY93#10																									
1201	FY94#1																									
1202	FY94#2																									
1203	FY94#3																									
1204	FY94#4																									
1205	FY94#5																									
1206	FY94#6																									
1207	FY94#7																									
1208	FY94#8																									
1209	FY94#9																									
1210	FY94#10																									
1211	Sigma1																									
1212	Sigma2																									
1213	Sigma3																									
1214	Sigma4																									
1215	Sigma5																									
1216	Sigma6																									
1217	Sigma7																									
1218	Sigma8																									
1219	Sigma9																									
1220	Sigma10																									
1221	1																									
1222	2																									
1223	4																									
1224	5																									
1225	6																									
1226	7																									
1227	8																									
1228	9																									
1229	10																									
1230	11																									

#	Glass ID	TCLP Se	TCLP Zn	TCLP Al	TCLP B	TCLP Sb	TCLP Tl	TCLP V	Q PCT B (g/m²)	Q PCT Li (g/m²)	Q PCT Na (g/m²)	Q PCT Si (g/m²)	Q PCT pH	CCC PCT B (g/m²)	CCC PCT Li (g/m²)	CCC PCT Na (g/m²)	CCC PCT Si (g/m²)	CCC PCT pH	T1 (°C)
1149	WVDG-23								0.253	0.307	0.187	0.146	9.300						
1150	WVDG-24								0.213	0.286	0.173	0.124	9.450						
1151	WVDG-25								0.188	0.253	0.164	0.131	9.580						
1152	WVDG-26								0.185	0.257	0.156	0.105	9.480						
1153	WVDG-27								0.309	0.327	0.243	0.154	9.550						
1154	WVDG-28								0.201	0.289	0.169	0.139	9.510						
1155	WVDG-29								0.217	0.018	0.214	0.120	9.790						
1156	WVDG-30								0.209	0.007	0.196	0.126	9.630						
1157	WVDG-33								0.247	0.263	0.245	0.138	10.170						
1158	WVDG-34								0.417	0.388	0.363	0.168	10.140						
1159	WVDG-35								0.400	0.394	0.399	0.185	10.830						
1160	WVDG-36								0.244	0.251	0.164	0.134	9.680						
1161	WVDG-37								0.231	0.267	0.267	0.148	10.380						
1162	WVDG-38								0.197	0.240	0.197	0.133	10.230						
1163	WVDG-39								0.271	0.249	0.247	0.128	9.900						
1164	WVDG-40								0.305	0.305	0.289	0.154	10.320						
1165	WVDG-41								0.314	0.299	0.369	0.161	10.520						
1166	WVDG-42								0.380	0.355	0.364	0.173	10.440						
1167	WVDG-43								0.208	0.257	0.138	0.138	9.350						
1168	WVDG-44								0.357	0.358	0.331	0.152	10.290						
1169	WVDG-45								0.260	0.265	0.300	0.155	10.570						
1170	WVDG-46								0.372	0.317	0.299	0.145	10.010						
1171	WVDG-47								0.224	0.233	0.156	0.140	9.300						
1172	WVDG-48								0.179	0.206	0.129	0.123	9.320						
1173	WVDG-40								0.306	0.305	0.290								
1174	WVDG-46								0.373	0.318	0.300								
1175	FY92#5								0.694	0.584	0.529								
1176	FY92#6								0.278	0.357	0.267								
1177	FY92#7								0.211	0.264	0.208								
1178	FY92#9								0.262	0.295	0.196								
1179	FY92#10								0.822	0.711	0.569								
1180	FY92Ref5								0.196	0.275	0.256								
1181	Ratio2								1.546	1.129	0.909								
1182	Ratio4								0.261	0.290	0.255								
1183	Ratio5								0.244	0.305	0.297								
1184	LoTh2								0.393	0.283	0.229								
1185	LoTh4								0.644	0.577	0.487								
1186	LoTh5								0.242	0.433	0.385								
1187	HiFe2								0.588	0.555	0.498								
1188	HiFe3								0.418	0.423	0.382								
1189	HiFe4								0.741	0.652	0.572								
1190	PNL190								1.227	1.069	1.014								
1191	FY93#1								0.544	0.328	0.504								
1192	FY93#2								4.044	2.426	2.702								
1193	FY93#3								3.266	1.897	2.265								
1194	FY93#4								0.239	0.190	0.250								
1195	FY93#5								1.267	0.658	0.881								
1196	FY93#6								0.269	0.225	0.266								
1197	FY93#7								0.186	0.145	0.200								
1198	FY93#8								1.575	0.962	1.197								
1199	FY93#9								0.431	0.377	0.385								
1200	FY93#10								0.757	0.467	0.495								
1201	FY94#1								0.186	0.253	0.208								
1202	FY94#2								0.215	0.297	0.222								
1203	FY94#3								4.057	3.559	2.553								
1204	FY94#4								3.336	2.605	2.296								
1205	FY94#5								0.453	0.532	0.495								
1206	FY94#6								0.288	0.364	0.266								
1207	FY94#7								1.047	0.949	0.693								
1208	FY94#8								2.242	1.920	1.565								
1209	FY94#9								0.435	0.447	0.368								
1210	FY94#10								3.385	2.885	2.151								
1211	Sigma1								6.609	5.312	4.920								
1212	Sigma2								10.278	7.535	7.965								
1213	Sigma3								7.742	4.071	5.429								
1214	Sigma4								4.655	3.839	3.551								
1215	Sigma5								5.268	4.262	3.930								
1216	Sigma6								4.921	3.969	3.683								
1217	Sigma7								4.429	3.545	3.326								
1218	Sigma8								3.407	2.730	2.559								
1219	Sigma9								3.542	2.833	2.485								
1220	Sigma10								4.028	3.245	2.913								
1221	1								0.555		0.239	0.093	9.050						
1222	2								0.075		0.187	0.045	10.920						
1223	4								0.368		0.685	0.187	11.760						
1224	5								0.361		0.364	0.179	10.000						
1225	6								0.817		0.512	0.162	9.530						
1226	7								29.834		25.044	15.029	11.390						
1227	8								0.257		0.597	0.108	11.450						
1228	9								38.709		27.827	16.036	12.630						
1229	10								1.702		1.508	0.710	11.950						
1230	11								0.254		0.286	0.047	10.180						

#	Glass ID	EC1 (S/cm)	T2 (°C)	EC2 (S/cm)	T3 (°C)	EC3 (S/cm)	T4 (°C)	EC4 (S/cm)	T5 (°C)	EC5 (S/cm)	T6 (°C)	EC6 (S/cm)	A	B	To
1149	WVDG-23														
1150	WVDG-24														
1151	WVDG-25														
1152	WVDG-26														
1153	WVDG-27														
1154	WVDG-28														
1155	WVDG-29														
1156	WVDG-30														
1157	WVDG-33														
1158	WVDG-34														
1159	WVDG-35														
1160	WVDG-36														
1161	WVDG-37														
1162	WVDG-38														
1163	WVDG-39														
1164	WVDG-40														
1165	WVDG-41														
1166	WVDG-42														
1167	WVDG-43														
1168	WVDG-44														
1169	WVDG-45														
1170	WVDG-46														
1171	WVDG-47														
1172	WVDG-48														
1173	WVDG-40														
1174	WVDG-46														
1175	FY92#5														
1176	FY92#6														
1177	FY92#7														
1178	FY92#9														
1179	FY92#10														
1180	FY92Ref5														
1181	Ratio2														
1182	Ratio4														
1183	Ratio5														
1184	LoTh2														
1185	LoTh4														
1186	LoTh5														
1187	HiFe2														
1188	HiFe3														
1189	HiFe4														
1190	PNL190														
1191	FY93#1														
1192	FY93#2														
1193	FY93#3														
1194	FY93#4														
1195	FY93#5														
1196	FY93#6														
1197	FY93#7														
1198	FY93#8														
1199	FY93#9														
1200	FY93#10														
1201	FY94#1														
1202	FY94#2														
1203	FY94#3														
1204	FY94#4														
1205	FY94#5														
1206	FY94#6														
1207	FY94#7														
1208	FY94#8														
1209	FY94#9														
1210	FY94#10														
1211	Sigma1														
1212	Sigma2														
1213	Sigma3														
1214	Sigma4														
1215	Sigma5														
1216	Sigma6														
1217	Sigma7														
1218	Sigma8														
1219	Sigma9														
1220	Sigma10														
1221	1														
1222	2														
1223	4														
1224	5														
1225	6														
1226	7														
1227	8														
1228	9														
1229	10														
1230	11														

#	Glass ID	Study	Reference	Al2O3-t	B2O3-t	CaO-t	Fe2O3-t	FeO-t	K2O-t	Li2O-t	MgO-t	Na2O-t	NiO-t	P2O5-t	SiO2-t	ZrO2-t	Ag2O-t	As2O3-t	As2O5-t	BaO-t	BeO-t	Bi2O3-t	Br-t	CdO-t	Ce2O3-t	CeO2-t	Cl-t
1231	13	Canonical Correlation (Ramse	Oksoy et al. 1994	0.1541	0.1578	0.0000	0.0000					0.2341			0.4540												
1232	15	Canonical Correlation (Ramse	Oksoy et al. 1994	0.1573	0.0537	0.0865	0.0000					0.2390			0.4635												
1233	16	Canonical Correlation (Ramse	Oksoy et al. 1994	0.1356	0.0463	0.0000	0.2124					0.2061			0.3996												
1234	17	Canonical Correlation (Ramse	Oksoy et al. 1994	0.0000	0.1463	0.0786	0.2238					0.1303			0.4210												
1235	18	Canonical Correlation (Ramse	Oksoy et al. 1994	0.0000	0.1696	0.0911	0.0000					0.2516			0.4878												
1236	19	Canonical Correlation (Ramse	Oksoy et al. 1994	0.0000	0.1451	0.0000	0.2220					0.2154			0.4175												
1237	20	Canonical Correlation (Ramse	Oksoy et al. 1994	0.0000	0.0493	0.0794	0.2262					0.2195			0.4256												
1238	21	Canonical Correlation (Ramse	Oksoy et al. 1994	0.0611	0.0938	0.0336	0.0956					0.1763			0.5397												
1239	22	Canonical Correlation (Ramse	Oksoy et al. 1994	0.0877	0.1097	0.0482	0.1373					0.1865			0.4305												
1240	23	Canonical Correlation (Ramse	Oksoy et al. 1994	0.1471	0.0904	0.0324	0.0922					0.1699			0.4681												
1241	24	Canonical Correlation (Ramse	Oksoy et al. 1994	0.0000	0.1138	0.0500	0.1424					0.1935			0.5002												
1242	25	Canonical Correlation (Ramse	Oksoy et al. 1994	0.0605	0.1550	0.0333	0.0948					0.1748			0.4816												
1243	26	Canonical Correlation (Ramse	Oksoy et al. 1994	0.0884	0.0503	0.0486	0.1384					0.1881			0.4862												
1244	27	Canonical Correlation (Ramse	Oksoy et al. 1994	0.0613	0.0941	0.0843	0.0960					0.1769			0.4875												
1245	28	Canonical Correlation (Ramse	Oksoy et al. 1994	0.0874	0.1094	0.0000	0.1368					0.1859			0.4805												
1246	29	Canonical Correlation (Ramse	Oksoy et al. 1994	0.0560	0.0861	0.0308	0.2194					0.1618			0.4458												
1247	30	Canonical Correlation (Ramse	Oksoy et al. 1994	0.0959	0.1200	0.0527	0.0000					0.2040			0.5274												
1248	31	Canonical Correlation (Ramse	Oksoy et al. 1994	0.0609	0.0936	0.0335	0.0955					0.2316			0.4849												
1249	32	Canonical Correlation (Ramse	Oksoy et al. 1994	0.0878	0.1099	0.0483	0.1375					0.1334			0.4830												
1250	33	Canonical Correlation (Ramse	Oksoy et al. 1994	0.0747	0.1019	0.0411	0.1169					0.1815			0.4839												
1251	LAWA11	TWRS LAW Formulation	Muller and Pegg 1998	0.0627	0.0611	0.0695	0.0479		0.0548	0.0000	0.0000	0.2004	0.0014	0.0174	0.4093	0.0428				0.0001				0.0033			0.0085
1252	LAWA12	TWRS LAW Formulation	Muller and Pegg 1998	0.0627	0.0611	0.0389	0.0479		0.0548	0.0000	0.0305	0.2004	0.0014	0.0174	0.4093	0.0428				0.0001				0.0033			0.0085
1253	LAWA13	TWRS LAW Formulation	Muller and Pegg 1998	0.0932	0.0611	0.0695	0.0479		0.0548	0.0000	0.0000	0.2004	0.0014	0.0174	0.3788	0.0428				0.0001				0.0033			0.0085
1254	LAWA14	TWRS LAW Formulation	Muller and Pegg 1998	0.0627	0.0611	0.0695	0.0479		0.0548	0.0000	0.0000	0.2004	0.0014	0.0174	0.3788	0.0428				0.0001				0.0033			0.0085
1255	LAWA15	TWRS LAW Formulation	Muller and Pegg 1998	0.0627	0.0611	0.0695	0.0479		0.0548	0.0000	0.0000	0.2004	0.0014	0.0174	0.4093	0.0122				0.0001				0.0033			0.0085
1256	LAWA16	TWRS LAW Formulation	Muller and Pegg 1998	0.0627	0.0916	0.0389	0.0479		0.0548	0.0000	0.0000	0.2004	0.0014	0.0174	0.4093	0.0428				0.0001				0.0033			0.0085
1257	LAWA17	TWRS LAW Formulation	Muller and Pegg 1998	0.1482	0.0611	0.0206	0.0479		0.0548	0.0000	0.0000	0.2004	0.0014	0.0174	0.3543	0.0305				0.0001				0.0033			0.0085
1258	LAWA18	TWRS LAW Formulation	Muller and Pegg 1998	0.1237	0.0611	0.0206	0.0479		0.0548	0.0000	0.0000	0.2004	0.0014	0.0174	0.3543	0.0305				0.0001				0.0033			0.0085
1259	LAWA19	TWRS LAW Formulation	Muller and Pegg 1998	0.1237	0.0611	0.0206	0.0479		0.0548	0.0000	0.0000	0.2004	0.0014	0.0174	0.3543	0.0305				0.0001				0.0033			0.0085
1260	LAWA20	TWRS LAW Formulation	Muller and Pegg 1998	0.1482	0.0458	0.0206	0.0479		0.0548	0.0153	0.0000	0.2004	0.0014	0.0174	0.3543	0.0305				0.0001				0.0033			0.0085
1261	LAWA21	TWRS LAW Formulation	Muller and Pegg 1998	0.0917	0.0290	0.0970	0.0601		0.0548	0.0000	0.0000	0.2004	0.0014	0.0174	0.3873	0.0281				0.0001				0.0033			0.0085
1262	LAWA22	TWRS LAW Formulation	Muller and Pegg 1998	0.0986	0.0292	0.0438	0.0730		0.0310	0.0204	0.0204	0.2000	0.0000	0.0008	0.4146	0.0299												0.0036
1263	LAWA23	TWRS LAW Formulation	Muller and Pegg 1998	0.0986	0.0423	0.0438	0.0730		0.0310	0.0204	0.0204	0.2000	0.0000	0.0008	0.4015	0.0299												0.0036
1264	LAWA24	TWRS LAW Formulation	Muller and Pegg 1998	0.1237	0.0611	0.0328	0.0601		0.0548	0.0000	0.0000	0.2004	0.0014	0.0174	0.3543	0.0305				0.0001				0.0033			0.0085
1265	LAWA25	TWRS LAW Formulation	Muller and Pegg 1998	0.1048	0.0178	0.0165	0.0560		0.0402	0.0000	0.0100	0.2506	0.0017	0.0199	0.3897	0.0278				0.0001				0.0038			0.0097
1266	LAWA25H	TWRS LAW Formulation	Muller and Pegg 1998	0.1067	0.0181	0.0168	0.0570		0.0409	0.0000	0.0102	0.2551	0.0017	0.0101	0.3967	0.0283				0.0001				0.0039			0.0049
1267	LAWA26	TWRS LAW Formulation	Muller and Pegg 1998	0.1048	0.0000	0.0165	0.0393		0.0402	0.0111	0.0000	0.2506	0.0017	0.0199	0.4231	0.0278				0.0001				0.0038			0.0097
1268	LAWA26H	TWRS LAW Formulation	Muller and Pegg 1998	0.1067	0.0000	0.0168	0.0400		0.0409	0.0113	0.0000	0.2551	0.0017	0.0101	0.4307	0.0283				0.0001				0.0039			0.0049
1269	LAWB11	TWRS LAW Formulation	Muller and Pegg 1998	0.0642	0.0978	0.1032	0.0834		0.0205	0.0000	0.0326	0.0751	0.0005	0.0223	0.4237	0.0407				0.0000				0.0012			0.0076
1270	LAWB12	TWRS LAW Formulation	Muller and Pegg 1998	0.0642	0.0978	0.0543	0.0834		0.0205	0.0000	0.0815	0.0751	0.0005	0.0223	0.4237	0.0407				0.0000				0.0012			0.0076
1271	LAWB13	TWRS LAW Formulation	Muller and Pegg 1998	0.0642	0.0978	0.0543	0.0834		0.0205	0.0000	0.0815	0.0751	0.0005	0.0223	0.3830	0.0407				0.0000				0.0012			0.0076
1272	LAWB14	TWRS LAW Formulation	Muller and Pegg 1998	0.0642	0.0978	0.0951	0.0834		0.0205	0.0000	0.0815	0.0751	0.0005	0.0223	0.3830	0.0407				0.0000				0.0012			0.0076
1273	LAWB15	TWRS LAW Formulation	Muller and Pegg 1998	0.0642	0.1222	0.1032	0.0834		0.0205	0.0163	0.0326	0.0751	0.0005	0.0223	0.3830	0.0407				0.0000				0.0012			0.0076
1274	LAWB16	TWRS LAW Formulation	Muller and Pegg 1998	0.0642	0.0978	0.0054	0.0834		0.0205	0.0000	0.0326	0.0751	0.0005	0.0223	0.4237	0.0407				0.0000				0.0012			0.0076
1275	LAWB17	TWRS LAW Formulation	Muller and Pegg 1998	0.0642	0.0652	0.0543	0.0834		0.0205	0.0407	0.0326	0.0751	0.0005	0.0223	0.4237	0.0407				0.0000				0.0012			0.0076
1276	LAWB18	TWRS LAW Formulation	Muller and Pegg 1998	0.0642	0.0652	0.0543	0.0834		0.0205	0.0407	0.0326	0.0751	0.0005	0.0223	0.4237	0.0407				0.0000				0.0012			0.0076
1277	LAWB19	TWRS LAW Formulation	Muller and Pegg 1998	0.0988	0.0599	0.0364	0.0834		0.0205	0.0204	0.0204	0.1199	0.0005	0.0223	0.4189	0.0302				0.0000				0.0012			0.0076
1278	LAWB20	TWRS LAW Formulation	Muller and Pegg 1998	0.0887	0.0599	0.0364	0.0834		0.0205	0.0302	0.0204	0.1301	0.0005	0.0223	0.4091	0.0302				0.0000				0.0012			0.0076
1279	LAWB21	TWRS LAW Formulation	Muller and Pegg 1998	0.0887	0.0599	0.0364	0.0631		0.0205	0.0302	0.0204	0.1504	0.0005	0.0223	0.4091	0.0302				0.0000				0.0012			0.0076
1280	LAWB22	TWRS LAW Formulation	Muller and Pegg 1998	0.0887	0.0599	0.0364	0.0631		0.0205	0.0000	0.0204	0.1806	0.0005	0.0223	0.4091	0.0302				0.0000				0.0012			0.0076
1281	LAWB23	TWRS LAW Formulation	Muller and Pegg 1998	0.0901	0.0609	0.0370	0.0641		0.0209	0.0306	0.0207	0.1529	0.0006	0.0227	0.4157	0.0306				0.0000				0.0013			0.0019
1282	LAWB24	TWRS LAW Formulation	Muller and Pegg 1998	0.0896	0.0605	0.0368	0.0637		0.0208	0.0305	0.0206	0.1521	0.0005	0.0226	0.4135	0.0305				0.0000				0.0013			0.0038
1283	LAWB25	TWRS LAW Formulation	Muller and Pegg 1998	0.0891	0.0602	0.0366	0.0634		0.0206	0.0303	0.0205	0.1512	0.0005	0.0225	0.4113	0.0303				0.0000				0.0013			0.0057
1284	LAWB26	TWRS LAW Formulation	Muller and Pegg 1998	0.0797	0.0807	0.0454	0.0635		0.0205	0.0407	0.0228	0.0852	0.0005	0.0223	0.4319	0.0302				0.0000				0.0012			0.0076
1285	LAWB27	TWRS LAW Formulation	Muller and Pegg 1998	0.0797	0.0807	0.0454	0.0635		0.0205	0.0302	0.0228	0.1052	0.0005	0.0223	0.4225	0.0302				0.0000				0.0012			0.0076
1286	LAWB28	TWRS LAW Formulation	Muller and Pegg 1998	0.0797	0.0807	0.0454	0.0635		0.0205	0.0200	0.0228	0.1252	0.0005	0.0223	0.4127	0.0302				0.0000				0.0012			0.0076
1287	LAWB29	TWRS LAW Formulation	Muller and Pegg 1998	0.0803	0.0807	0.0703	0.0803		0.0036	0.0408	0.0300	0.1000	0.0000	0.0001	0.4393	0.0304												0.0029
1288	LAWC1	TWRS LAW Formulation	Muller and Pegg 1998	0.0993	0.0610	0.0206	0.0967		0.0548	0.0000	0.0000	0.2004	0.0014	0.0174	0.3540	0.0305				0.0001				0.0033			0.0085
1289	LAWC2	TWRS LAW Formulation	Muller and Pegg 1998	0.0993	0.0610	0.0206	0.0479		0.0548	0.0000	0.0000	0.2004	0.0014	0.0174	0.3540	0.0305				0.0001				0.0033			0.0085
1290	LAWC3	TWRS LAW Formulation	Muller and Pegg 1998	0.0993	0.0610	0.0206	0.0479		0.0548	0.0000	0.0000	0.2004	0.0014	0.0174	0.3540	0.0305				0.0001				0.0033			0.0085
1291	LAWC4	TWRS LAW Formulation	Muller and Pegg 1998	0.0961	0.0300	0.1031	0.0647		0.0505	0.0000	0.0000	0.1845	0.0013	0.0080	0.3999	0.0300				0.0001				0.0031			0.0078
1292	LAWC5	TWRS LAW Formulation	Muller and Pegg 1998	0.0916	0.0290	0.0682	0.0601		0.0548	0.0000	0.0000	0.2004	0.0014	0.0174	0.3869	0.0281				0.0001				0.0033			0.0085
1293	LAWPC1	TWRS LAW Formulation	Muller and Pegg 1998	0.0987	0.0396	0.0271	0.0632		0.0401	0.0000	0.0198	0.2000	0.0011	0.0128	0.4094	0.0297				0.0001				0.0024			0.0062
1294	LAWPC2	TWRS LAW Formulation	Muller and Pegg 1998	0.0987	0.0396	0.0271	0.0632		0.0401	0.0000	0.0198	0.2000	0.0011	0.0128	0.3797	0.0297				0.0001				0.0024			0.0062
1295	LAWPC3	TWRS LAW Formulation	Muller and Pegg 1998	0.0987	0.0396	0.0271	0.0632		0.0401	0.0000	0.0198	0.2000	0.0011	0.0128	0.3797	0.0297				0.0001				0.0024			0.0062
1296	LAWPC5	TWRS LAW Formulation	Muller and Pegg 1998	0.0987	0.0099	0.0271	0.0632		0.0401	0.0000	0.0198	0.2000	0.0011	0.0128	0.3995	0.0297				0.0001				0.0024			0.0062
1297	LAWPC6	TWRS LAW Formulation	Muller and Pegg 1998	0.0987	0.0198	0.0271	0.0632		0.0401	0.0198	0.0198	0.2000	0.0011	0.0128	0.4094	0.0297				0.0001				0.0024			0.0062
1298	LAWPC7	TWRS LAW Formulation	Muller and Pegg 1998	0.0988	0.0300	0.0479	0.0630		0.0012	0.0403	0.0300	0.2000	0.0004	0.0005	0.4192	0.0300								0.0000				0.0010
1299	LAWPC8	TWRS LAW Formulation	Muller and Pegg 1998	0.0988	0.0300	0.0479	0.0630		0.0012	0.0403	0.0300	0.2000	0.0004	0.0005	0.4192	0.0300								0.0000				0.0010
1300	LAWPC9	TWRS LAW Formulation	Muller and Pegg 1998	0.0984	0.0394	0.0467	0.0629		0.0401	0.0000	0.0197	0.2000	0.0011	0.0128	0.3873	0.0295				0.0001				0.0024			0.0062
1301	LAWPC10	TWRS LAW Formulation	Muller and Pegg 1998	0.0988	0.0300	0.0479	0.0630		0.0012	0.0403	0.0300	0.2000	0.0004	0.0005	0.4192	0.0300												0.0010
1302	Envelope A	TWRS LAW Formulation 2	Ferrara et al. 1998	0.0970	0.0430	0.0450	0.0740		0.0230	0.0210	0.0210	0.2000			0.4100	0.0310												
1303	Envelope B	TWRS LAW Formulation 2	Ferrara et al. 1998	0.0810	0.0810	0.0700	0.0800		0.0037	0.0410	0.0300	0.1000			0.4400	0.0300												
1304	Envelope C	TWRS LAW Formulation 2	Ferrara et al. 1998	0.0990	0.0300	0.0480	0.0640		0.0037	0.0400	0.0300	0.2000			0.4200	0.0300												
1305	ORNL ISV	ISV Glass	Carter et al. 1988																								
1306	Hanford ISV	ISV Glass	Carter et al. 1988																								
1307	Hanford ISV (CaO adjusted)	ISV Glass	Carter et al. 1988																								
1308	Hanford ISV (Na2O adjusted)	ISV Glass	Carter et al. 1988																								
1309	Envelope D	TWRS Envelop D HLW Glass	Crawford et al. 1998	0.1013	0.0699	0.0404	0.2295		0.0086	0.0300	0.0011	0.1574	0.0010	0.0072	0.3019		0.0008			0.0002								
1310	SRM-20	SRS M-Area Mixed Waste Gla	Fu et al. 1997	0.0900	0.1300	0.0060	0.0020		0.0200	0.0010	0.0014	0.2700	0.0020	0.0200	0.4600	0.0000				0.0003								
1311	SRM-21	SRS M-Area Mixed Waste Gla	Fu et al. 1997	0.0900	0.1700	0.0060	0.0020		0.0200	0.0010	0.0014	0.2300	0.0020	0.0200	0.4600	0.0000				0.0003								
1312	SRM-22	SRS M-Area Mixed Waste Gla	Fu et al. 1997	0.0900	0.2100	0.0060	0.0020		0.0200	0.0010	0.0014	0.1900	0.0020	0.0200	0.4600	0.0000				0.0003								

#	Glass ID	CoO-t	Co2O3-t	Cr2O3-t	Cs2O-t	CuO-t	Dy2O3-t	Eu2O3-t	F-t	Ga2O3-t	Gd2O3-t	HfO2-t	HgO-t	I-t	La2O3-t	MnO2-t	MnO-t	MoO-t	MoO2-t	MoO3-t	Nb2O5-t	Nd2O3-t	NpO2-t	PbO-t	PdO2-t	PdO-t	Pr2O3-t	Pr6O11-t	Rb2O-t	ReO-t
1231	13																												
1232	15																												
1233	16																												
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1246	29																												
1247	30																												
1248	31																												
1249	32																												
1250	33																												
1251	LAWA11		0.0000	0.0034	0.0000	0.0000			0.0112						0.0001								0.0010						
1252	LAWA12		0.0000	0.0034	0.0000	0.0000			0.0112						0.0001								0.0010						
1253	LAWA13		0.0000	0.0034	0.0000	0.0000			0.0112						0.0001								0.0010						
1254	LAWA14		0.0000	0.0034	0.0000	0.0000			0.0112						0.0001								0.0010						
1255	LAWA15		0.0000	0.0034	0.0000	0.0000			0.0112						0.0001								0.0010						
1256	LAWA16		0.0000	0.0034	0.0000	0.0000			0.0112						0.0001								0.0010						
1257	LAWA17		0.0000	0.0034	0.0000	0.0000			0.0112						0.0001								0.0010						
1258	LAWA18		0.0244	0.0034	0.0000	0.0000			0.0112						0.0001								0.0010						
1259	LAWA19		0.0000	0.0034	0.0000	0.0244			0.0112						0.0001								0.0010						
1260	LAWA20		0.0000	0.0034	0.0000	0.0000			0.0112						0.0001								0.0010						
1261	LAWA21		0.0000	0.0034	0.0000	0.0000			0.0112						0.0001								0.0010						
1262	LAWA22		0.0000	0.0001	0.0000	0.0000			0.0012						0.0000								0.0000						
1263	LAWA23		0.0000	0.0001	0.0000	0.0000			0.0012						0.0000								0.0000						
1264	LAWA24		0.0000	0.0034	0.0000	0.0000			0.0112						0.0001								0.0010						
1265	LAWA25		0.0000	0.0039	0.0000	0.0000			0.0127						0.0001								0.0011						
1266	LAWA25H		0.0000	0.0039	0.0000	0.0000			0.0130						0.0001								0.0011						
1267	LAWA26		0.0000	0.0039	0.0000	0.0000			0.0127						0.0001								0.0011						
1268	LAWA26H		0.0000	0.0039	0.0000	0.0000			0.0130						0.0001								0.0011						
1269	LAWB11		0.0000	0.0037	0.0000	0.0000			0.0092						0.0000								0.0004						
1270	LAWB12		0.0000	0.0037	0.0000	0.0000			0.0092						0.0000								0.0004						
1271	LAWB13		0.0000	0.0037	0.0000	0.0000			0.0092						0.0000								0.0004						
1272	LAWB14		0.0000	0.0037	0.0000	0.0000			0.0092						0.0000								0.0004						
1273	LAWB15		0.0000	0.0037	0.0000	0.0000			0.0092						0.0000								0.0004						
1274	LAWB16		0.0000	0.0037	0.0000	0.0000			0.0092						0.0000								0.0004						
1275	LAWB17		0.0000	0.0037	0.0000	0.0000			0.0092						0.0000								0.0004						
1276	LAWB18		0.0000	0.0037	0.0000	0.0000			0.0092						0.0000								0.0004						
1277	LAWB19		0.0000	0.0037	0.0000	0.0000			0.0092						0.0000								0.0004						
1278	LAWB20		0.0000	0.0037	0.0000	0.0000			0.0092						0.0000								0.0004						
1279	LAWB21		0.0000	0.0037	0.0000	0.0000			0.0092						0.0000								0.0004						
1280	LAWB22		0.0000	0.0037	0.0000	0.0000			0.0092						0.0000								0.0004						
1281	LAWB23		0.0000	0.0037	0.0000	0.0000			0.0094						0.0000								0.0004						
1282	LAWB24		0.0000	0.0037	0.0000	0.0000			0.0093						0.0000								0.0004						
1283	LAWB25		0.0000	0.0037	0.0000	0.0000			0.0093						0.0000								0.0004						
1284	LAWB26		0.0000	0.0037	0.0000	0.0000			0.0092						0.0000								0.0004						
1285	LAWB27		0.0000	0.0037	0.0000	0.0000			0.0092						0.0000								0.0004						
1286	LAWB28		0.0000	0.0037	0.0000	0.0000			0.0092						0.0000								0.0004						
1287	LAWB29		0.0000	0.0010	0.0000	0.0000			0.0000						0.0000								0.0000						
1288	LAWC1		0.0000	0.0034	0.0000	0.0000			0.0112						0.0001								0.0010						
1289	LAWC2		0.0000	0.0034	0.0000	0.0000			0.0112						0.0489								0.0010						
1290	LAWC3		0.0000	0.0034	0.0000	0.0000			0.0112						0.0001								0.0010						
1291	LAWC4		0.0000	0.0031	0.0000	0.0000			0.0103						0.0001								0.0009						
1292	LAWC5		0.0000	0.0034	0.0000	0.0000			0.0112						0.0001								0.0010						
1293	LAWPC1		0.0000	0.0025	0.0008	0.0000			0.0082						0.0000								0.0007						
1294	LAWPC2		0.0000	0.0025	0.0008	0.0297			0.0082						0.0000								0.0007						
1295	LAWPC3		0.0000	0.0025	0.0008	0.0000			0.0082						0.0000								0.0007						
1296	LAWPC5		0.0000	0.0025	0.0008	0.0198			0.0082						0.0000								0.0007						
1297	LAWPC6		0.0000	0.0025	0.0008	0.0000			0.0082						0.0000								0.0007						
1298	LAWPC7		0.0000	0.0001	0.0000	0.0000			0.0001						0.0000								0.0002						
1299	LAWPC8		0.0000	0.0001	0.0000	0.0000			0.0001						0.0000								0.0002						
1300	LAWPC9		0.0000	0.0025	0.0008	0.0000			0.0082						0.0000								0.0007						
1301	LAWPC10		0.0000	0.0001	0.0000	0.0000			0.0001						0.0000								0.0002						
1302	Envelope A			0.0001																									
1303	Envelope B			0.0010																									
1304	Envelope C			0.0001																									
1305	ORNL ISV																												
1306	Hanford ISV																												
1307	Hanford ISV (CaO adjusted)																												
1308	Hanford ISV (Na2O adjusted)																												
1309	Envelope D			0.0004												0.0041							0.0019			0.0000			
1310	SRM-20			0.0002												0.0006													
1311	SRM-21			0.0002												0.0006													
1312	SRM-22			0.0002												0.0006													

#	Glass ID	ReO2-t	Re2O7-t	Rh2O3-t	RhO2-t	RuO2-t	Ru2O3-t	Sb2O3-t	Sb2O5-t	SeO2-t	Sm2O3-t	SnO-t	SnO2-t	SO3-t	SrO-t	Tc2O7-t	TeO2-t	ThO2-t	TiO2-t	Tl2O-t	Tl2O3-t	U3O8-t	UO2-t	UO3-t	V2O5-t	WO3-t	Y2O3-t	ZnO-t	Sum-t	Al2O3-a
1231	13																											1.0000	0.1826
1232	15																											1.0000	0.1751
1233	16																											1.0000	0.1484
1234	17																											1.0000	0.1145
1235	18																											1.0000	0.0094
1236	19																											1.0000	0.0368
1237	20																											1.0000	0.0096
1238	21																											1.0000	0.1126
1239	22																											1.0000	0.1843
1240	23																											1.0000	0.2261
1241	24																											1.0000	0.0742
1242	25																											1.0000	0.1296
1243	26																											1.0000	0.1116
1244	27																											1.0000	0.1450
1245	28																											1.0000	0.1463
1246	29																											1.0000	0.1148
1247	30																											1.0000	0.1070
1248	31																											1.0000	0.1484
1249	32																											1.0000	0.1634
1250	33																											1.0000	0.1793
1251	LAWA11												0.0000	0.0050					0.0000								0.0000	0.9999	0.0562
1252	LAWA12												0.0000	0.0050					0.0000								0.0000	0.9998	0.0571
1253	LAWA13												0.0000	0.0050					0.0000								0.0000	0.9999	0.0852
1254	LAWA14												0.0000	0.0050					0.0000								0.0305	0.9999	0.0569
1255	LAWA15												0.0000	0.0050					0.0305								0.0000	0.9998	0.0591
1256	LAWA16												0.0000	0.0050													0.0000	0.9998	0.0554
1257	LAWA17												0.0000	0.0050													0.0305	0.9997	0.1410
1258	LAWA18												0.0000	0.0050													0.0305	0.9996	0.1167
1259	LAWA19												0.0000	0.0050													0.0305	0.9996	0.1151
1260	LAWA20												0.0000	0.0050													0.0305	0.9997	0.1412
1261	LAWA21												0.0000	0.0050													0.0000	0.9998	0.0899
1262	LAWA22												0.0000	0.0004													0.0328	0.9998	0.0957
1263	LAWA23												0.0000	0.0004													0.0328	0.9998	0.0978
1264	LAWA24												0.0000	0.0050													0.0305	0.9996	0.1124
1265	LAWA25												0.0000	0.0057													0.0278	0.9999	0.1024
1266	LAWA25H												0.0000	0.0029													0.0283	0.9998	0.0983
1267	LAWA26												0.0000	0.0057													0.0278	0.9999	0.1038
1268	LAWA26H												0.0000	0.0029													0.0283	0.9998	0.1093
1269	LAWB11												0.0000	0.0136													0.0000	0.9997	0.0584
1270	LAWB12												0.0000	0.0136													0.0000	0.9997	0.0600
1271	LAWB13												0.0000	0.0136													0.0407	0.9997	0.0598
1272	LAWB14												0.0000	0.0136													0.0000	0.9998	0.0578
1273	LAWB15												0.0000	0.0136													0.0000	0.9997	0.0565
1274	LAWB16												0.0000	0.0136													0.0978	0.9997	0.0619
1275	LAWB17												0.0000	0.0136	0.0000		0.0000	0.0000	0.0000			0.0000	0.0000				0.0000	0.0407	0.9996	0.0621
1276	LAWB18												0.0000	0.0136	0.0000		0.0000	0.0000	0.0000			0.0000	0.0000				0.0000	0.0000	0.9589	0.0610
1277	LAWB19												0.0000	0.0136	0.0000		0.0000	0.0000	0.0000			0.0000	0.0000				0.0000	0.0326	0.9999	0.0921
1278	LAWB20												0.0000	0.0136	0.0000		0.0000	0.0000	0.0000			0.0000	0.0000				0.0000	0.0326	1.0000	0.0819
1279	LAWB21												0.0000	0.0136	0.0000		0.0000	0.0000	0.0000			0.0000	0.0000				0.0000	0.0326	1.0000	0.0872
1280	LAWB22												0.0000	0.0136	0.0000		0.0000	0.0000	0.0000			0.0000	0.0000				0.0000	0.0326	1.0000	0.0856
1281	LAWB23												0.0000	0.0035	0.0000		0.0000	0.0000	0.0000			0.0000	0.0000				0.0000	0.0331	1.0001	
1282	LAWB24												0.0000	0.0069	0.0000		0.0000	0.0000	0.0000			0.0000	0.0000				0.0000	0.0329	1.0000	
1283	LAWB25												0.0000	0.0103	0.0000		0.0000	0.0000	0.0000			0.0000	0.0000				0.0000	0.0328	1.0000	
1284	LAWB26												0.0000	0.0136	0.0000		0.0000	0.0000	0.0000			0.0000	0.0000				0.0000	0.0407	0.9998	0.0771
1285	LAWB27												0.0000	0.0136	0.0000		0.0000	0.0000	0.0000			0.0000	0.0000				0.0000	0.0407	0.9999	0.0741
1286	LAWB28												0.0000	0.0136	0.0000		0.0000	0.0000	0.0000			0.0000	0.0000				0.0000	0.0407	0.9999	0.0687
1287	LAWB29												0.0000	0.0002	0.0000		0.0000	0.0000	0.0000			0.0000	0.0000				0.0000	0.0399	0.9998	0.0846
1288	LAWC1												0.0000	0.0050	0.0007													0.0305	0.9999	0.0941
1289	LAWC2												0.0000	0.0050	0.0007													0.0305	0.9999	0.0941
1290	LAWC3												0.0488	0.0050	0.0007													0.0305	0.9999	0.0952
1291	LAWC4												0.0000	0.0046	0.0006													0.0000	0.9987	0.0920
1292	LAWC5												0.0000	0.0050	0.0007													0.0287	0.9999	0.0862
1293	LAWPC1												0.0000	0.0037	0.0008		0.0000	0.0000	0.0000			0.0000	0.0000				0.0000	0.0330	0.9999	0.0938
1294	LAWPC2												0.0000	0.0037	0.0008		0.0000	0.0000	0.0000			0.0000	0.0000				0.0000	0.0330	0.9999	0.0948
1295	LAWPC3												0.0000	0.0037	0.0008		0.0000	0.0000	0.0000			0.0000	0.0000				0.0297	0.0330	0.9999	0.0941
1296	LAWPC5												0.0000	0.0037	0.0008		0.0000	0.0000	0.0000			0.0000	0.0000				0.0198	0.0330	0.9999	0.0951
1297	LAWPC6												0.0000	0.0037	0.0008		0.0000	0.0000	0.0000			0.0000	0.0000				0.0000	0.0330	0.9999	0.0909
1298	LAWPC7												0.0000	0.0038	0.0000		0.0000	0.0000	0.0000			0.0000	0.0000				0.0000	0.0332	0.9997	0.0806
1299	LAWPC8												0.0000	0.0038	0.0000		0.0000	0.0000	0.0000			0.0000	0.0000				0.0000	0.0332	0.9997	0.0872
1300	LAWPC9												0.0000	0.0076	0.0008		0.0000	0.0000	0.0000			0.0000	0.0000				0.0000	0.0328	1.0000	0.0935
1301	LAWPC10												0.0000	0.0038	0.0000		0.0000	0.0000	0.0000			0.0000	0.0000				0.0000	0.0332	0.9997	0.0910
1302	Envelope A																											0.0330	0.9981	0.0940
1303	Envelope B																											0.0400	0.9977	0.0770
1304	Envelope C																											0.0330	0.9978	0.0910
1305	ORNL ISV																												0.0000	0.1360
1306	Hanford ISV																												0.0000	0.1220
1307	Hanford ISV (CaO adjusted)																												0.0000	0.1020
1308	Hanford ISV (Na2O adjusted)																												0.0000	0.1030
1309	Envelope D														0.0416			0.0000	0.0019				0.0000				0.0001	0.9993	0.0980
1310	SRM-20														0.0001				0.0007			0.0010							1.0053	0.1000
1311	SRM-21														0.0001				0.0007			0.0010							1.0053	0.1000
1312	SRM-22														0.0001				0.0007			0.0010							1.0053	0.1000

#	Glass ID	B2O3-a	CaO-a	Fe2O3-a	FeO-a	K2O-a	Li2O-a	MgO-a	Na2O-a	NiO-a	P2O5-a	SiO2-a	ZrO2-a	Ag2O-a	As2O3-a	As2O5-a	BaO-a	BeO-a	Bi2O3-a	Br-a	CdO-a	Ce2O3-a	CeO2-a	Cl-a	CoO-a	Co2O3-a	Cr2O3-a	Cs2O-a	CuO-a	F-a
1231	13	0.1447	0.0000	0.0000	0.0000				0.2235			0.4492																		
1232	15	0.0483	0.0843	0.0000	0.0000				0.2289			0.4635																		
1233	16	0.0411	0.0000	0.1875	0.0218				0.1941			0.4072																		
1234	17	0.1297	0.0696	0.1582	0.0338				0.1154			0.3788																		
1235	18	0.1611	0.0931	0.0000	0.0000				0.2586			0.4778																		
1236	19	0.1273	0.0000	0.1996	0.0146				0.2347			0.3870																		
1237	20	0.0487	0.0786	0.2200	0.0136				0.2155			0.4140																		
1238	21	0.0880	0.0316	0.0877	0.0084				0.1699			0.5018																		
1239	22	0.0947	0.0416	0.1090	0.0166				0.1601			0.3937																		
1240	23	0.0762	0.0279	0.0666	0.0164				0.1580			0.4288																		
1241	24	0.1049	0.0457	0.1225	0.0173				0.1721			0.4634																		
1242	25	0.1372	0.0300	0.0823	0.0116				0.1547			0.4546																		
1243	26	0.0436	0.0458	0.1141	0.0254				0.1761			0.4835																		
1244	27	0.0809	0.0768	0.0778	0.0129				0.1570			0.4495																		
1245	28	0.0922	0.0000	0.1119	0.0215				0.1687			0.4594																		
1246	29	0.0735	0.0266	0.1725	0.0298				0.1400			0.4428																		
1247	30	0.1227	0.0552	0.0000	0.0000				0.1957			0.5193																		
1248	31	0.0784	0.0299	0.0803	0.0113				0.2070			0.4448																		
1249	32	0.0930	0.0430	0.1001	0.0288				0.1231			0.4486																		
1250	33	0.0871	0.0343	0.0847	0.0185				0.1580			0.4381																		
1251	LAWA11	0.0640	0.0746	0.0519		0.0520	0.0006	0.0006	0.1902	0.0023	0.0172	0.4305	0.0412				0.0002				0.0033			0.0050			0.0049			
1252	LAWA12	0.0665	0.0439	0.0525		0.0532	0.0004	0.0297	0.1898	0.0021	0.0175	0.4305	0.0389				0.0002				0.0035			0.0060			0.0045			
1253	LAWA13	0.0658	0.0747	0.0525		0.0530	0.0006	0.0016	0.1906	0.0022	0.0180	0.4008	0.0382				0.0002				0.0034			0.0070			0.0046			
1254	LAWA14	0.0630	0.0732	0.0536		0.0525	0.0006	0.0005	0.1918	0.0025	0.0177	0.4034	0.0378				0.0002				0.0033			0.0080			0.0052			
1255	LAWA15	0.0644	0.0731	0.0520		0.0524	0.0007	0.0014	0.1845	0.0016	0.0180	0.4294	0.0161				0.0002				0.0033			0.0050			0.0038			
1256	LAWA16	0.1035	0.0432	0.0496		0.0543	0.0004		0.1920	0.0017	0.0195	0.4345	0.0299				0.0001				0.0036			0.0050		0.0000	0.0033		0.0000	
1257	LAWA17	0.0675	0.0241	0.0524		0.0527	0.0004		0.1910	0.0022	0.0185	0.3764	0.0231				0.0003				0.0035			0.0050		0.0000	0.0044		0.0000	
1258	LAWA18	0.0667	0.0246	0.0473		0.0538	0.0004		0.1852	0.0016	0.0192	0.3827	0.0303				0.0002							0.0060		0.0257	0.0032		0.0001	
1259	LAWA19	0.0663	0.0252	0.0466		0.0556	0.0004		0.1915	0.0015	0.0197	0.3763	0.0269				0.0002							0.0060		0.0003	0.0058		0.0226	
1260	LAWA20	0.0490	0.0244	0.0561		0.0502	0.0187		0.1861	0.0025	0.0185	0.3847	0.0235				0.0001				0.0032			0.0060			0.0053			
1261	LAWA21	0.0338	0.1066	0.0578		0.0501			0.1928	0.0016	0.0195	0.4187	0.0183				0.0002				0.0033			0.0060						
1262	LAWA22	0.0311	0.0430	0.0712		0.0308	0.0219	0.0187	0.1832	0.0010	0.0018	0.4395	0.0257				0.0001				0.0000			0.0000			0.0021			
1263	LAWA23	0.0444	0.0440	0.0709		0.0303	0.0219	0.0194	0.1803	0.0001	0.0015	0.4299	0.0245				0.0001				0.0000			0.0000			0.0001			
1264	LAWA24	0.0776	0.0355	0.0584		0.0499	0.0009	0.0008	0.1809	0.0024	0.0209	0.3835	0.0282				0.0003				0.0036			0.0050			0.0037			
1265	LAWA25	0.0210	0.0209	0.0580		0.0376	0.0015	0.0111	0.2456	0.0021	0.0213	0.4176	0.0169				0.0002				0.0039			0.0040			0.0043			
1266	LAWA25H	0.0239	0.0208	0.0632		0.0380	0.0015	0.0120	0.2369	0.0027	0.0124	0.4255	0.0168				0.0003				0.0041						0.0058			
1267	LAWA26	0.0012	0.0201	0.0427		0.0382	0.0135	0.0003	0.2419	0.0018	0.0218	0.4460	0.0231				0.0002				0.0041			0.0040			0.0039			
1268	LAWA26H	0.0016	0.0203	0.0437		0.0410	0.0143		0.2540	0.0023	0.0111	0.4439	0.0161				0.0002				0.0040						0.0056			
1269	LAWB11	0.1038	0.1091	0.0877		0.0204	0.0008	0.0314	0.0727	0.0015	0.0227	0.4395	0.0338				0.0002				0.0013			0.0050			0.0032			
1270	LAWB12	0.1036	0.0578	0.0908		0.0199	0.0000	0.0005	0.0708	0.0015	0.0220	0.4504	0.0311				0.0001				0.0012			0.0040			0.0041			
1271	LAWB13	0.1076	0.0586	0.0907		0.0196	0.0005	0.0777	0.0710	0.0013	0.0225	0.4081	0.0289				0.0001				0.0012			0.0030			0.0032			
1272	LAWB14	0.1084	0.1037	0.0847		0.0228	0.0006	0.0790	0.0731	0.0006	0.0229	0.4113	0.0221				0.0001				0.0012			0.0030			0.0024			
1273	LAWB15	0.1365	0.1093	0.0839		0.0234	0.0178	0.0354	0.0701	0.0006	0.0242	0.4013	0.0264				0.0001				0.0013			0.0030			0.0024			
1274	LAWB16	0.1047	0.0067	0.0895		0.0218	0.0003	0.0308	0.0723	0.0023	0.0227	0.4551	0.0234				0.0003				0.0013			0.0040			0.0039			
1275	LAWB17	0.0783	0.0555	0.0809		0.0225	0.0406	0.0320	0.0700	0.0007	0.0233	0.4417	0.0351				0.0001							0.0050			0.0037			
1276	LAWB18	0.0805	0.0555	0.0810		0.0229	0.0403	0.0330	0.0683	0.0007	0.0239	0.4489	0.0294				0.0004				0.0012			0.0040			0.0033			
1277	LAWB19	0.0643	0.0389	0.0932		0.0211	0.0215	0.0203	0.1084	0.0020	0.0218	0.4377	0.0257				0.0001				0.0012			0.0030			0.0059			
1278	LAWB20	0.0651	0.0383	0.0914		0.0213	0.0323	0.0210	0.1154	0.0024	0.0231	0.4273	0.0268				0.0004				0.0012			0.0030			0.0071			
1279	LAWB21	0.0659	0.0418	0.0623		0.0215	0.0326	0.0203	0.1379	0.0007	0.0248	0.4310	0.0291				0.0003				0.0013			0.0030			0.0035			
1280	LAWB22	0.0659	0.0414	0.0671		0.0212	0.0012	0.0204	0.1644	0.0007	0.0243	0.4349	0.0273				0.0002				0.0013			0.0030			0.0037			
1281	LAWB23																													
1282	LAWB24																													
1283	LAWB25																													
1284	LAWB26	0.0879	0.0515	0.0696		0.0210	0.0412	0.0211	0.0766	0.0018	0.0217	0.4514	0.0249				0.0001				0.0013			0.0020			0.0056			
1285	LAWB27	0.0872	0.0520	0.0752		0.0228	0.0336	0.0223	0.1012	0.0020	0.0223	0.4174	0.0296				0.0001				0.0014			0.0000			0.0067			
1286	LAWB28	0.0918	0.0508	0.0688		0.0233	0.0220	0.0215	0.1175	0.0017	0.0210	0.4343	0.0225				0.0001				0.0014			0.0030			0.0052			
1287	LAWB29	0.0787	0.0726	0.0730		0.0050	0.0398	0.0287	0.0993	0.0000	0.0018	0.4511	0.0214				0.0001				0.0000			0.0000			0.0010			
1288	LAWC1	0.0660	0.0243	0.0997		0.0545			0.1912	0.0021	0.0187	0.3757	0.0251				0.0001				0.0036			0.0050			0.0049			
1289	LAWC2	0.0661	0.0237	0.0540		0.0557			0.1934	0.0021	0.0182	0.3769	0.0216				0.0001				0.0034			0.0060			0.0044			
1290	LAWC3	0.0675	0.0250	0.0539		0.0533			0.1906	0.0024	0.0185	0.3875	0.0184				0.0002				0.0034			0.0060			0.0043			
1291	LAWC4	0.0331	0.1121	0.0653		0.0469			0.1731	0.0018	0.0096	0.4290	0.0198				0.0002				0.0032			0.0060			0.0060			
1292	LAWC5	0.0316	0.0759	0.0670		0.0511	0.0006	0.0005	0.1882	0.0024	0.0177	0.4120	0.0201				0.0002				0.0036			0.0060			0.0052			
1293	LAWPC1	0.0442	0.0301	0.0717		0.0381	0.0006	0.0206	0.1854	0.0024	0.0138	0.4256	0.0249				0.0003				0.0026			0.0000			0.0049			
1294	LAWPC2	0.0439	0.0304	0.0697		0.0372	0.0004	0.0206	0.1861	0.0023	0.0143	0.3986	0.0215				0.0003				0.0026			0.0000			0.0052		0.0312	
1295	LAWPC3	0.0437	0.0295	0.0716		0.0386	0.0003	0.0203	0.1973	0.0021	0.0136	0.4128	0.0252				0.0002				0.0025			0.0020			0.0043		0.0001	
1296	LAWPC5	0.0106	0.0300	0.0749		0.0386	0.0004	0.0199	0.1935	0.0022	0.0141	0.4232	0.0255				0.0004				0.0024			0.0030			0.0051		0.0208	
1297	LAWPC6	0.0205	0.0289	0.0719		0.0374	0.0219	0.0196	0.1943	0.0024	0.0138	0.4276	0.0246				0.0002				0.0024			0.0090			0.0057		0.0001	
1298	LAWPC7	0.0250	0.0409	0.0567		0.0026	0.0340	0.0228	0.1439	0.0015	0.0013	0.5335	0.0228				0.0001				0.0000			0.0000			0.0024			
1299	LAWPC8	0.0285	0.0442	0.0640		0.0022	0.0374	0.0257	0.1601	0.0017	0.0019	0.4868	0.0249				0.0005				0.0005			0.0000			0.0027			
1300	LAWPC9	0.0446	0.0409	0.0667		0.0375	0.0005	0.0204	0.2007	0.0020	0.0130	0.4079	0.0235				0.0003				0.0028			0.0030			0.0040			
1301	LAWPC10	0.0340	0.0511	0.0704		0.0020	0.0447	0.0164	0.1911		0.0014	0.4337	0.0269				0.0000				0.0000			0.0000			0.0024			
1302	Envelope A	0.0420	0.0440	0.0810		0.0220	0.0210	0.0200	0.2000	0.0014	0.0007	0.4100	0.0310	0.0000	0.0000		0.0000		0.0000		0.0000		0.0000	0.0007			0.0022	0.0017	0.0006	0.0003
1303	Envelope B	0.0750	0.0650	0.0870		0.0038	0.0400	0.0280	0.1300	0.0016	0.0002	0.4300	0.0300	0.0000	0.0000		0.0000		0.0000		0.0000		0.0000	0.0058			0.0035	0.0016	0.0013	0.0000
1304	Envelope C	0.0300	0.0460	0.0690		0.0017	0.0390	0.0280	0.2200	0.0017	0.0006	0.4100	0.0330	0.0000	0.0000		0.0001		0.0000		0.0001		0.0000	0.0027			0.0020		0.0008	0.0008
1305	ORNL ISV	0.0016	0.1390	0.0378		0.0320	0.0008	0.1010	0.0105	0.0004		0.4850	0.0003				0.0010											0.0196		
1306	Hanford ISV	0.0009	0.0454	0.0657		0.0190		0.0221	0.0313	0.0005		0.6160	0.0004				0.0012											0.0218		
1307	Hanford ISV (CaO adjusted)	0.0008	0.1810	0.0550		0.0150	0.0005	0.0192	0.0301	0.0025		0.5110	0.0002				0.0011										0.0008	0.0195		
1308	Hanford ISV (Na2O adjusted)		0.0393	0.0559		0.0090	0.0003	0.0183	0.1780	0.0004		0.5220	0.0003				0.0011											0.0215		
1309	Envelope D	0.0590	0.0550	0.2165		0.0845	0.0245	0.0022	0.1355	0.0025	0.0054	0.2570		0.0022			0.0004										0.0037			
1310	SRM-20	0.1300	0.0050	0.0030		0.0200	0.0020		0.2400	0.0020	0.0200	0.4800	0.0000																	
1311	SRM-21	0.1600	0.0050	0.0030		0.0200	0.0010		0.2000	0.0020	0.0200	0.4900	0.0000																	
1312	SRM-22	0.2000	0.0050	0.0030		0.0200	0.0010		0.1900	0.0020	0.0200	0.4700	0.0000																	

#	Glass ID	Ga2O3-a	Gd2O3-a	I-a	La2O3-a	MnO2-a	MnO-a	MoO-a	MoO3-a	Nb2O5-a	Nd2O3-a	NpO2-a	PbO-a	PdO2-a	PdO-a	Pr2O3-a	Pr6O11-a	PuO2-a	Rb2O-a	ReO-a	ReO2-a	Re2O7-a	Rh2O3-a	RhO2-a	RuO2-a	Sb2O3-a	Sb2O5-a	SeO2-a
1231	13																											
1232	15																											
1233	16																											
1234	17																											
1235	18																											
1236	19																											
1237	20																											
1238	21																											
1239	22																											
1240	23																											
1241	24																											
1242	25																											
1243	26																											
1244	27																											
1245	28																											
1246	29																											
1247	30																											
1248	31																											
1249	32																											
1250	33																											
1251	LAWA11												0.0015															
1252	LAWA12												0.0013															
1253	LAWA13												0.0013															
1254	LAWA14												0.0012															
1255	LAWA15												0.0017															
1256	LAWA16												0.0014															
1257	LAWA17				0.0001								0.0012															
1258	LAWA18												0.0014															
1259	LAWA19												0.0013															
1260	LAWA20												0.0011															
1261	LAWA21												0.0014															
1262	LAWA22												0.0003															
1263	LAWA23												0.0002															
1264	LAWA24				0.0001								0.0014															
1265	LAWA25				0.0003								0.0014															
1266	LAWA25H				0.0003								0.0014															
1267	LAWA26												0.0013															
1268	LAWA26H				0.0001								0.0013															
1269	LAWB11												0.0008															
1270	LAWB12												0.0007															
1271	LAWB13												0.0007															
1272	LAWB14												0.0007															
1273	LAWB15												0.0008															
1274	LAWB16												0.0006															
1275	LAWB17												0.0007															
1276	LAWB18												0.0007															
1277	LAWB19												0.0006															
1278	LAWB20												0.0006															
1279	LAWB21												0.0006															
1280	LAWB22												0.0006															
1281	LAWB23																											
1282	LAWB24																											
1283	LAWB25																											
1284	LAWB26												0.0007															
1285	LAWB27												0.0007															
1286	LAWB28												0.0006															
1287	LAWB29												0.0000															
1288	LAWC1				0.0002								0.0014															
1289	LAWC2				0.0497								0.0011															
1290	LAWC3												0.0012															
1291	LAWC4												0.0012															
1292	LAWC5												0.0012															
1293	LAWPC1												0.0008															
1294	LAWPC2												0.0010															
1295	LAWPC3												0.0011															
1296	LAWPC5												0.0010															
1297	LAWPC6												0.0011															
1298	LAWPC7												0.0003															
1299	LAWPC8												0.0004															
1300	LAWPC9												0.0011															
1301	LAWPC10																											
1302	Envelope A				0.0000	0.0002			0.0002		0.0000		0.0001													0.0000		0.0000
1303	Envelope B				0.0000	0.0003			0.0001		0.0000		0.0001													0.0000		0.0000
1304	Envelope C				0.0000	0.0003			0.0001		0.0000		0.0003													0.0000		0.0000
1305	ORNL ISV					0.0013																						
1306	Hanford ISV					0.0014																						
1307	Hanford ISV (CaO adjusted)					0.0012																						
1308	Hanford ISV (Na2O adjusted)					0.0012																						
1309	Envelope D				0.0003	0.0051					0.0005		0.0037			0.0002												
1310	SRM-20																											
1311	SRM-21																											
1312	SRM-22																											

#	Glass ID	Sm2O3-a	SnO-a	SnO2-a	SO3-a	SrO-a	Tc2O7-a	TeO2-a	ThO2-a	TiO2-a	Tl2O-a	Tl2O3-a	U3O8-a	UO2-a	UO3-a	V2O5-a	WO3-a	Y2O3-a	ZnO-a	Sum-a	T_M (°C)	$T_{L,G}$ (°C)	$T_{L,U}$ (°C)	$T_{1\%}$ (°C)	Primary Phase	$C_{650°C}$	$C_{700°C}$	$C_{750°C}$
1231	13																			1.0000								
1232	15																			1.0001								
1233	16																			1.0001								
1234	17																			1.0000								
1235	18																			1.0000								
1236	19																			1.0000								
1237	20																			1.0000								
1238	21																			1.0000								
1239	22																			1.0000								
1240	23																			1.0000								
1241	24																			1.0001								
1242	25																			1.0000								
1243	26																			1.0001								
1244	27																			0.9999								
1245	28																			1.0000								
1246	29																			1.0000								
1247	30																			0.9999								
1248	31																			1.0001								
1249	32																			1.0000								
1250	33																			1.0000								
1251	LAWA11				0.0075					0.0003									0.0001	1.0041			<950					
1252	LAWA12				0.0080					0.0002									0.0001	1.0059			<950					
1253	LAWA13				0.0064					0.0002									0.0001	1.0064			<950					
1254	LAWA14				0.0055					0.0002									0.0301	1.0072			<950					
1255	LAWA15				0.0077					0.0297									0.0003	1.0044			<950					
1256	LAWA16				0.0063														0.0001	1.0038			<950					
1257	LAWA17				0.0074														0.0327	1.0039			950-1050					
1258	LAWA18				0.0080														0.0328	1.0059			<950					
1259	LAWA19				0.0133														0.0311	1.0057			<950					
1260	LAWA20				0.0050														0.0289	1.0045			~1050					
1261	LAWA21				0.0031															1.0031			~950					
1262	LAWA22				0.0015														0.0316	0.9992			<950					
1263	LAWA23				0.0022														0.0317	0.9993			<950					
1264	LAWA24				0.0058														0.0335	1.0048			<950					
1265	LAWA25				0.0064														0.0266	1.0031								
1266	LAWA25H				0.0048														0.0301	0.9988			<950					
1267	LAWA26				0.0056														0.0294	1.0029								
1268	LAWA26H				0.0019														0.0274	0.9981			<950					
1269	LAWB11				0.0113														0.0003	1.0039			950-1050					
1270	LAWB12				0.0093														0.0001	0.9279			950-1050					
1271	LAWB13				0.0067														0.0408	1.0020			~1050					
1272	LAWB14				0.0076														0.0000	1.0020			950-1050					
1273	LAWB15				0.0091														0.0000	1.0021			~950					
1274	LAWB16				0.0054														0.0967	1.0037			>1050					
1275	LAWB17				0.0123														0.0407	1.0052			950-1050					
1276	LAWB18				0.0112														0.0007	0.9669			<950					
1277	LAWB19				0.0120														0.0322	1.0020			~1050					
1278	LAWB20				0.0109														0.0328	1.0023			~950					
1279	LAWB21				0.0064														0.0322	1.0024			<950					
1280	LAWB22				0.0047														0.0348	1.0027			~950					
1281	LAWB23																			0.0000								
1282	LAWB24																			0.0000								
1283	LAWB25																			0.0000								
1284	LAWB26				0.0058														0.0404	1.0017			~950					
1285	LAWB27				0.0079														0.0424	0.9989			<950					
1286	LAWB28				0.0121														0.0359	1.0022			<950					
1287	LAWB29				0.0019														0.0400	0.9990			<950					
1288	LAWC1				0.0053	0.0009													0.0315	1.0043			~950					
1289	LAWC2				0.0034	0.0008													0.0309	1.0056			~950					
1290	LAWC3			0.0448	0.0039	0.0008													0.0276	1.0045			>1050					
1291	LAWC4				0.0037	0.0009													0.0003	1.0042			~1050					
1292	LAWC5				0.0059	0.0009													0.0292	1.0055			<950					
1293	LAWPC1				0.0057	0.0012													0.0329	0.9996			<950					
1294	LAWPC2				0.0046	0.0024													0.0319	0.9990			<950					
1295	LAWPC3				0.0061	0.0011													0.0328	0.9993			~950					
1296	LAWPC5				0.0051	0.0011													0.0331	1.0000			~950					
1297	LAWPC6				0.0034	0.0012													0.0311	1.0080			<950					
1298	LAWPC7				0.0045	0.0001													0.0251	0.9981			<950					
1299	LAWPC8					0.0004													0.0291	0.9982			<950					
1300	LAWPC9				0.0071	0.0012													0.0325	1.0032			<950					
1301	LAWPC10																		0.0317	0.9968			<950					
1302	Envelope A				0.0009			0.0000		0.0003				0.0000		0.0008			0.0320	1.0072								
1303	Envelope B				0.0002			0.0000		0.0000				0.0000		0.0000			0.0370	1.0175								
1304	Envelope C				0.0043			0.0000		0.0002				0.0000		0.0003			0.0300	1.0119								
1305	ORNL ISV					0.0416				0.0062										1.0141								
1306	Hanford ISV					0.0372				0.0113						0.0003				0.9965								
1307	Hanford ISV (CaO adjusted)					0.0364				0.0094						0.0002				0.9859								
1308	Hanford ISV (Na2O adjusted)					0.0373				0.0096						0.0002				0.9974								
1309	Envelope D					0.0375			0.0008	0.0019				0.0030					0.0010	1.0001								
1310	SRM-20														0.0010					1.0030	1150							
1311	SRM-21														0.0010					1.0020	1150							
1312	SRM-22														0.0010					1.0120	1150							

#	Glass ID	$C_{800°C}$	$C_{850°C}$	$C_{900°C}$	$C_{950°C}$	$C_{1000°C}$	$C_{1050°C}$	$C_{1100°C}$	$C_{1150°C}$	$C_{1200°C}$	Quenched Visual/OM	Quenched XRD	CCC XRD	ρ (g/cm³)	Fulc Visc A	Fulc Visc B	Fulc Visc To	Arrh Visc E	Arrh Visc F	T1 (°C)	V1 (Pa·s)
1231	13																				
1232	15																				
1233	16																				
1234	17																				
1235	18																				
1236	19																				
1237	20																				
1238	21																				
1239	22																				
1240	23																				
1241	24																				
1242	25																				
1243	26																				
1244	27																				
1245	28																				
1246	29																				
1247	30																				
1248	31																				
1249	32																				
1250	33																				
1251	LAWA11																	-12.911	20199.5	(950)	(155)
1252	LAWA12																	-8.398	13960.3	(950)	(48.8)
1253	LAWA13																	-10.801	17263.1	950.0	27.400
1254	LAWA14																	-12.352	18720.3	(950)	(27.4)
1255	LAWA15																	-10.930	16861.4	(950)	(20.8)
1256	LAWA16																	-9.452	14920.7	950.0	15.600
1257	LAWA17																	-11.366	19308.7	950.0	83.100
1258	LAWA18																	-8.669	15183.9	(950)	(303.5)
1259	LAWA19																	-7.450	13292.0	(950)	(170.2)
1260	LAWA20																	-11.144	18791.2	950.0	68.100
1261	LAWA21																	-12.734	20532.5	950.0	59.700
1262	LAWA22																	-12.307	20413.2	950.0	82.900
1263	LAWA23													2.684				-11.293	18488.6	950.0	50.200
1264	LAWA24													2.654				-11.939	19788.1	950.0	70.700
1265	LAWA25																				
1266	LAWA25H																	-12.372	20653.8	950.0	94.700
1267	LAWA26																				
1268	LAWA26H																	-12.171	20540.2	950.0	103.700
1269	LAWB11																	-13.850	23282.5	950.0	178.800
1270	LAWB12																	-9.085	16094.4	(950)	(160.8)
1271	LAWB13																	-9.991	16728.9		
1272	LAWB14																	-10.744	17686.3		
1273	LAWB15																	-12.252	19622.7		
1274	LAWB16																	-10.845	19712.5		
1275	LAWB17																	-11.695	18746.8		
1276	LAWB18																	-9.152	15150.9		
1277	LAWB19																	-12.175	20758.3		
1278	LAWB20																	-12.495	20536.6	950.0	77.200
1279	LAWB21																	-11.631	18738.0	950.0	43.200
1280	LAWB22																	-13.388	22412.5	950.0	145.400
1281	LAWB23																				
1282	LAWB24																				
1283	LAWB25																				
1284	LAWB26																	-12.454	20166.6	950.0	59.700
1285	LAWB27																	-12.087	19941.8	950.0	70.000
1286	LAWB28																	-12.646	20417.1	950.0	61.900
1287	LAWB29													2.727				-12.840	20391.3	950.0	48.800
1288	LAWC1																	-8.475	13991.7	(950)	(82.4)
1289	LAWC2																	-9.568	15446.0	(950)	(52.8)
1290	LAWC3																	-13.427	21571.2	(950)	(118.4)
1291	LAWC4																	-13.433	22026.8	(950)	(129.1)
1292	LAWC5																	-9.634	16148.3		
1293	LAWPC1																	-9.611	16914.4	(950)	(175.7)
1294	LAWPC2																	-12.779	20841.1	950.0	75.600
1295	LAWPC3																	-13.165	21464.9	950.0	82.600
1296	LAWPC5																	-13.199	22343.5		
1297	LAWPC6																	-12.177	19812.5	950.0	58.500
1298	LAWPC7																	-10.785	19409.1	950.0	160.900
1299	LAWPC8																	-11.965	20052.2	950.0	88.600
1300	LAWPC9																	-12.895	21297.9	950.0	102.500
1301	LAWPC10													2.707				-10.554	16685.3	950.0	23.700
1302	Envelope A																				
1303	Envelope B																				
1304	Envelope C																				
1305	ORNL ISV																				
1306	Hanford ISV																				
1307	Hanford ISV (CaO adjusted)																				
1308	Hanford ISV (Na2O adjusted)																				
1309	Envelope D											NiFe2O4									
1310	SRM-20																				
1311	SRM-21																				
1312	SRM-22																				

#	Glass ID	T2 (°C)	V2 (Pa·s)	T3 (°C)	V3 (Pa·s)	T4 (°C)	V4 (Pa·s)	T5 (°C)	V5 (Pa·s)	T6 (°C)	V6 (Pa·s)	T7 (°C)	V7 (Pa·s)	T8 (°C)	V8 (Pa·s)	T9 (°C)	V9 (Pa·s)	T10 (°C)	V10 (Pa·s)	TCLP Ag	TCLP As	TCLP Ba	TCLP Cd	TCLP Cr	TCLP Ni	TCLP Pb
1231	13																									
1232	15																									
1233	16																									
1234	17																									
1235	18																									
1236	19																									
1237	20																									
1238	21																									
1239	22																									
1240	23																									
1241	24																									
1242	25																									
1243	26																									
1244	27																									
1245	28																									
1246	29																									
1247	30																									
1248	31																									
1249	32																									
1250	33																									
1251	LAWA11	(1000)	(37.4)	(1050)	(13.5)	1100.0	6.3	1150.0	3.5	1200.0	2.1	1250.0	1.5													
1252	LAWA12	(1000)	(19.6)	(1050)	(10.1)	1100.0	6.0	1150.0	4.0	1200.0	2.9	1250.0	2.2													
1253	LAWA13	1000	15.800	1050	9.5	1100.0	5.9	1150.0	3.8	1200.0	2.5	1250.0	1.7													
1254	LAWA14	1000	11.200	1050	5.7	1100.0	3.4	1150.0	2.2	1200.0	1.6	1250.0	0.9													
1255	LAWA15	1000	10.700	1050	6.0	1100.0	3.7	1150.0	2.4	1200.0	1.7	1250.0	1.2													
1256	LAWA16	1000	9.700	1050	6.2	1100.0	4.1	1150.0	2.8	1200.0	2.0	1250.0	1.4													
1257	LAWA17	1000	44.700	1050	25.3	1100.0	14.9	1150.0	9.1	1200.0	5.7	1250.0	3.7													
1258	LAWA18	(1000)	(58.5)	(1050)	(21.8)	1100.0	11.3	1150.0	7.1	1200.0	5.0	1250.0	3.8													
1259	LAWA19	(1000)	(40.4)	(1050)	(17)	1100.0	9.6	1150.0	6.4	1200.0	4.7	1250.0	3.7													
1260	LAWA20	1000	37.200	1050	21.3	1100.0	12.7	1150.0	7.9	1200.0	5.0	1250.0	3.3													
1261	LAWA21	1000	29.700	1050	15.8	1100.0	9.0	1150.0	5.4	1200.0	3.3	1250.0	2.2													
1262	LAWA22	1000	41.400	1050	22.2	1100.0	12.6	1150.0	7.6	1200.0	4.7	1250.0	3.1													
1263	LAWA23	1000	24.800	1050	13.7	1100.0	8.2	1150.0	5.3	1200.0	3.6	1250.0	2.5								<0.98	0.003	<0.0055	<0.0079	0.078	
1264	LAWA24	1000	36.700	1050	20.2	1100.0	11.7	1150.0	7.1	1200.0	4.5	1250.0	2.9								<0.92	0.275	0.15	0.097	0.078	
1265	LAWA25																									
1266	LAWA25H	1000	46.800	1050	24.9	1100.0	14.1	1150.0	8.4	1200.0	5.2	1250.0	3.4													
1267	LAWA26																									
1268	LAWA26H	1000	52.600	1050	28.3	1100.0	16.1	1150.0	9.5	1200.0	5.9	1250.0	3.8													
1269	LAWB11	1000	84.800	1050	42.5	1100.0	22.4	1150.0	12.3	1200.0	7.1	1250.0	4.2													
1270	LAWB12	(1000)	(55.7)	(1050)	(25.7)	1100.0	14.3	1150.0	9.0	1200.0	6.2	1250.0	4.5													
1271	LAWB13	(1000)	(56)	(1050)	(19)	1100.0	9.3	1150.0	5.6	1200.0	3.8	1250.0	2.8													
1272	LAWB14	(1000)	(64.4)	(1050)	(19.4)	1100.0	8.9	1150.0	5.1	1200.0	3.4	1250.0	2.5													
1273	LAWB15	1000	23.700	1050	13.2	1100.0	7.7	1150.0	4.6	1200.0	2.9	1250.0	1.9													
1274	LAWB16	(1000)	(179.3)	(1050)	(70.5)	1100.0	34.5	1150.0	19.6	1200.0	12.3	1250.0	8.4													
1275	LAWB17	1000	21.300	1050	11.8	1100.0	6.9	1150.0	4.3	1200.0	2.8	1250.0	1.9													
1276	LAWB18	(1000)	(29.2)	(1050)	(12.5)	1100.0	6.8	1150.0	4.3	1200.0	3.0	1250.0	2.3													
1277	LAWB19	(1000)	(164.2)	(1050)	(47)	1100.0	19.9	1150.0	10.6	1200.0	6.5	1250.0	4.5													
1278	LAWB20	1000	37.700	1050	19.9	1100.0	11.3	1150.0	6.8	1200.0	4.3	1250.0	2.8													
1279	LAWB21	1000	21.700	1050	11.9	1100.0	7.1	1150.0	4.5	1200.0	3.0	1250.0	2.1													
1280	LAWB22	1000	67.400	1050	33.9	1100.0	18.3	1150.0	10.4	1200.0	6.3	1250.0	3.9													
1281	LAWB23																									
1282	LAWB24																									
1283	LAWB25																									
1284	LAWB26	1000	29.300	1050	15.7	1100.0	9.0	1150.0	5.4	1200.0	3.5	1250.0	2.3													
1285	LAWB27	1000	35.600	1050	19.4	1100.0	11.2	1150.0	6.8	1200.0	4.3	1250.0	2.8													
1286	LAWB28	1000	29.400	1050	15.4	1100.0	8.7	1150.0	5.3	1200.0	3.4	1250.0	2.3													
1287	LAWB29	1000	23.800	1050	12.6	1100.0	7.2	1150.0	4.3	1200.0	2.8	1250.0	1.8								<1.0	0.004	0.009	0.02	0.026	
1288	LAWC1	(1000)	(22.8)	(1050)	(10)	1100.0	5.7	1150.0	3.8	1200.0	2.7	1250.0	2.1													
1289	LAWC2	(1000)	(19.7)	(1050)	(9.5)	1100.0	5.5	1150.0	3.5	1200.0	2.5	1250.0	1.8													
1290	LAWC3	(1000)	(42.1)	1050	18.4	(1100)	(42.1)	1150.0	5.3	1200.0	3.3	1250.0	2.2													
1291	LAWC4	1000	51.800	1050	24.3	1100.0	12.7	1150.0	7.3	1200.0	4.6	1250.0	3.0													
1292	LAWC5	(1000)	(38.8)	(1050)	(16.2)	1100.0	8.6	1150.0	5.4	1200.0	3.7	1250.0	2.7													
1293	LAWPC1	(1000)	(61.9)	(1050)	(28.3)	1100.0	15.4	1150.0	9.5	1200.0	6.3	1250.0	4.6													
1294	LAWPC2	1000	35.900	1050	18.7	1100.0	10.5	1150.0	6.3	1200.0	4.0	1250.0	2.6													
1295	LAWPC3	1000	40.100	1050	20.9	1100.0	11.6	1150.0	6.7	1200.0	4.1	1250.0	2.6													
1296	LAWPC5	1000	82.800	1050	39.1	1100.0	20.5	1150.0	11.7	1200.0	7.2	1250.0	4.6													
1297	LAWPC6	1000	29.400	1050	15.9	1100.0	9.2	1150.0	5.6	1200.0	3.6	1250.0	2.4													
1298	LAWPC7	1000	86.300	1050	49.5	1100.0	28.5	1150.0	17.3	1200.0	10.9	1250.0	7.1													
1299	LAWPC8	1000	43.700	1050	23.4	1100.0	13.5	1150.0	8.2	1200.0	5.2	1250.0	3.5													
1300	LAWPC9	1000	45.400	1050	22.8	1100.0	12.6	1150.0	7.6	1200.0	4.8	1250.0	3.3													
1301	LAWPC10	1000	12.700	1050	7.4	1100.0	4.7	1150.0	3.1	1200.0	2.2	1250.0	1.6								<0.98	<0.0027	<0.0055	0.02	0.025	
1302	Envelope A																				<3	<1	4.8		<4	
1303	Envelope B																				<3	<1	<3		<4	
1304	Envelope C																				0.28	0.072	<4		0.5	
1305	ORNL ISV																									
1306	Hanford ISV																									
1307	Hanford ISV (CaO adjusted)																									
1308	Hanford ISV (Na2O adjusted)																									
1309	Envelope D																				0.34	<0.09	<0.3		<2	
1310	SRM-20																						0.08	0.14		
1311	SRM-21																						0.03	0.1		
1312	SRM-22																						0.06	0.18		

#	Glass ID	TCLP Se	TCLP Zn	TCLP Al	TCLP B	TCLP Sb	TCLP Tl	TCLP V	Q PCT B (g/m²)	Q PCT Li (g/m²)	Q PCT Na (g/m²)	Q PCT Si (g/m²)	Q PCT pH	CCC PCT B (g/m²)	CCC PCT Li (g/m²)	CCC PCT Na (g/m²)	CCC PCT Si (g/m²)	CCC PCT pH	T1 (°C)
1231	13								2.122		1.133	0.085	10.260						
1232	15								0.174		0.762	0.126	12.000						
1233	16								0.493		0.620	0.218	11.690						
1234	17								0.184		0.481	0.078	11.180						
1235	18								31.162		22.973	7.624	12.010						
1236	19								5.016		2.621	0.367	10.970						
1237	20								0.770		1.748	0.361	12.320						
1238	21								0.275		0.378	0.126	11.060						
1239	22								0.165		0.240	0.084	10.750						
1240	23								0.152		0.205	0.086	10.470						
1241	24								0.436		0.531	0.128	11.160						
1242	25								0.417		0.353	0.103	10.050						
1243	26								0.254		0.472	0.123	11.460						
1244	27								0.137		0.277	0.058	11.040						
1245	28								0.307		0.312	0.134	10.650						
1246	29								0.276		0.382	0.120	10.950						
1247	30								0.847		0.817	0.138	11.470						
1248	31								0.310		0.469	0.147	11.490						
1249	32								0.123		0.202	0.050	10.420						
1250	33								0.168		0.237	0.088	10.720						
1251	LAWA11																		
1252	LAWA12																		
1253	LAWA13																		
1254	LAWA14																		
1255	LAWA15																		
1256	LAWA16																		
1257	LAWA17																		
1258	LAWA18																		
1259	LAWA19																		
1260	LAWA20																		
1261	LAWA21																		
1262	LAWA22																		
1263	LAWA23		1.29																
1264	LAWA24		2.35																
1265	LAWA25																		
1266	LAWA25H																		
1267	LAWA26																		
1268	LAWA26H																		
1269	LAWB11																		
1270	LAWB12																		
1271	LAWB13																		
1272	LAWB14																		
1273	LAWB15																		
1274	LAWB16																		
1275	LAWB17																		
1276	LAWB18																		
1277	LAWB19																		
1278	LAWB20																		
1279	LAWB21																		
1280	LAWB22																		
1281	LAWB23																		
1282	LAWB24																		
1283	LAWB25																		
1284	LAWB26																		
1285	LAWB27																		
1286	LAWB28																		
1287	LAWB29		1.85																
1288	LAWC1																		
1289	LAWC2																		
1290	LAWC3																		
1291	LAWC4																		
1292	LAWC5																		
1293	LAWPC1																		
1294	LAWPC2																		
1295	LAWPC3																		
1296	LAWPC5																		
1297	LAWPC6																		
1298	LAWPC7																		
1299	LAWPC8																		
1300	LAWPC9																		
1301	LAWPC10		2.45																
1302	Envelope A																		
1303	Envelope B																		
1304	Envelope C																		
1305	ORNL ISV																		
1306	Hanford ISV																		
1307	Hanford ISV (CaO adjusted)																		
1308	Hanford ISV (Na2O adjusted)																		
1309	Envelope D								0.330	0.510	0.830								
1310	SRM-20																		
1311	SRM-21																		
1312	SRM-22																		

#	Glass ID	EC1 (S/cm)	T2 (°C)	EC2 (S/cm)	T3 (°C)	EC3 (S/cm)	T4 (°C)	EC4 (S/cm)	T5 (°C)	EC5 (S/cm)	T6 (°C)	EC6 (S/cm)	A	B	To
1231	13														
1232	15														
1233	16														
1234	17														
1235	18														
1236	19														
1237	20														
1238	21														
1239	22														
1240	23														
1241	24														
1242	25														
1243	26														
1244	27														
1245	28														
1246	29														
1247	30														
1248	31														
1249	32														
1250	33														
1251	LAWA11														
1252	LAWA12														
1253	LAWA13														
1254	LAWA14														
1255	LAWA15														
1256	LAWA16														
1257	LAWA17														
1258	LAWA18														
1259	LAWA19														
1260	LAWA20														
1261	LAWA21														
1262	LAWA22														
1263	LAWA23														
1264	LAWA24														
1265	LAWA25														
1266	LAWA25H														
1267	LAWA26														
1268	LAWA26H														
1269	LAWB11														
1270	LAWB12														
1271	LAWB13														
1272	LAWB14														
1273	LAWB15														
1274	LAWB16														
1275	LAWB17														
1276	LAWB18														
1277	LAWB19														
1278	LAWB20														
1279	LAWB21														
1280	LAWB22														
1281	LAWB23														
1282	LAWB24														
1283	LAWB25														
1284	LAWB26														
1285	LAWB27														
1286	LAWB28														
1287	LAWB29														
1288	LAWC1														
1289	LAWC2														
1290	LAWC3														
1291	LAWC4														
1292	LAWC5														
1293	LAWPC1														
1294	LAWPC2														
1295	LAWPC3														
1296	LAWPC5														
1297	LAWPC6														
1298	LAWPC7														
1299	LAWPC8														
1300	LAWPC9														
1301	LAWPC10														
1302	Envelope A														
1303	Envelope B														
1304	Envelope C														
1305	ORNL ISV														
1306	Hanford ISV														
1307	Hanford ISV (CaO adjusted)														
1308	Hanford ISV (Na2O adjusted)														
1309	Envelope D														
1310	SRM-20														
1311	SRM-21														
1312	SRM-22														

#	Glass ID	Study	Reference	Al2O3-t	B2O3-t	CaO-t	Fe2O3-t	FeO-t	K2O-t	Li2O-t	MgO-t	Na2O-t	NiO-t	P2O5-t	SiO2-t	ZrO2-t	Ag2O-t	As2O3-t	As2O5-t	BaO-t	BeO-t	Bi2O3-t	Br-t	CdO-t	Ce2O3-t	CeO2-t	Cl-t
1313	SRM-12	SRS M-Area Mixed Waste Gla	Fu et al. 1997	0.0900	0.1300	0.0050	0.0030		0.0200	0.1100	0.0014	0.1700	0.0020	0.0200	0.4400	0.0010				0.0003								
1314	SRM-26	SRS M-Area Mixed Waste Gla	Fu et al. 1997	0.0900	0.1600	0.0060	0.0020		0.0200	0.1100	0.0014	0.1300	0.0020	0.0200	0.4500	0.0010				0.0003								
1315	SRM-18	SRS M-Area Mixed Waste Gla	Fu et al. 1997	0.0900	0.1300	0.0060	0.0020		0.0200	0.0400	0.0014	0.2200	0.0020	0.0200	0.4600	0.0000				0.0003								
1316	HLW	Kinetics of Spinel Crystallizatio	Reynolds and Hrma 1997	0.0833	0.0500	0.0132	0.0705		0.0014	0.0186	0.0005	0.1621	0.0145	0.0302	0.3960	0.0454						0.0125		0.0006		0.0175	
1317	HLWD1-01	TWRS HLW Glass Formulatio	Fu and Pegg 1998	0.0760	0.0842	0.0288	0.1191		0.0047	0.0009	0.0101	0.0788	0.0087	0.0116	0.3629	0.0582	0.0000			0.0146		0.0000		0.0150		0.0029	0.0000
1318	HLWD1-02	TWRS HLW Glass Formulatio	Fu and Pegg 1998	0.0753	0.0835	0.0285	0.1181		0.0046	0.0009	0.0100	0.1292	0.0086	0.0115	0.3086	0.0576	0.0000			0.0145		0.0089		0.0148		0.0028	0.0000
1319	HLWD1-03	TWRS HLW Glass Formulatio	Fu and Pegg 1998	0.0753	0.1345	0.0285	0.1181		0.0046	0.0009	0.0100	0.0781	0.0086	0.0115	0.3086	0.0576	0.0000			0.0145		0.0089		0.0148		0.0028	0.0000
1320	HLWD1-04	TWRS HLW Glass Formulatio	Fu and Pegg 1998	0.0753	0.0835	0.0796	0.1181		0.0046	0.0009	0.0100	0.0781	0.0086	0.0115	0.3086	0.0576	0.0000			0.0145		0.0089		0.0148		0.0028	0.0000
1321	HLWD1-05	TWRS HLW Glass Formulatio	Fu and Pegg 1998	0.0753	0.0835	0.0285	0.1181		0.0046	0.0315	0.0100	0.0781	0.0086	0.0115	0.3290	0.0576	0.0000			0.0145		0.0089		0.0148		0.0028	0.0000
1322	HLWD1-07	TWRS HLW Glass Formulatio	Fu and Pegg 1998	0.0328	0.0679	0.0000	0.1897		0.0001	0.0291	0.0000	0.0709	0.0009	0.0165	0.3202	0.0000	0.0000			0.0209		0.0128		0.0214		0.0041	0.0000
1323	HLWD1-08	TWRS HLW Glass Formulatio	Fu and Pegg 1998	0.0320	0.0969	0.0000	0.1855		0.0001	0.0291	0.0000	0.0418	0.0121	0.0161	0.3199	0.0000	0.0000			0.0204		0.0125		0.0209		0.0040	0.0000
1324	HLWD1-09	TWRS HLW Glass Formulatio	Fu and Pegg 1998	0.0320	0.0485	0.0000	0.1855		0.0001	0.0291	0.0000	0.0903	0.0121	0.0161	0.3199	0.0000	0.0000			0.0204		0.0125		0.0209		0.0040	0.0000
1325	HLWD1-10	TWRS HLW Glass Formulatio	Fu and Pegg 1998	0.0301	0.0921	0.0000	0.1756		0.0873	0.0000	0.0000	0.0396	0.0114	0.0152	0.3005	0.0000	0.0000			0.0192		0.0118		0.0196		0.0038	0.0000
1326	HLWD1-11	TWRS HLW Glass Formulatio	Fu and Pegg 1998	0.1177	0.0607	0.0163	0.2626		0.0112	0.0301	0.0025	0.1463	0.0026	0.0107	0.2845	0.0018	0.0000			0.0006		0.0006		0.0001		0.0003	0.0000
1327	HLWD1-12	TWRS HLW Glass Formulatio	Fu and Pegg 1998	0.1332	0.0665	0.0052	0.2185		0.0053	0.0402	0.0014	0.1110	0.0079	0.0002	0.2731	0.0662	0.0000			0.0012		0.0000		0.0090		0.0000	0.0000
1328	HLWD1-13	TWRS HLW Glass Formulatio	Fu and Pegg 1998	0.0382	0.0668	0.0763	0.2289		0.0105	0.0315	0.0229	0.1049	0.0215	0.0000	0.2957	0.0000	0.0000			0.0000		0.0000		0.0000		0.0000	0.0000
1329	HLWD1-14	TWRS HLW Glass Formulatio	Fu and Pegg 1998	0.0378	0.1606	0.0000	0.0756		0.0000	0.0312	0.0000	0.1417	0.0017	0.0000	0.2740	0.1228	0.0000			0.0000		0.0000		0.0000		0.0059	0.0000
1330	HLWD1-15	TWRS HLW Glass Formulatio	Fu and Pegg 1998	0.0661	0.1134	0.0756	0.2362		0.0000	0.0312	0.0000	0.0945	0.0017	0.0000	0.2362	0.1228	0.0000			0.0000		0.0000		0.0000		0.0000	0.0000
1331	HLWD1-16	TWRS HLW Glass Formulatio	Fu and Pegg 1998	0.1606	0.0661	0.0189	0.0567		0.0126	0.0312	0.0000	0.0945	0.0017	0.0000	0.2929	0.1228	0.0047			0.0000		0.0000		0.0000		0.0000	0.0025
1332	HLWD1-17	TWRS HLW Glass Formulatio	Fu and Pegg 1998	0.0378	0.1606	0.0000	0.2362		0.0000	0.0312	0.0000	0.0945	0.0017	0.0000	0.2835	0.0000	0.0000			0.0000		0.0000		0.0000		0.0059	0.0000
1333	HLWD1-18	TWRS HLW Glass Formulatio	Fu and Pegg 1998	0.1604	0.1510	0.0000	0.0472		0.0105	0.0311	0.0229	0.0944	0.0214	0.0000	0.2359	0.1227	0.0000			0.0000		0.0000		0.0000		0.0000	0.0000
1334	HLWD1-19	TWRS HLW Glass Formulatio	Fu and Pegg 1998	0.0378	0.0661	0.0756	0.2079		0.0126	0.0312	0.0000	0.1890	0.0017	0.0000	0.2362	0.0000	0.0047			0.0000		0.0000		0.0000		0.0000	0.0025
1335	HLWD1-20	TWRS HLW Glass Formulatio	Fu and Pegg 1998	0.0378	0.0661	0.0756	0.0472		0.0126	0.0312	0.0000	0.1890	0.0017	0.0000	0.2740	0.1228	0.0047			0.0000		0.0000		0.0000		0.0000	0.0025
1336	HLWD1-21	TWRS HLW Glass Formulatio	Fu and Pegg 1998	0.0997	0.1526	0.0055	0.2212		0.0001	0.0410	0.0022	0.1127	0.0021	0.0078	0.3071	0.0015	0.0035	0.0004		0.0005		0.0005		0.0001		0.0003	0.0001
1337	HLWD1-23	TWRS HLW Glass Formulatio	Fu and Pegg 1998	0.0603	0.1549	0.0132	0.1431		0.0044	0.0403	0.0044	0.1360	0.0044	0.0088	0.3200	0.0009	0.0021	0.0004		0.0044		0.0004		0.0066		0.0014	0.0011
1338	HLWD1-24	TWRS HLW Glass Formulatio	Fu and Pegg 1998	0.0750	0.1117	0.0164	0.1779		0.0055	0.0202	0.0055	0.1691	0.0055	0.0109	0.2654	0.0012	0.0026	0.0005		0.0055		0.0005		0.0082		0.0017	0.0014
1339	HLWD1-25	TWRS HLW Glass Formulatio	Fu and Pegg 1998	0.0692	0.1115	0.0152	0.1642		0.0051	0.0200	0.0051	0.1561	0.0051	0.0101	0.3121	0.0000	0.0024	0.0005		0.0051		0.0005		0.0076		0.0016	0.0013
1340	HLWD1-26	TWRS HLW Glass Formulatio	Fu and Pegg 1998	0.0607	0.1321	0.0100	0.1201		0.0033	0.0375	0.0033	0.1027	0.0033	0.0066	0.4239	0.0139	0.0016	0.0003		0.0033		0.0003		0.0050		0.0010	0.0009
1341	HLWD1-27	TWRS HLW Glass Formulatio	Fu and Pegg 1998	0.0606	0.1107	0.0634	0.1437		0.0044	0.0200	0.0044	0.1366	0.0044	0.0088	0.3324	0.0009	0.0021	0.0004		0.0044		0.0004		0.0066		0.0014	0.0011
1342	HLWD1-28	TWRS HLW Glass Formulatio	Fu and Pegg 1998	0.0948	0.1036	0.0607	0.1557		0.0038	0.0308	0.0010	0.0795	0.0056	0.0002	0.3511	0.0471	0.0000			0.0008		0.0000		0.0064		0.0000	0.0001
1343	HLWD2-01	TWRS HLW Glass Formulatio	Fu and Pegg 1998	0.0846	0.0669	0.0231	0.1587		0.0038	0.0293	0.0081	0.0714	0.0095	0.0093	0.3194	0.0466	0.0000			0.0117		0.0072		0.0120		0.0023	0.0000
1344	HLWD2-02	TWRS HLW Glass Formulatio	Fu and Pegg 1998	0.0174	0.0599	0.0000	0.2414		0.0001	0.0300	0.0000	0.0704	0.0151	0.0147	0.2996	0.0000	0.0000			0.0186		0.0114		0.0190		0.0037	0.0000
1345	HLWD2-03	TWRS HLW Glass Formulatio	Fu and Pegg 1998	0.1606	0.0661	0.0756	0.0472		0.0000	0.0312	0.0000	0.1890	0.0017	0.0000	0.2740	0.0000	0.0000			0.0000		0.0000		0.0000		0.0059	0.0000
1346	HLWD2-04	TWRS HLW Glass Formulatio	Fu and Pegg 1998	0.0850	0.0661	0.0000	0.2362		0.0000	0.0312	0.0000	0.1890	0.0017	0.0305	0.2362	0.0000	0.0000			0.0386		0.0237		0.0395		0.0000	0.0000
1347	HLWD2-05	TWRS HLW Glass Formulatio	Fu and Pegg 1998	0.0378	0.0661	0.0756	0.0850		0.0104	0.0312	0.0227	0.1890	0.0213	0.0000	0.2362	0.1228	0.0000			0.0000		0.0000		0.0000		0.0000	0.0000
1348	HLWD2-06	TWRS HLW Glass Formulatio	Fu and Pegg 1998	0.0917	0.1199	0.0564	0.1703		0.0022	0.0299	0.0022	0.1136	0.0116	0.0043	0.3380	0.0005	0.0010	0.0002		0.0022		0.0002		0.0033		0.0007	0.0006
1349	HLWD2-07	TWRS HLW Glass Formulatio	Fu and Pegg 1998	0.0446	0.1488	0.0593	0.1059		0.0033	0.0297	0.0033	0.1007	0.0376	0.0065	0.3648	0.0007	0.0016	0.0003		0.0033		0.0003		0.0049		0.0010	0.0008
1350	HLWD3-01	TWRS HLW Glass Formulatio	Fu and Pegg 1998	0.0832	0.0707	0.0204	0.0970		0.0210	0.0006	0.0070	0.1947	0.0060	0.0188	0.3018	0.0403	0.0000			0.0101		0.0000		0.0103		0.0026	0.0000
1351	HLWD3-02	TWRS HLW Glass Formulatio	Fu and Pegg 1998	0.0466	0.0714	0.0004	0.1175		0.0153	0.0000	0.0000	0.1584	0.0075	0.0195	0.4004	0.0001	0.0000			0.0129		0.0000		0.0132		0.0031	0.0000
1352	HLWD3-03	TWRS HLW Glass Formulatio	Fu and Pegg 1998	0.1622	0.0763	0.0763	0.1049		0.0000	0.0315	0.0000	0.0954	0.0017	0.0308	0.2957	0.0000	0.0000			0.0390		0.0239		0.0399		0.0000	0.0000
1353	HLWD3-04	TWRS HLW Glass Formulatio	Fu and Pegg 1998	0.1606	0.1606	0.0756	0.0850		0.0126	0.0312	0.0000	0.0945	0.0017	0.0000	0.2362	0.0000	0.0047									0.0000	0.0025
1354	HLWD3-05	TWRS HLW Glass Formulatio	Fu and Pegg 1998	0.1606	0.0661	0.0000	0.0472		0.0000	0.0312	0.0000	0.1890	0.0017	0.0284	0.2362	0.1228	0.0000			0.0358		0.0220		0.0367		0.0000	0.0000
1355	HLWD3-06	TWRS HLW Glass Formulatio	Fu and Pegg 1998	0.0378	0.1606	0.0756	0.0472		0.0000	0.0312	0.0000	0.0945	0.0017	0.0305	0.2929	0.1039	0.0000			0.0386		0.0237		0.0395		0.0000	0.0000
1356	HLWD3-07	TWRS HLW Glass Formulatio	Fu and Pegg 1998	0.1606	0.1134	0.0000	0.1890		0.0000	0.0312	0.0000	0.1890	0.0017	0.0000	0.2929	0.0000	0.0000			0.0000		0.0000		0.0000		0.0000	0.0000
1357	HLWD3-08	TWRS HLW Glass Formulatio	Fu and Pegg 1998	0.1708	0.0887	0.0147	0.1058		0.0094	0.0000	0.0032	0.2203	0.0034	0.0084	0.2863	0.0016	0.0015	0.0003		0.0032		0.0003		0.0047		0.0009	0.0008
1358	EnvDSR1	TWRS HLW Glass Formulatio	Fu and Pegg 1998	0.0900	0.0686	0.0558	0.2255		0.0010	0.0294	0.0011	0.1555	0.0010	0.0069	0.3143	0.0000	0.0003			0.0002		0.0000				0.0000	0.0000
1359	Frit-1-78-35	INEEL DZr Process Demonstr	Musick et al. 2000	0.0693	0.0634	0.1259	0.0300		0.0024	0.0425		0.1405	0.0003	0.0005	0.4000	0.0506											0.0003
1360	Frit-2-78-35	INEEL DZr Process Demonstr	Musick et al. 2000	0.0693	0.1234	0.1259	0.0300		0.0024	0.0600		0.0830	0.0003	0.0005	0.3800	0.0506											0.0003
1361	Frit-3-78-35	INEEL DZr Process Demonstr	Musick et al. 2000	0.0693	0.1234	0.1259	0.0600		0.0024	0.0300		0.0630	0.0003	0.0005	0.4000	0.0506											0.0003
1362	Frit-4-78-35	INEEL DZr Process Demonstr	Musick et al. 2000	0.0693	0.1234	0.1259	0.0025		0.0024	0.0600		0.0604	0.0003	0.0005	0.4000	0.0506											0.0003
1363	Frit-5-78-35	INEEL DZr Process Demonstr	Musick et al. 2000	0.0693	0.0534	0.1259	0.0298		0.0024	0.0600		0.1132	0.0003	0.0005	0.4200	0.0506											0.0003
1364	Frit-6-78-35	INEEL DZr Process Demonstr	Musick et al. 2000	0.0693	0.0613	0.1259	0.0610		0.0024	0.0325		0.1317	0.0003	0.0005	0.3900	0.0506											0.0003
1365	Frit-5-78-30	INEEL DZr Process Demonstr	Musick et al. 2000	0.0594	0.0555	0.1079	0.0315		0.0021	0.0646		0.1186	0.0002	0.0005	0.4524	0.0433											0.0002
1366	Frit-5-78-37	INEEL DZr Process Demonstr	Musick et al. 2000	0.0733	0.0526	0.1331	0.0291		0.0026	0.0581		0.1110	0.0003	0.0006	0.4070	0.0535											0.0003
1367	Frit-5-78-40	INEEL DZr Process Demonstr	Musick et al. 2000	0.0792	0.0514	0.1439	0.0280		0.0028	0.0554		0.1077	0.0003	0.0006	0.3877	0.0578											0.0003
1368	Frit-5-78a-35	INEEL DZr Process Demonstr	Musick et al. 2000	0.0693	0.0534	0.1260	0.0298		0.0024	0.0600		0.1132	0.0003	0.0005	0.4200	0.0506											0.0003
1369	Frit-5-78b-35	INEEL DZr Process Demonstr	Musick et al. 2000	0.0859	0.0509	0.1132	0.0300		0.0014	0.0600		0.1137	0.0003	0.0117	0.4228	0.0471											0.0003
1370	Frit-5-78c-35	INEEL DZr Process Demonstr	Musick et al. 2000	0.0881	0.0522	0.1160	0.0307		0.0015	0.0615		0.1165	0.0003	0.0120	0.4333	0.0482											0.0003
1371	DZr-3a	INEEL DZr Process Demonstr	Musick et al. 2000	0.0933	0.0631	0.1229	0.0308		0.0015	0.0605		0.1095	0.0003	0.0127	0.3859	0.0511											0.0003
1372	DZr-3c	INEEL DZr Process Demonstr	Musick et al. 2000	0.0958	0.0648	0.1262	0.0316		0.0016	0.0621		0.1125	0.0003	0.0131	0.3963	0.0525											0.0003
1373	DZr-4a	INEEL DZr Process Demonstr	Musick et al. 2000	0.0933	0.0445	0.1229	0.0463		0.0015	0.0558		0.1226	0.0003	0.0127	0.3806	0.0511											0.0003
1374	DZr-4c	INEEL DZr Process Demonstr	Musick et al. 2000	0.0958	0.0457	0.1262	0.0475		0.0016	0.0573		0.1259	0.0003	0.0131	0.3909	0.0525											0.0003
1375	DZr-5a	INEEL DZr Process Demonstr	Musick et al. 2000	0.0933	0.0445	0.1229	0.0277		0.0015	0.0744		0.1033	0.0003	0.0127	0.3999	0.0511											0.0003
1376	DZr-5c	INEEL DZr Process Demonstr	Musick et al. 2000	0.0958	0.0457	0.1262	0.0284		0.0016	0.0764		0.1061	0.0003	0.0131	0.4106	0.0525											0.0003
1377	DZr-6a	INEEL DZr Process Demonstr	Musick et al. 2000	0.0933	0.0569	0.1229	0.0525		0.0015	0.0558		0.1219	0.0003	0.0127	0.3627	0.0511											0.0003
1378	DZr-6c	INEEL DZr Process Demonstr	Musick et al. 2000	0.0958	0.0584	0.1262	0.0539		0.0016	0.0573		0.1252	0.0003	0.0131	0.3724	0.0525											0.0003
1379	DZr-7a	INEEL DZr Process Demonstr	Musick et al. 2000	0.0933	0.0631	0.1229	0.0029		0.0015	0.0605		0.1095	0.0003	0.0127	0.3859	0.0511											0.0003
1380	DZr-7c	INEEL DZr Process Demonstr	Musick et al. 2000	0.0958	0.0648	0.1262	0.0030		0.0016	0.0621		0.1125	0.0003	0.0131	0.3963	0.0525											0.0003
1381	DZr-8a	INEEL DZr Process Demonstr	Musick et al. 2000	0.0933	0.0569	0.1229	0.0215		0.0015	0.0558		0.1219	0.0003	0.0127	0.3627	0.0511											0.0003
1382	DZr-8c	INEEL DZr Process Demonstr	Musick et al. 2000	0.0958	0.0584	0.1262	0.0221		0.0016	0.0573		0.1252	0.0003	0.0131	0.3724	0.0525											0.0003
1383	DZr-9-78-38	INEEL DZr Process Demonstr	Musick et al. 2000	0.0933	0.0724	0.1229	0.0029		0.0015	0.0620		0.1071	0.0003	0.0127	0.3707	0.0610											0.0003
1384	DZr-9-78-40	INEEL DZr Process Demonstr	Musick et al. 2000	0.0982	0.0707	0.1294	0.0031		0.0016	0.0600		0.1050	0.0003	0.0134	0.3590	0.0634											0.0003
1385	DZr-10-78-38	INEEL DZr Process Demonstr	Musick et al. 2000	0.0933	0.0724	0.1229	0.0277		0.0015	0.0620		0.1071	0.0003	0.0127	0.3707	0.0610											0.0003
1386	DZr-10-78-40	INEEL DZr Process Demonstr	Musick et al. 2000	0.0982	0.0707	0.1294	0.0271		0.0016	0.0600		0.1050	0.0003	0.0134	0.3590	0.0634											0.0003
1387	GLA 78-21	INEEL DZr Process Demonstr	Musick et al. 2000																								
1388	GLA 78-22	INEEL DZr Process Demonstr	Musick et al. 2000																								
1389	GLA 78-23	INEEL DZr Process Demonstr	Musick et al. 2000																								
1390	GLA 78-9-11	INEEL DZr Process Demonstr	Musick et al. 2000																								
1391	GLA 78-9-15	INEEL DZr Process Demonstr	Musick et al. 2000																								
1392	GLA 78-9-18	INEEL DZr Process Demonstr	Musick et al. 2000																								
1393	GLA 78-10-14	INEEL DZr Process Demonstr	Musick et al. 2000																								
1394	GLA 78-10-15	INEEL DZr Process Demonstr	Musick et al. 2000																								

#	Glass ID	CoO-t	Co2O3-t	Cr2O3-t	Cs2O-t	CuO-t	Dy2O3-t	Eu2O3-t	F-t	Ga2O3-t	Gd2O3-t	HfO2-t	HgO-t	I-t	La2O3-t	MnO2-t	MnO-t	MoO-t	MoO2-t	MoO3-t	Nb2O5-t	Nd2O3-t	NpO2-t	PbO-t	PdO2-t	PdO-t	Pr2O3-t	Pr6O11-t	Rb2O-t	ReO-t
1313	SRM-12			0.0002												0.0006													
1314	SRM-26			0.0002												0.0006													
1315	SRM-18			0.0002												0.0006													
1316	HLW			0.0029					0.0036						0.0027		0.0095			0.0005		0.0560		0.0023						
1317	HLWD1-01	0.0017		0.0029	0.0018	0.0018			0.0081						0.0088	0.0299		0.0022				0.0058		0.0034		0.0000	0.0000			
1318	HLWD1-02	0.0017		0.0028	0.0018	0.0017			0.0080						0.0087	0.0296		0.0022				0.0057		0.0034		0.0000	0.0000			
1319	HLWD1-03	0.0017		0.0028	0.0018	0.0017			0.0080						0.0087	0.0296		0.0022				0.0057		0.0034		0.0000	0.0000			
1320	HLWD1-04	0.0017		0.0028	0.0018	0.0017			0.0080						0.0087	0.0296		0.0022				0.0057		0.0034		0.0000	0.0000			
1321	HLWD1-05	0.0017		0.0028	0.0018	0.0017			0.0080						0.0087	0.0296		0.0022				0.0057		0.0034		0.0000	0.0000			
1322	HLWD1-07	0.0024		0.0041	0.0026	0.0025			0.0152						0.0125	0.0426		0.0031				0.0083		0.0049		0.0000	0.0000			
1323	HLWD1-08	0.0023		0.0040	0.0025	0.0024			0.0152						0.0122	0.0415		0.0030				0.0081		0.0048		0.0000	0.0000			
1324	HLWD1-09	0.0023		0.0040	0.0025	0.0024			0.0152						0.0122	0.0415		0.0030				0.0081		0.0048		0.0000	0.0000			
1325	HLWD1-10	0.0022		0.0038	0.0023	0.0023			0.0152						0.0115	0.0391		0.0029				0.0076		0.0045		0.0000	0.0000			
1326	HLWD1-11	0.0000		0.0014	0.0000	0.0002			0.0035						0.0001	0.0063		0.0001				0.0003		0.0039		0.0000	0.0000			
1327	HLWD1-12	0.0000		0.0015	0.0001	0.0008			0.0014						0.0061	0.0068		0.0000				0.0000		0.0009		0.0000	0.0000			
1328	HLWD1-13	0.0038		0.0065	0.0014	0.0000			0.0000						0.0000	0.0672		0.0000				0.0000		0.0000		0.0000	0.0000			
1329	HLWD1-14	0.0000		0.0000	0.0014	0.0000			0.0000						0.0179	0.0000		0.0000				0.0118		0.0000		0.0000	0.0026			
1330	HLWD1-15	0.0000		0.0000	0.0014	0.0000			0.0000						0.0000	0.0000		0.0000				0.0000		0.0000		0.0000	0.0000			
1331	HLWD1-16	0.0000		0.0000	0.0063	0.0048			0.0280						0.0000	0.0000		0.0059				0.0000		0.0093		0.0000	0.0000			
1332	HLWD1-17	0.0000		0.0000	0.0014	0.0000			0.0000						0.0179	0.0000		0.0000				0.0118		0.0000		0.0000	0.0026			
1333	HLWD1-18	0.0038		0.0065	0.0014	0.0000			0.0000						0.0000	0.0672		0.0000				0.0000		0.0000		0.0000	0.0000			
1334	HLWD1-19	0.0000		0.0065	0.0063	0.0048			0.0280						0.0000	0.0000		0.0059				0.0000		0.0093		0.0000	0.0000			
1335	HLWD1-20	0.0000		0.0000	0.0063	0.0048			0.0280						0.0000	0.0000		0.0059				0.0000		0.0093		0.0000	0.0000			
1336	HLWD1-21	0.0000		0.0012	0.0005	0.0002			0.0000						0.0001	0.0048		0.0001				0.0003		0.0038		0.0000	0.0000			
1337	HLWD1-23	0.0013		0.0031	0.0015	0.0004			0.0009						0.0018	0.0044		0.0000				0.0000		0.0023		0.0007	0.0000			
1338	HLWD1-24	0.0016		0.0038	0.0018	0.0005			0.0011						0.0022	0.0055		0.0000				0.0000		0.0029		0.0008	0.0000			
1339	HLWD1-25	0.0015		0.0035	0.0017	0.0005			0.0010						0.0020	0.0051		0.0000				0.0000		0.0026		0.0008	0.0000			
1340	HLWD1-26	0.0010		0.0023	0.0011	0.0003			0.0007						0.0013	0.0033		0.0000				0.0000		0.0017		0.0005	0.0000			
1341	HLWD1-27	0.0013		0.0031	0.0015	0.0004			0.0009						0.0018	0.0044		0.0000				0.0000		0.0023		0.0007	0.0000			
1342	HLWD1-28	0.0000		0.0011	0.0001	0.0006			0.0010						0.0043	0.0049		0.0000				0.0000		0.0006		0.0000	0.0000			
1343	HLWD2-01	0.0013		0.0046	0.0014	0.0014			0.0082						0.0070	0.0240		0.0018				0.0046		0.0027		0.0000	0.0000			
1344	HLWD2-02	0.0021		0.0073	0.0023	0.0022			0.0131						0.0112	0.0379		0.0028				0.0074		0.0044		0.0000	0.0000			
1345	HLWD2-03	0.0000		0.0000	0.0014	0.0000			0.0000						0.0179	0.0000		0.0000				0.0118		0.0000		0.0000	0.0026			
1346	HLWD2-04	0.0000		0.0000	0.0014	0.0000			0.0000						0.0000	0.0000		0.0000				0.0000		0.0000		0.0000	0.0000			
1347	HLWD2-05	0.0037		0.0065	0.0014	0.0000			0.0000						0.0000	0.0666		0.0000				0.0000		0.0000		0.0000	0.0000			
1348	HLWD2-06	0.0007		0.0056	0.0007	0.0002			0.0004						0.0009	0.0022		0.0000				0.0000		0.0011		0.0003	0.0000			
1349	HLWD2-07	0.0010		0.0128	0.0011	0.0003			0.0007						0.0013	0.0033		0.0000				0.0000		0.0017		0.0005	0.0000			
1350	HLWD3-01	0.0013		0.0020	0.0013	0.0012			0.0071						0.0061	0.0210		0.0015				0.0040		0.0024		0.0000	0.0000			
1351	HLWD3-02	0.0015		0.0025	0.0016	0.0015			0.0091						0.0077	0.0265		0.0019				0.0051		0.0030		0.0000	0.0000			
1352	HLWD3-03	0.0000		0.0000	0.0014	0.0000			0.0000						0.0000	0.0000		0.0000				0.0000		0.0000		0.0000	0.0000			
1353	HLWD3-04	0.0000		0.0000	0.0063	0.0048			0.0280						0.0000	0.0000		0.0059				0.0000		0.0093		0.0000	0.0000			
1354	HLWD3-05	0.0000		0.0000	0.0014	0.0000			0.0000						0.0000	0.0000		0.0000				0.0000		0.0000		0.0000	0.0000			
1355	HLWD3-06	0.0000		0.0000	0.0014	0.0000			0.0000						0.0000	0.0000		0.0000				0.0000		0.0000		0.0000	0.0000			
1356	HLWD3-07	0.0000		0.0000	0.0014	0.0000			0.0000						0.0000	0.0000		0.0000				0.0000		0.0000		0.0000	0.0000			
1357	HLWD3-08	0.0009		0.0077	0.0010	0.0003			0.0006						0.0013	0.0066		0.0000				0.0000		0.0019		0.0005	0.0000			
1358	EnvDSR1	0.0000		0.0004	0.0010	0.0000			0.0000						0.0000	0.0039		0.0000				0.0000		0.0018		0.0000	0.0000			
1359	Frit-1-78-35			0.0014					0.0599								0.0005							0.0001						
1360	Frit-2-78-35			0.0014					0.0599								0.0005							0.0001						
1361	Frit-3-78-35			0.0014					0.0599								0.0005							0.0001						
1362	Frit-4-78-35			0.0014					0.0599								0.0005							0.0001						
1363	Frit-5-78-35			0.0014					0.0599								0.0005							0.0001						
1364	Frit-6-78-35			0.0014					0.0599								0.0005							0.0001						
1365	Frit-5-78-30			0.0012					0.0513								0.0005							0.0001						
1366	Frit-5-78-37			0.0015					0.0633								0.0006							0.0001						
1367	Frit-5-78-40			0.0016					0.0684								0.0006							0.0001						
1368	Frit-5-78a-35			0.0014					0.0599								0.0005							0.0001						
1369	Frit-5-78b-35			0.0013					0.0470								0.0013							0.0002						
1370	Frit-5-78c-35			0.0014					0.0235								0.0013							0.0002						
1371	DZr-3a			0.0014					0.0510								0.0014							0.0002						
1372	DZr-3c			0.0015					0.0255								0.0014							0.0002						
1373	DZr-4a			0.0014					0.0510								0.0014							0.0002						
1374	DZr-4c			0.0015					0.0255								0.0014							0.0002						
1375	DZr-5a			0.0014					0.0510								0.0014							0.0002						
1376	DZr-5c			0.0015					0.0255								0.0014							0.0002						
1377	DZr-6a			0.0014					0.0510								0.0014							0.0002						
1378	DZr-6c			0.0015					0.0255								0.0014							0.0002						
1379	DZr-7a			0.0014					0.0510						0.0279		0.0014							0.0002						
1380	DZr-7c			0.0015					0.0255						0.0287		0.0014							0.0002						
1381	DZr-8a			0.0014					0.0510						0.0310		0.0014							0.0002						
1382	DZr-8c			0.0015					0.0255						0.0318		0.0014							0.0002						
1383	DZr-9-78-38			0.0014					0.0510						0.0248		0.0014							0.0002						
1384	DZr-9-78-40			0.0015					0.0537						0.0240		0.0014							0.0002						
1385	DZr-10-78-38			0.0014					0.0510								0.0014							0.0002						
1386	DZr-10-78-40			0.0015					0.0537								0.0014							0.0002						
1387	GLA 78-21																												
1388	GLA 78-22																												
1389	GLA 78-23																												
1390	GLA 78-9-11																												
1391	GLA 78-9-15																												
1392	GLA 78-9-18																												
1393	GLA 78-10-14																												
1394	GLA 78-10-15																												

#	Glass ID	ReO2-t	Re2O7-t	Rh2O3-t	RhO2-t	RuO2-t	Ru2O3-t	Sb2O3-t	Sb2O5-t	SeO2-t	Sm2O3-t	SnO-t	SnO2-t	SO3-t	SrO-t	Tc2O7-t	TeO2-t	ThO2-t	TiO2-t	Tl2O-t	Tl2O3-t	U3O8-t	UO2-t	UO3-t	V2O5-t	WO3-t	Y2O3-t	ZnO-t	Sum-t	Al2O3-a
1313	SRM-12														0.0001				0.0007			0.0010						0.9953	0.0900
1314	SRM-26														0.0001				0.0007			0.0010						0.9953	0.1000
1315	SRM-18														0.0001				0.0007			0.0010						0.9943	0.1000
1316	HLW					0.0003								0.0022	0.0027										0.0011			1.0001	
1317	HLWD1-01	0.0000				0.0000			0.0000	0.0000	0.0000	0.0000		0.0047	0.0018		0.0000	0.0000	0.0062		0.0000		0.0446		0.0000	0.0000	0.0000	0.0000	1.0002	0.0621
1318	HLWD1-02	0.0000				0.0000			0.0000	0.0000	0.0000	0.0000		0.0046	0.0018		0.0000	0.0000	0.0062		0.0000		0.0442		0.0000	0.0000	0.0000	0.0000	0.9998	0.0677
1319	HLWD1-03	0.0000				0.0000			0.0000	0.0000	0.0000	0.0000		0.0046	0.0018		0.0000	0.0000	0.0062		0.0000		0.0442		0.0000	0.0000	0.0000	0.0000	0.9997	0.0673
1320	HLWD1-04	0.0000				0.0000			0.0000	0.0000	0.0000	0.0000		0.0046	0.0018		0.0000	0.0000	0.0062		0.0000		0.0442		0.0000	0.0000	0.0000	0.0000	0.9998	0.0704
1321	HLWD1-05	0.0000				0.0000			0.0000	0.0000	0.0000	0.0000		0.0046	0.0018		0.0000	0.0000	0.0062		0.0000		0.0442		0.0000	0.0000	0.0000	0.0000	0.9997	0.0628
1322	HLWD1-07	0.0000				0.0000			0.0000	0.0000	0.0000	0.0000		0.0067	0.0307		0.0000	0.0000	0.0089				0.0637			0.0000	0.0000	0.0000	0.9955	0.0324
1323	HLWD1-08	0.0000				0.0000			0.0000	0.0000	0.0000	0.0000		0.0065	0.0306		0.0000	0.0000	0.0087				0.0621			0.0000	0.0000	0.0000	0.9952	0.0340
1324	HLWD1-09	0.0000				0.0000			0.0000	0.0000	0.0000	0.0000		0.0065	0.0306		0.0000	0.0000	0.0087				0.0621			0.0000	0.0000	0.0000	0.9953	0.0336
1325	HLWD1-10	0.0000				0.0000			0.0000	0.0000	0.0000	0.0000		0.0061	0.0305		0.0000	0.0000	0.0082				0.0584			0.0000	0.0000	0.0000	1.0008	0.0309
1326	HLWD1-11	0.0000				0.0000			0.0000	0.0000	0.0000	0.0000		0.0005	0.0257		0.0000	0.0000	0.0027				0.0026			0.0000	0.0000	0.0000	0.9959	0.1000
1327	HLWD1-12	0.0000				0.0000			0.0000	0.0000	0.0000	0.0000		0.0000	0.0290		0.0000	0.0000	0.0014				0.0087			0.0000	0.0000	0.0000	0.9956	
1328	HLWD1-13	0.0000				0.0000			0.0000	0.0000	0.0000	0.0003		0.0000	0.0182		0.0000	0.0000	0.0000				0.0000			0.0020	0.0000	0.0000	0.9966	0.0391
1329	HLWD1-14	0.0000				0.0000			0.0000	0.0000	0.0000	0.0000		0.0000	0.0180		0.0000	0.0035	0.0000				0.0909			0.0000	0.0000	0.0000	0.9974	0.0389
1330	HLWD1-15	0.0000				0.0000			0.0000	0.0000	0.0000	0.0000		0.0000	0.0180		0.0000	0.0000	0.0000				0.0000			0.0000	0.0000	0.0000	0.9971	
1331	HLWD1-16	0.0000				0.0000			0.0088	0.0057	0.0000	0.0000		0.0127	0.0228		0.0000	0.0000	0.0170				0.0000			0.0000	0.0000	0.0041	0.9906	
1332	HLWD1-17	0.0000				0.0000			0.0000	0.0000	0.0000	0.0000		0.0000	0.0180		0.0000	0.0035	0.0000				0.0909			0.0000	0.0000	0.0000	0.9975	0.0414
1333	HLWD1-18	0.0000				0.0000			0.0000	0.0000	0.0000	0.0003		0.0000	0.0180		0.0000	0.0000	0.0000				0.0000			0.0020	0.0000	0.0000	0.9967	0.1393
1334	HLWD1-19	0.0000				0.0000			0.0088	0.0049	0.0000	0.0000		0.0127	0.0264		0.0000	0.0000	0.0170				0.0000			0.0000	0.0000	0.0041	1.0000	0.0395
1335	HLWD1-20	0.0000				0.0000			0.0088	0.0049	0.0000	0.0000		0.0127	0.0228		0.0000	0.0000	0.0170				0.0000			0.0000	0.0000	0.0041	0.9898	0.0395
1336	HLWD1-21	0.0000				0.0000			0.0000	0.0000	0.0001	0.0000		0.0004	0.0206		0.0000	0.0000	0.0023				0.0022			0.0006	0.0001	0.0004	0.9966	0.0938
1337	HLWD1-23	0.0005				0.0021			0.0013	0.0015	0.0000	0.0000		0.0044	0.0275		0.0013	0.0011	0.0014		0.0046		0.0264			0.0000	0.0000	0.0009	0.9965	0.0519
1338	HLWD1-24	0.0006				0.0022			0.0016	0.0016	0.0000	0.0000		0.0055	0.0341		0.0016	0.0013	0.0017		0.0055		0.0328			0.0000	0.0000	0.0011	0.9945	0.0629
1339	HLWD1-25	0.0006				0.0024			0.0015	0.0018	0.0000	0.0000		0.0051	0.0315		0.0000	0.0000	0.0000				0.0000			0.0000	0.0000	0.0000	0.9543	0.0561
1340	HLWD1-26	0.0004				0.0014			0.0010	0.0010	0.0000	0.0000		0.0033	0.0207		0.0010	0.0008	0.0010		0.0033		0.0199			0.0000	0.0000	0.0007	0.9965	
1341	HLWD1-27	0.0005				0.0018			0.0013	0.0013	0.0000	0.0000		0.0044	0.0276		0.0013	0.0011	0.0014		0.0044		0.0265			0.0000	0.0000	0.0009	0.9956	0.0520
1342	HLWD1-28	0.0000				0.0000			0.0035	0.0021	0.0000	0.0000		0.0000	0.0240		0.0019	0.0000	0.0010		0.0007		0.0062			0.0000	0.0000	0.0005	0.9937	0.0815
1343	HLWD2-01	0.0000				0.0000			0.0000	0.0000	0.0000	0.0000		0.0047	0.0292		0.0000	0.0000	0.0050		0.0000		0.0357			0.0000	0.0000	0.0000	0.9955	0.0785
1344	HLWD2-02	0.0000				0.0000			0.0000	0.0000	0.0000	0.0000		0.0074	0.0313		0.0000	0.0000	0.0079		0.0000		0.0567			0.0000	0.0000	0.0000	0.9953	0.0220
1345	HLWD2-03	0.0000				0.0000			0.0000	0.0000	0.0000	0.0000		0.0000	0.0180		0.0000	0.0035	0.0000				0.0909			0.0000	0.0000	0.0000	0.9974	0.1565
1346	HLWD2-04	0.0000				0.0000			0.0000	0.0000	0.0000	0.0000		0.0000	0.0180		0.0000	0.0000	0.0000				0.0000			0.0000	0.0000	0.0000	0.9971	0.0749
1347	HLWD2-05	0.0000				0.0000			0.0000	0.0000	0.0000	0.0003		0.0000	0.0180		0.0000	0.0000	0.0000				0.0000			0.0020	0.0000	0.0000	0.9966	0.0416
1348	HLWD2-06	0.0003				0.0009			0.0007	0.0008	0.0000	0.0000		0.0057	0.0135		0.0007	0.0005	0.0007		0.0022		0.0130			0.0000	0.0000	0.0004	1.0003	0.0770
1349	HLWD2-07	0.0004				0.0015			0.0010	0.0011	0.0000	0.0000		0.0094	0.0203		0.0010	0.0008	0.0010		0.0034		0.0196			0.0000	0.0000	0.0007	1.0003	0.0384
1350	HLWD3-01	0.0000				0.0000			0.0000	0.0000	0.0000	0.0000		0.0039	0.0249		0.0000	0.0000	0.0043				0.0308			0.0000	0.0000	0.0000	0.9963	0.0736
1351	HLWD3-02	0.0000				0.0000			0.0000	0.0000	0.0000	0.0000		0.0047	0.0195		0.0000	0.0015	0.0055				0.0393			0.0000	0.0000	0.0000	0.9972	0.0481
1352	HLWD3-03	0.0000				0.0000			0.0000	0.0000	0.0000	0.0000		0.0000	0.0182		0.0000	0.0000	0.0000				0.0000			0.0000	0.0000	0.0000	0.9972	0.1407
1353	HLWD3-04	0.0000				0.0000			0.0088	0.0057	0.0000	0.0000		0.0127	0.0228		0.0000	0.0000	0.0170		0.0040		0.0000			0.0000	0.0000	0.0041	0.9946	0.1490
1354	HLWD3-05	0.0000				0.0000			0.0000	0.0000	0.0000	0.0000		0.0000	0.0180		0.0000	0.0000	0.0000				0.0000			0.0000	0.0000	0.0000	0.9971	
1355	HLWD3-06	0.0000				0.0000			0.0000	0.0000	0.0000	0.0000		0.0000	0.0180		0.0000	0.0000	0.0000				0.0000			0.0000	0.0000	0.0000	0.9971	0.0326
1356	HLWD3-07	0.0000				0.0000			0.0000	0.0000	0.0000	0.0000		0.0000	0.0180		0.0000	0.0000	0.0000				0.0000			0.0000	0.0000	0.0000	0.9972	0.1327
1357	HLWD3-08	0.0003				0.0013			0.0009	0.0009	0.0000	0.0000		0.0032	0.0227		0.0009	0.0008	0.0010		0.0032		0.0189			0.0000	0.0000	0.0008	1.0000	0.1647
1358	EnvDSR1	0.0000				0.0000			0.0000	0.0000	0.0000	0.0000		0.0000	0.0412		0.0000	0.0000	0.0019				0.0000			0.0000	0.0000	0.0001	0.9999	0.0757
1359	Frit-1-78-35													0.0124														1.0000	
1360	Frit-2-78-35													0.0124														1.0000	
1361	Frit-3-78-35													0.0124														1.0000	
1362	Frit-4-78-35													0.0124					0.0300									0.9999	
1363	Frit-5-78-35													0.0124														1.0000	
1364	Frit-6-78-35													0.0124														1.0001	
1365	Frit-5-78-30													0.0106														1.0000	
1366	Frit-5-78-37													0.0131														1.0000	
1367	Frit-5-78-40													0.0142														1.0000	
1368	Frit-5-78a-35													0.0124														1.0000	
1369	Frit-5-78b-35													0.0105	0.0024													1.0000	
1370	Frit-5-78c-35													0.0107	0.0025													1.0000	
1371	DZr-3a													0.0114	0.0026													0.9999	
1372	DZr-3c													0.0117	0.0027													1.0001	
1373	DZr-4a													0.0114	0.0026													0.9999	
1374	DZr-4c													0.0117	0.0027													1.0001	
1375	DZr-5a													0.0114	0.0026													0.9999	
1376	DZr-5c													0.0117	0.0027													1.0000	
1377	DZr-6a													0.0114	0.0026													0.9999	
1378	DZr-6c													0.0117	0.0027													1.0000	
1379	DZr-7a													0.0114	0.0026													0.9999	
1380	DZr-7c													0.0117	0.0027													1.0002	
1381	DZr-8a													0.0114	0.0026													0.9999	
1382	DZr-8c													0.0117	0.0027													1.0000	
1383	DZr-9-78-38													0.0114	0.0026													1.0000	
1384	DZr-9-78-40													0.0120	0.0027													1.0000	
1385	DZr-10-78-38													0.0114	0.0026													1.0000	
1386	DZr-10-78-40													0.0120	0.0027													1.0000	
1387	GLA 78-21																											0.0000	0.0599
1388	GLA 78-22																											0.0000	0.0444
1389	GLA 78-23																											0.0000	0.0440
1390	GLA 78-9-11																											0.0000	0.0824
1391	GLA 78-9-15																											0.0000	0.0772
1392	GLA 78-9-18																											0.0000	0.0661
1393	GLA 78-10-14																											0.0000	0.1034
1394	GLA 78-10-15																											0.0000	0.0931

#	Glass ID	B2O3-a	CaO-a	Fe2O3-a	FeO-a	K2O-a	Li2O-a	MgO-a	Na2O-a	NiO-a	P2O5-a	SiO2-a	ZrO2-a	Ag2O-a	As2O3-a	As2O5-a	BaO-a	BeO-a	Bi2O3-a	Br-a	CdO-a	Ce2O3-a	CeO2-a	Cl-a	CoO-a	Co2O3-a	Cr2O3-a	Cs2O-a	CuO-a	F-a
1313	SRM-12	0.1300	0.0050	0.0030		0.0200	0.1100		0.1700	0.0020	0.0200	0.4500	0.0100																		
1314	SRM-26	0.1500	0.0050	0.0030		0.0200	0.1000		0.1300	0.0020	0.0200	0.4600	0.0090																		
1315	SRM-18	0.1300	0.0060	0.0030		0.0200	0.0390		0.2000	0.0020	0.0200	0.4800	0.0000																		
1316	HLW																														
1317	HLWD1-01	0.0803	0.0267	0.1016		0.0052	0.0017	0.0100	0.0637	0.0077	0.0330	0.3374	0.0310				0.0128								0.0018		0.0022	0.0022			
1318	HLWD1-02	0.0786	0.0286	0.1048		0.0048	0.0014	0.0102	0.1068	0.0079	0.0097	0.3054	0.0478				0.0143		0.0079		0.0136				0.0017		0.0022	0.0016	0.0016		
1319	HLWD1-03	0.1235	0.0280	0.1036		0.0047	0.0015	0.0100	0.0674	0.0042	0.0100	0.2920	0.0294				0.0140		0.0078		0.0132				0.0011		0.0021	0.0016	0.0016		
1320	HLWD1-04	0.0823	0.0747	0.1038		0.0047	0.0018	0.0109	0.0699	0.0075	0.0125	0.3092	0.0451				0.0146		0.0082		0.0135				0.0015		0.0017	0.0018	0.0017		
1321	HLWD1-05	0.0833	0.0269	0.1030		0.0049	0.0286	0.0104	0.0657	0.0071	0.0136	0.3193	0.0486				0.0132		0.0092		0.0147				0.0018		0.0016	0.0016	0.0018		
1322	HLWD1-07	0.0751	0.0052	0.1601		0.0003	0.0293	0.0002	0.0700	0.0009	0.0182	0.3206	0.0003				0.0204		0.0052		0.0215				0.0026		0.0024	0.0024	0.0025		
1323	HLWD1-08	0.0958	0.0007	0.1621		0.0005	0.0280	0.0002	0.0417	0.0107	0.0184	0.3229	0.0002				0.0193		0.0118		0.0222				0.0024		0.0022	0.0023	0.0024		
1324	HLWD1-09	0.0503	0.0007	0.1672		0.0004	0.0302	0.0002	0.0816	0.0110	0.0185	0.3186	0.0001				0.0197		0.0117		0.0217				0.0026		0.0030	0.0024	0.0024		
1325	HLWD1-10	0.0908	0.0006	0.1501		0.0909	0.0005	0.0001	0.0397	0.0090	0.0166	0.2976	0.0001				0.0183		0.0111		0.0188				0.0022		0.0029	0.0022	0.0023		
1326	HLWD1-11	0.0568	0.0149	0.2198		0.0109	0.0279	0.0022	0.1236	0.0024	0.0115	0.2995	0.0018				0.0011										0.0011				
1327	HLWD1-12																														
1328	HLWD1-13	0.0615	0.0616	0.2011		0.0099	0.0290	0.0201	0.0799	0.0195	0.0007	0.3274	0.0003				0.0001								0.0034		0.0077	0.0013			
1329	HLWD1-14	0.1472	0.0015	0.0669		0.0006	0.0299	0.0006	0.1061	0.0019	0.0010	0.2968	0.1013				0.0003								0.0006		0.0002	0.0015			
1330	HLWD1-15																														
1331	HLWD1-16																														
1332	HLWD1-17	0.1650	0.0006	0.1812		0.0004	0.0315	0.0002	0.0819	0.0019	0.0006	0.2972	0.0015				0.0002										0.0001	0.0016			
1333	HLWD1-18	0.1444	0.0013	0.0522		0.0096	0.0296	0.0191	0.0836	0.0197	0.0008	0.2509	0.1002				0.0001								0.0040		0.0068	0.0014			
1334	HLWD1-19	0.0607	0.0638	0.1911		0.0118	0.0294	0.0008	0.1482	0.0021	0.0011	0.2749	0.0004				0.0001								0.0001		0.0014				
1335	HLWD1-20	0.0675	0.0675	0.0466		0.0126	0.0338	0.0006	0.1583	0.0017	0.0013	0.2994	0.0735	0.0026			0.0004				0.0003						0.0001		0.0048		
1336	HLWD1-21	0.1522	0.0066	0.1840		0.0007	0.0388	0.0023	0.1009	0.0019	0.0084	0.3204	0.0016	0.0032			0.0007		0.0007		0.0001		0.0012				0.0011	0.0001	0.0004		
1337	HLWD1-23	0.1531	0.0139	0.1354		0.0054	0.0404	0.0048	0.1297	0.0044	0.0100	0.3375	0.0015	0.0021			0.0051		0.0008		0.0066		0.0021		0.0016		0.0029	0.0014	0.0006		
1338	HLWD1-24	0.1133	0.0171	0.1695		0.0063	0.0208	0.0058	0.1574	0.0054	0.0126	0.2802	0.0014	0.0025			0.0064		0.0008		0.0082		0.0026		0.0020		0.0039	0.0017	0.0007		
1339	HLWD1-25	0.1100	0.0157	0.1479		0.0058	0.0208	0.0053	0.1430	0.0050	0.0114	0.3171		0.0020	0.0000		0.0061		0.0009		0.0076		0.0024		0.0018		0.0035	0.0016	0.0006		
1340	HLWD1-26																														
1341	HLWD1-27	0.1177	0.0612	0.1391		0.0050	0.0213	0.0049	0.1260	0.0045	0.0099	0.3504	0.0012	0.0021			0.0054		0.0008		0.0069				0.0016		0.0029		0.0007		
1342	HLWD1-28	0.1031	0.0547	0.1421		0.0042	0.0298	0.0013	0.0665	0.0052	0.0010	0.3438	0.0383	0.0002			0.0011		0.0003		0.0062						0.0008	0.0001	0.0007		
1343	HLWD2-01	0.0622	0.0229	0.1416		0.0038	0.0292	0.0082	0.0664	0.0078	0.0111	0.3172	0.0421				0.0111		0.0075		0.0117				0.0015		0.0026	0.0014	0.0014		
1344	HLWD2-02	0.0578	0.0014	0.2155		0.0007	0.0271	0.0003	0.0605	0.0129	0.0160	0.2954	0.0007				0.0166		0.0140		0.0219				0.0026		0.0047	0.0020	0.0025		
1345	HLWD2-03	0.0720	0.0823	0.0515			0.0340		0.1684	0.0019		0.3296											0.0064					0.0015			
1346	HLWD2-04	0.0624	0.0024	0.2076		0.0006	0.0298	0.0002	0.1614	0.0021	0.0303	0.2606	0.0002				0.0336		0.0220		0.0114						0.0016	0.0013			
1347	HLWD2-05	0.0631	0.0631	0.0729		0.0105	0.0297	0.0194	0.1409	0.0181	0.0005	0.2832	0.0832				0.0001								0.0038		0.0061				
1348	HLWD2-06	0.1214	0.0496	0.1499		0.0024	0.0289	0.0024	0.0937	0.0101	0.0051	0.3300	0.0006	0.0012	0.0031		0.0025		0.0006		0.0033				0.0007		0.0041	0.0009	0.0004		
1349	HLWD2-07	0.1452	0.0540	0.0903		0.0039	0.0295	0.0035	0.0835	0.0283	0.0079	0.3593	0.0010	0.0015	0.0000		0.0039		0.0008		0.0047				0.0010		0.0049	0.0012	0.0005		
1350	HLWD3-01	0.0672	0.0193	0.0864		0.0175	0.0013	0.0074	0.1648	0.0055	0.0202	0.3078	0.0323				0.0099		0.0007		0.0099				0.0015		0.0017	0.0011	0.0017		
1351	HLWD3-02	0.0737	0.0004	0.1212		0.0158			0.1349	0.0078	0.0201	0.4130	0.0001				0.0133				0.0136		0.0032		0.0015		0.0026	0.0016	0.0016	0.0094	
1352	HLWD3-03	0.0763	0.0666	0.0917		0.0010	0.0325	0.0006	0.0810	0.0016	0.0279	0.3010	0.0006				0.0348		0.0237		0.0372				0.0001		0.0001	0.0000			
1353	HLWD3-04	0.1661	0.0720	0.0795		0.0125	0.0348		0.0810	0.0018		0.2662		0.0035			0.0002							0.0027				0.0066	0.0051		
1354	HLWD3-05																														
1355	HLWD3-06	0.1466	0.0666	0.0510		0.0005	0.0291	0.0006	0.0822	0.0029	0.0299	0.3038	0.0868				0.0341		0.0219		0.0378						0.0024	0.0013			
1356	HLWD3-07	0.1152	0.0008	0.1756		0.0005	0.0312	0.0002	0.1617	0.0016	0.0005	0.3040	0.0004				0.0002										0.0001	0.0014			
1357	HLWD3-08	0.0898	0.0155	0.0959		0.0090	0.0005	0.0041	0.2010	0.0032	0.0092	0.2894	0.0016	0.0014			0.0034		0.0006		0.0048				0.0011		0.0058	0.0009	0.0004		
1358	EnvDSR1	0.0687	0.0529	0.2046		0.0021	0.0298	0.0026	0.1278	0.0028	0.0043	0.3139	0.0048				0.0008										0.0027				
1359	Frit-1-78-35																														
1360	Frit-2-78-35																														
1361	Frit-3-78-35																														
1362	Frit-4-78-35																														
1363	Frit-5-78-35																														
1364	Frit-6-78-35																														
1365	Frit-5-78-30																														
1366	Frit-5-78-37																														
1367	Frit-5-78-40																														
1368	Frit-5-78a-35																														
1369	Frit-5-78b-35																														
1370	Frit-5-78c-35																														
1371	DZr-3a																														
1372	DZr-3c																														
1373	DZr-4a																														
1374	DZr-4c																														
1375	DZr-5a																														
1376	DZr-5c																														
1377	DZr-6a																														
1378	DZr-6c																														
1379	DZr-7a																														
1380	DZr-7c																														
1381	DZr-8a																														
1382	DZr-8c																														
1383	DZr-9-78-38																														
1384	DZr-9-78-40																														
1385	DZr-10-78-38																														
1386	DZr-10-78-40																														
1387	GLA 78-21	0.0539	0.1199	0.0233		0.0003	0.0633		0.1205	0.0002	0.0295	0.4075	0.0587											0.0003			0.0012			0.0545
1388	GLA 78-22	0.0570	0.1236	0.0235		0.0003	0.0643		0.1267	0.0002	0.0273	0.4043	0.0632											0.0003			0.0015			0.0567
1389	GLA 78-23	0.0559	0.1220	0.0237		0.0003	0.0627		0.1207	0.0001	0.0329	0.4064	0.0597											0.0003			0.0014			0.0630
1390	GLA 78-9-11	0.0720	0.1149	0.0075		0.0011	0.0601		0.1122	0.0002	0.0312	0.3698	0.0565														0.0010			0.0600
1391	GLA 78-9-15	0.0991	0.1114	0.0033		0.0009	0.0569		0.1057	0.0003	0.0290	0.3627	0.0547														0.0010			0.0649
1392	GLA 78-9-18	0.0737	0.1269	0.0032		0.0000	0.0588		0.1077	0.0003	0.0315	0.3679	0.0570														0.0012			0.0724
1393	GLA 78-10-14	0.0808	0.0695	0.0170		0.0032	0.0597		0.1176	0.0001	0.0382	0.4047	0.0677											0.0003			0.0013			0.0292
1394	GLA 78-10-15	0.0918	0.0688	0.0175		0.0029	0.0550		0.1208	0.0002	0.0362	0.4110	0.0696											0.0004			0.0014			0.0248

#	Glass ID	Ga2O3-a	Gd2O3-a	I-a	La2O3-a	MnO2-a	MnO-a	MoO-a	MoO3-a	Nb2O5-a	Nd2O3-a	NpO2-a	PbO-a	PdO2-a	PdO-a	Pr2O3-a	Pr6O11-a	PuO2-a	Rb2O-a	ReO-a	ReO2-a	Re2O7-a	Rh2O3-a	RhO2-a	RuO2-a	Sb2O3-a	Sb2O5-a	SeO2-a
1313	SRM-12																											
1314	SRM-26																											
1315	SRM-18																											
1316	HLW																											
1317	HLWD1-01				0.0082	0.0271					0.0044		0.0043															
1318	HLWD1-02				0.0085	0.0283					0.0067		0.0036															
1319	HLWD1-03				0.0086	0.0282					0.0067		0.0037															
1320	HLWD1-04				0.0088	0.0298		0.0032			0.0072		0.0040															
1321	HLWD1-05				0.0086	0.0276		0.0032			0.0055		0.0044															
1322	HLWD1-07				0.0124	0.0435		0.0045			0.0093		0.0060															
1323	HLWD1-08				0.0120	0.0415		0.0051			0.0100		0.0059															
1324	HLWD1-09				0.0116	0.0413		0.0052			0.0100		0.0059															
1325	HLWD1-10				0.0113	0.0376		0.0049			0.0096		0.0052															
1326	HLWD1-11				0.0005	0.0070					0.0007																	
1327	HLWD1-12																											
1328	HLWD1-13					0.0588					0.0002					0.0002												
1329	HLWD1-14				0.0174	0.0011					0.0117					0.0010												
1330	HLWD1-15																											
1331	HLWD1-16																											
1332	HLWD1-17					0.0003																						
1333	HLWD1-18					0.0639																						
1334	HLWD1-19					0.0002																						
1335	HLWD1-20					0.0002		0.0070					0.0099															
1336	HLWD1-21				0.0001	0.0050		0.0002			0.0004																	
1337	HLWD1-23				0.0018	0.0051					0.0002				0.0008						0.0002				0.0002	0.0013		
1338	HLWD1-24				0.0023	0.0063					0.0002				0.0010						0.0003				0.0001	0.0016		
1339	HLWD1-25				0.0022	0.0058					0.0002				0.0004						0.0003				0.0002	0.0015		
1340	HLWD1-26																											
1341	HLWD1-27				0.0023	0.0053					0.0005				0.0007						0.0006				0.0006			
1342	HLWD1-28				0.0041	0.0051					0.0002		0.0014															0.0012
1343	HLWD2-01				0.0067	0.0235		0.0019			0.0049		0.0036															
1344	HLWD2-02				0.0110	0.0346		0.0029			0.0069		0.0077															
1345	HLWD2-03				0.0195						0.0128					0.0028												
1346	HLWD2-04					0.0002																						
1347	HLWD2-05												0.0005															
1348	HLWD2-06				0.0009	0.0024							0.0019		0.0010						0.0003				0.0004	0.0008		
1349	HLWD2-07				0.0011	0.0034					0.0002		0.0024															0.0006
1350	HLWD3-01				0.0060	0.0204					0.0041		0.0032															
1351	HLWD3-02				0.0080	0.0273		0.0020			0.0053		0.0031															
1352	HLWD3-03					0.0004							0.0002															
1353	HLWD3-04							0.0059					0.0100														0.0084	0.0060
1354	HLWD3-05																											
1355	HLWD3-06				0.0001	0.0006							0.0004			0.0002												
1356	HLWD3-07					0.0001																						
1357	HLWD3-08				0.0013	0.0064		0.0001			0.0001				0.0002						0.0006				0.0005			
1358	EnvDSR1					0.0076																						
1359	Frit-1-78-35																											
1360	Frit-2-78-35																											
1361	Frit-3-78-35																											
1362	Frit-4-78-35																											
1363	Frit-5-78-35																											
1364	Frit-6-78-35																											
1365	Frit-5-78-30																											
1366	Frit-5-78-37																											
1367	Frit-5-78-40																											
1368	Frit-5-78a-35																											
1369	Frit-5-78b-35																											
1370	Frit-5-78c-35																											
1371	DZr-3a																											
1372	DZr-3c																											
1373	DZr-4a																											
1374	DZr-4c																											
1375	DZr-5a																											
1376	DZr-5c																											
1377	DZr-6a																											
1378	DZr-6c																											
1379	DZr-7a																											
1380	DZr-7c																											
1381	DZr-8a																											
1382	DZr-8c																											
1383	DZr-9-78-38																											
1384	DZr-9-78-40																											
1385	DZr-10-78-38																											
1386	DZr-10-78-40																											
1387	GLA 78-21				0.0002		0.0007						0.0001															
1388	GLA 78-22				0.0001		0.0005						0.0000															
1389	GLA 78-23				0.0002		0.0005						0.0001															
1390	GLA 78-9-11				0.0246		0.0009						0.0000															
1391	GLA 78-9-15				0.0277		0.0007						0.0000															
1392	GLA 78-9-18				0.0282		0.0004						0.0001															
1393	GLA 78-10-14				0.0035		0.0010						0.0000															
1394	GLA 78-10-15				0.0032		0.0009						0.0000															

#	Glass ID	Sm2O3-a	SnO-a	SnO2-a	SO3-a	SrO-a	Tc2O7-a	TeO2-a	ThO2-a	TiO2-a	Tl2O-a	Tl2O3-a	U3O8-a	UO2-a	UO3-a	V2O5-a	WO3-a	Y2O3-a	ZnO-a	Sum-a	T_M (°C)	$T_{L,G}$ (°C)	$T_{L,U}$ (°C)	$T_{1\%}$ (°C)	Primary Phase	$C_{650°C}$	$C_{700°C}$	$C_{750°C}$
1313	SRM-12														0.0010					1.0110	1150								
1314	SRM-26														0.0010					1.0000	1150								
1315	SRM-18														0.0010					1.0010	1150								
1316	HLW																			0.0000	1150		1064		spinel				
1317	HLWD1-01					0.0020				0.0059				0.0388						0.8701	1150		<1050						
1318	HLWD1-02				0.0048	0.0019				0.0058				0.0384						0.9146	1150		<1050						
1319	HLWD1-03				0.0049	0.0018				0.0062				0.0388						0.8819	1150		1050						
1320	HLWD1-04					0.0022				0.0061										0.8971	1150		<1050						
1321	HLWD1-05					0.0021				0.0062				0.0410						0.9167	1150		950						
1322	HLWD1-07				0.0066	0.0335				0.0086				0.0680						0.9620	1150		<1050						
1323	HLWD1-08					0.0305				0.0085				0.0607						0.9520	1150		<1050						
1324	HLWD1-09					0.0305				0.0086				0.0604						0.9494	1150		<1050						
1325	HLWD1-10				0.0065	0.0298				0.0080				0.0606						0.9582	1150		<1050						
1326	HLWD1-11				0.0020	0.0267				0.0028				0.0045						0.9177	1150		>1050						
1327	HLWD1-12																			0.0000	1150		>1050						
1328	HLWD1-13		0.0006			0.0193				0.0005				0.0010						0.9432	1150		>1050						
1329	HLWD1-14		0.0026			0.0188			0.0041	0.0006				0.0818						0.9344	1150		>1050						
1330	HLWD1-15																			0.0000	1150		>1050						
1331	HLWD1-16																			0.0000	1150		>1050						
1332	HLWD1-17					0.0181				0.0002				0.0754						0.8993	1150		<1050						
1333	HLWD1-18		0.0010			0.0167				0.0004				0.0008						0.9458	1150		>1050						
1334	HLWD1-19		0.0002		0.0096	0.0210				0.0163				0.0010					0.0041	0.8778	1150		>1050						
1335	HLWD1-20				0.0130	0.0195				0.0163				0.0009					0.0042	0.8815	1150		1050						
1336	HLWD1-21		0.0002		0.0020	0.0196			0.0003	0.0023				0.0031		0.0002				0.9525	1150		<1050						
1337	HLWD1-23		0.0010		0.0089	0.0250		0.0014	0.0007	0.0017		0.0017		0.0273		0.0002				0.9887	1150		1050						
1338	HLWD1-24		0.0012		0.0092	0.0315		0.0018	0.0010	0.0020		0.0017		0.0322		0.0002				0.9741	1150		1050						
1339	HLWD1-25		0.0011		0.0084	0.0350														0.9197	1150		<1050						
1340	HLWD1-26																			0.0000	1150		<1050						
1341	HLWD1-27					0.0258			0.0011	0.0016				0.0257						0.9778	1150		<1050						
1342	HLWD1-28					0.0226		0.0018		0.0013		0.0005		0.0067					0.0006	0.9264	1150		<1050						
1343	HLWD2-01				0.0051	0.0311			0.0014	0.0049				0.0360						0.9473	1150		<1050						
1344	HLWD2-02				0.0065	0.0270				0.0077				0.0552						0.9341	1150		<1050						
1345	HLWD2-03					0.0196			0.0038					0.0375						1.0001	1150		<1050						
1346	HLWD2-04					0.0176				0.0006				0.0005						0.9213	1150		<1050						
1347	HLWD2-05				0.0005	0.0166													0.0001	0.8539	1150		>1050						
1348	HLWD2-06				0.0058	0.0129			0.0006	0.0008		0.0013		0.0124					0.0005	0.9299	1150		>1050						
1349	HLWD2-07				0.0061	0.0196		0.0009	0.0008	0.0013		0.0015		0.0185					0.0007	0.9204	1150		<1050						
1350	HLWD3-01				0.0035	0.0264				0.0043				0.0300						0.9277	1150		<950						
1351	HLWD3-02				0.0048	0.0201			0.0015	0.0057				0.0405						1.0002	1150		<950						
1352	HLWD3-03				0.0001	0.0181				0.0003				0.0005					0.0001	0.9371	1150		<1050						
1353	HLWD3-04				0.0097	0.0240				0.0168		0.0008		0.0008					0.0042	0.9676	1150		<1050						
1354	HLWD3-05																			0.0000	1150		>1050						
1355	HLWD3-06		0.0005		0.0013	0.0168			0.0003	0.0004				0.0010						0.9517	1150		<1050						
1356	HLWD3-07		0.0001		0.0018	0.0175				0.0002				0.0005						0.9463	1150		<1050						
1357	HLWD3-08				0.0041	0.0227			0.0009	0.0011				0.0187						0.9590	1150		<1050						
1358	EnvDSR1					0.0342				0.0019									0.0004	0.9376	1150		<1050						
1359	Frit-1-78-35																			0.0000									
1360	Frit-2-78-35																			0.0000									
1361	Frit-3-78-35																			0.0000									
1362	Frit-4-78-35																			0.0000									
1363	Frit-5-78-35																			0.0000			< 1050						
1364	Frit-6-78-35																			0.0000									
1365	Frit-5-78-30																			0.0000									
1366	Frit-5-78-37																			0.0000									
1367	Frit-5-78-40																			0.0000									
1368	Frit-5-78a-35																			0.0000			870		CaF2				
1369	Frit-5-78b-35																			0.0000			868		CaF2				
1370	Frit-5-78c-35																			0.0000			879		Sodalite group				
1371	DZr-3a																			0.0000									
1372	DZr-3c																			0.0000									
1373	DZr-4a																			0.0000									
1374	DZr-4c																			0.0000									
1375	DZr-5a																			0.0000									
1376	DZr-5c																			0.0000									
1377	DZr-6a																			0.0000									
1378	DZr-6c																			0.0000									
1379	DZr-7a																			0.0000									
1380	DZr-7c																			0.0000									
1381	DZr-8a																			0.0000									
1382	DZr-8c																			0.0000									
1383	DZr-9-78-38																			0.0000			< 950						
1384	DZr-9-78-40																			0.0000									
1385	DZr-10-78-38																			0.0000			< 950						
1386	DZr-10-78-40																			0.0000									
1387	GLA 78-21				0.0037	0.0022														0.9999									
1388	GLA 78-22				0.0025	0.0032														0.9996									
1389	GLA 78-23				0.0025	0.0031														0.9995									
1390	GLA 78-9-11				0.0055															0.9999									
1391	GLA 78-9-15				0.0045															1.0000									
1392	GLA 78-9-18				0.0045															0.9999									
1393	GLA 78-10-14				0.0027															0.9999			~950						
1394	GLA 78-10-15				0.0022															0.9998			~950						

#	Glass ID	$C_{800°C}$	$C_{850°C}$	$C_{900°C}$	$C_{950°C}$	$C_{1000°C}$	$C_{1050°C}$	$C_{1100°C}$	$C_{1150°C}$	$C_{1200°C}$	Quenched Visual/OM	Quenched XRD	CCC XRD	ρ (g/cm³)	Fulc Visc A	Fulc Visc B	Fulc Visc To	Arrh Visc E	Arrh Visc F	T1 (°C)	V1 (Pa·s)
1313	SRM-12																				
1314	SRM-26																				
1315	SRM-18																				
1316	HLW																				
1317	HLWD1-01										clear dark brown glass							-13.130	22542.5	1000.0	104.530
1318	HLWD1-02										clear dark brown glass							-13.724	21354.3	1000.0	22.859
1319	HLWD1-03										clear dark brown glass							-13.655	21465.9	1000.0	26.301
1320	HLWD1-04										clear dark brown glass							-12.821	20206.4	(1000)	(37.83)
1321	HLWD1-05										clear dark brown glass							-10.326	15754.3	(1000)	(12.556)
1322	HLWD1-07										glassy brown							-10.298	14661.7	(1000)	(5.168)
1323	HLWD1-08										glassy brown							-10.792	16009.2	(1000)	(9.894
1324	HLWD1-09										glassy brown							-11.784	17160.7	1000.0	5.869
1325	HLWD1-10										glassy brown							-12.419	19557.4	1000.0	20.641
1326	HLWD1-11										glassy brown							-10.616	16471.7	(1000)	(14.681
1327	HLWD1-12										opaque brown										
1328	HLWD1-13										opaque brown							-13.159	18650.4	1000.0	4.445
1329	HLWD1-14										clear on top and bottom but crystallized bulk							-12.716	18386.0	1000.0	5.865
1330	HLWD1-15										heavily crystallized										
1331	HLWD1-16										heavily crystallized										
1332	HLWD1-17										clear top and bottom with middle section crystallized							-10.424	14507.4	1000.0	2.750
1333	HLWD1-18										brown glass							-11.147	18683.3	(1000)	~100
1334	HLWD1-19										brown and yellow scum on top of brown glass							-10.396	13242.8	1000.0	1.027
1335	HLWD1-20										opaque green w/ white spots on top										
1336	HLWD1-21										opaque brown glass w/ brown spots on bottom							-9.917	14458.8	1000.0	4.367
1337	HLWD1-23										glassy brown but crucible is heterogeneous							-10.046	13685.2	1000.0	2.106
1338	HLWD1-24										glassy brown but crucible is heterogeneous										
1339	HLWD1-25										glassy brown but crucible is heterogeneous										
1340	HLWD1-26										brown glass with opaque brown & yellow streaks & heterogeneous crucible										
1341	HLWD1-27										glassy brown but crucible is heterogeneous							-10.788	15581.2	1000.0	4.539
1342	HLWD1-28										glassy brown										
1343	HLWD2-01										opaque dark brown glass									(1100)	(11.679
1344	HLWD2-02										glassy brown							-14.645	21451.7	1050.0	4.940
1345	HLWD2-03										clear light brown							-10.328	16674.7	1000.0	17.138
1346	HLWD2-04										glassy brown							-9.648	13594.6	1000.0	2.881
1347	HLWD2-05										brown glass w/ blue metallic coating							-11.556	17553.7	(1000)	(13.71
1348	HLWD2-06										clear brown glass							-10.732	16124.9	1000.0	7.178
1349	HLWD2-07										glassy brown										
1350	HLWD3-01										glassy brown							-11.835	18215.9	1000.0	12.544
1351	HLWD3-02										glassy brown							-9.612	16069.4	(1000)	(28.15
1352	HLWD3-03										clear brown glass							-11.354	17846.2	1000.0	14.800
1353	HLWD3-04										opaque brown w/ white spots on top							-10.428	14798.5	1000.0	3.467
1354	HLWD3-05										opaque yellowish green glass w/ white spots										
1355	HLWD3-06										clear light brown							-12.427	17625.0	1000.0	4.319
1356	HLWD3-07										glassy brown							-9.153	13968.5	1000.0	6.282
1357	HLWD3-08										glassy brown							-11.596	19441.1	1000.0	43.264
1358	EnvDSR1										glassy brown							-11.653	17137.7	1000.0	6.413
1359	Frit-1-78-35										Homogeneous										
1360	Frit-2-78-35										Homogeneous										
1361	Frit-3-78-35										Some crystals										
1362	Frit-4-78-35										Some crystals										
1363	Frit-5-78-35										Homogeneous										
1364	Frit-6-78-35										Some crystals										
1365	Frit-5-78-30										Homogeneous										
1366	Frit-5-78-37										Homogeneous										
1367	Frit-5-78-40										Homogeneous										
1368	Frit-5-78a-35										Homogeneous										
1369	Frit-5-78b-35										Homogeneous										
1370	Frit-5-78c-35										Homogeneous										
1371	DZr-3a										Homogeneous		~5 vol% crystallinity								
1372	DZr-3c										Homogeneous		~2% crystallinity								
1373	DZr-4a										Homogeneous		10-20% crystallinity								
1374	DZr-4c										Homogeneous		10-20% crystallinity								
1375	DZr-5a										Homogeneous		5-10% crystallinity								
1376	DZr-5c										Homogeneous		5-10% crystallinity								
1377	DZr-6a										Homogeneous		surface fully crystallized, lots of crystallinity in bulk								
1378	DZr-6c										Homogeneous		homogenous on top, crystallization on bottom, ~20% overall crystallization								
1379	DZr-7a										Homogeneous		~30% overall crystallization								
1380	DZr-7c										Homogeneous		some mottling, likely crystallization								
1381	DZr-8a										Homogeneous		fully crystallized, like a rock								
1382	DZr-8c										Homogeneous		homogenous on top, crystallization on bottom, ~30% overall crystallization								
1383	DZr-9-78-38										Homogeneous		~1 vol% (bulk) crystallinity								
1384	DZr-9-78-40										Homogeneous		20-40 vol% crystallinity								
1385	DZr-10-78-38										Homogeneous		<5 vol% (surface) crystallinity								
1386	DZr-10-78-40										Homogeneous		>50 vol% crystallinity								
1387	GLA 78-21										small (~1 mm) black particles	<0.5% crystallinity	~1-2 vol% dendritic crystals on all surfaces and spinel								
1388	GLA 78-22											<0.5% crystallinity	~5-10 vol% dendritic crystals on all surfaces and spinel								
1389	GLA 78-23										small (~1 mm) black particles anc	<1 vol% cuspidine	~2 vol% dendritic crystals on all surfaces and spinel								
1390	GLA 78-9-11										multiple phases and a transparen	~1.3 vol% cuspidine and ~3.1 vol	~1-2 vol% dendritic crystals with distorted edges								
1391	GLA 78-9-15										multiple phases and a transparen	~8.2 vol% cuspidine and ~1.6 vol	~1-2 vol% dendritic crystals with distorted edges								
1392	GLA 78-9-18										multiple phases and a transparen	~0.5 vol% crystallinity	~25-50% dendritic crystals with distorted edges								
1393	GLA 78-10-14												~1 vol% hematite and spinel								
1394	GLA 78-10-15												~1 vol% hematite and spinel								

#	Glass ID	T2 (°C)	V2 (Pa·s)	T3 (°C)	V3 (Pa·s)	T4 (°C)	V4 (Pa·s)	T5 (°C)	V5 (Pa·s)	T6 (°C)	V6 (Pa·s)	T7 (°C)	V7 (Pa·s)	T8 (°C)	V8 (Pa·s)	T9 (°C)	V9 (Pa·s)	T10 (°C)	V10 (Pa·s)	TCLP Ag	TCLP As	TCLP Ba	TCLP Cd	TCLP Cr	TCLP Ni	TCLP Pb
1313	SRM-12																								0.18	
1314	SRM-26																								0.1	
1315	SRM-18																							0.11	0.16	
1316	HLW																									
1317	HLWD1-01	1050	49.278	1100	25.5	1150.0	14.3	1200.0	8.5	1250.0	5.4	1300.0	3.5													
1318	HLWD1-02	1050	11.066	1100	5.9	1150.0	3.4	1200.0	2.1	1250.0	1.4	1300.0	0.9													
1319	HLWD1-03	1050	12.929	1100	6.9	1150.0	4.0	1200.0	2.4	1250.0	1.6	1300.0	1.0													
1320	HLWD1-04	(1050)	(14.743	1100	7.0	1150.0	3.8	1200.0	2.3	1250.0	1.5	1300.0	1.1													
1321	HLWD1-05	(1050)	(5.922	1100	3.3	1150.0	2.1	1200.0	1.4	1250.0	1.0	1300.0	0.8													
1322	HLWD1-07	(1050)	(2.607	1100	1.5	1150.0	1.0	1200.0	0.7	1250.0	0.5	1300.0	0.4													
1323	HLWD1-08	(1050)	(4.554	1100	2.5	1150.0	1.5	1200.0	1.0	1250.0	0.7	1300.0	0.6									1.18	0.72	<0.006		0.16
1324	HLWD1-09	1050	3.237	1100	1.9	1150.0	1.2	1200.0	0.8	1250.0	0.6	1300.0	0.4									1.26	0.83	0.01		0.16
1325	HLWD1-10	1050	10.475	1100	5.9	1150.0	3.5	1200.0	2.3	1250.0	1.5	1300.0	1.1									1.55	1.14	0.01		0.21
1326	HLWD1-11	(1050)	(7.294	1100	4.1	1150.0	2.6	1200.0	1.7	1250.0	1.2	1300.0	0.9													
1327	HLWD1-12																									
1328	HLWD1-13	1050	2.555	1100	1.5	1150.0	0.9	1200.0	0.6	1250.0	0.4	1300.0	0.3													
1329	HLWD1-14	1050	3.236	1100	1.9	1150.0	1.2	1200.0	0.8	1250.0	0.5	1300.0	0.4													
1330	HLWD1-15																									
1331	HLWD1-16																									
1332	HLWD1-17	1050	1.708	1100	1.1	1150.0	0.8	1200.0	0.6	1250.0	0.4	1300.0	0.3													
1333	HLWD1-18	(1050)	~40	(1100)	~20	(1150)	~10	1200.0	4.7	1250.0	3.0	1300.0	2.1													
1334	HLWD1-19	1050	0.677	1100	0.5	1150.0	0.3	1200.0	0.2	1250.0	0.2	1300.0	0.1													
1335	HLWD1-20																									
1336	HLWD1-21	1050	2.736	1100	1.8	1150.0	1.2	1200.0	0.9	1250.0	0.7	1300.0	0.5													
1337	HLWD1-23	1050	1.338	1100	0.9	1150.0	0.6	1200.0	0.5	1250.0	0.3	1300.0	0.3													
1338	HLWD1-24																									
1339	HLWD1-25																									
1340	HLWD1-26																									
1341	HLWD1-27	1050	2.660	1100	1.7	1150.0	1.1	1200.0	0.8	1250.0	0.6	1300.0	0.4													
1342	HLWD1-28																									
1343	HLWD2-01	(1050)	(4.941	(1200)	(3.71	(1250)	(3.214																			
1344	HLWD2-02	1100	2.615	1150	1.5	1200.0	0.9	1250.0	0.6																	
1345	HLWD2-03	1050	9.612	1100	5.9	1150.0	3.8	1200.0	2.6	1250.0	1.9	1300.0	1.4													
1346	HLWD2-04	1050	1.866	1100	1.3	1150.0	0.9	1200.0	0.7	1250.0	0.5	1300.0	0.4													
1347	HLWD2-05	(1050)	(6.513	1100	3.5	1150.0	2.1	1200.0	1.4	1250.0	1.0	1300.0	0.7													
1348	HLWD2-06	1050	4.266	1100	2.7	1150.0	1.8	1200.0	1.2	1250.0	0.9	1300.0	0.6													
1349	HLWD2-07																									
1350	HLWD3-01	1050	6.780	1100	4.0	1150.0	2.5	1200.0	1.7	1250.0	1.2															
1351	HLWD3-02	(1050)	(14.472	1100	8.4	1150.0	5.3	1200.0	3.6	1250.0	2.5	1300.0	1.9													
1352	HLWD3-03	1050	8.426	1100	5.1	1150.0	3.2	1200.0	2.1	1250.0	1.4	1300.0	1.0									5.43	5.24	<0.006		0.04
1353	HLWD3-04	1050	2.117	1100	1.4	1150.0	0.9	1200.0	0.7	1250.0	0.5	1300.0	0.4									0.76	0.04	0.02		0.76
1354	HLWD3-05																									
1355	HLWD3-06	1050	2.430	1100	1.5	1150.0	0.9	1200.0	0.6	1250.0	0.4	1300.0	0.3									8.45	9.22	<0.006		0.07
1356	HLWD3-07	1050	4.065	1100	2.7	1150.0	1.9	1200.0	1.4	1250.0	1.0	1300.0	0.8													
1357	HLWD3-08	1050	21.802	1100	12.2	1150.0	7.4	1200.0	4.8	1250.0	3.3	1300.0	2.3									2.19	2.62	2.32		1.02
1358	EnvDSR1	1050	3.641	1100	2.2	1150.0	1.4	1200.0	1.0	1250.0	0.7	1300.0	0.5									0.08	<0.003	<0.006		0.12
1359	Frit-1-78-35																									
1360	Frit-2-78-35																									
1361	Frit-3-78-35																									
1362	Frit-4-78-35																									
1363	Frit-5-78-35																									
1364	Frit-6-78-35																									
1365	Frit-5-78-30																									
1366	Frit-5-78-37																									
1367	Frit-5-78-40																									
1368	Frit-5-78a-35																									
1369	Frit-5-78b-35																									
1370	Frit-5-78c-35																									
1371	DZr-3a																									
1372	DZr-3c																									
1373	DZr-4a																									
1374	DZr-4c																									
1375	DZr-5a																									
1376	DZr-5c																									
1377	DZr-6a																									
1378	DZr-6c																									
1379	DZr-7a																									
1380	DZr-7c																									
1381	DZr-8a																									
1382	DZr-8c																									
1383	DZr-9-78-38																									
1384	DZr-9-78-40																									
1385	DZr-10-78-38																									
1386	DZr-10-78-40																									
1387	GLA 78-21																									
1388	GLA 78-22																									
1389	GLA 78-23																									
1390	GLA 78-9-11																									
1391	GLA 78-9-15																									
1392	GLA 78-9-18																									
1393	GLA 78-10-14																									
1394	GLA 78-10-15																									

#	Glass ID	TCLP Se	TCLP Zn	TCLP Al	TCLP B	TCLP Sb	TCLP Tl	TCLP V	Q PCT B (g/m²)	Q PCT Li (g/m²)	Q PCT Na (g/m²)	Q PCT Si (g/m²)	Q PCT pH	CCC PCT B (g/m²)	CCC PCT Li (g/m²)	CCC PCT Na (g/m²)	CCC PCT Si (g/m²)	CCC PCT pH	T1 (°C)
1313	SRM-12																		
1314	SRM-26																		
1315	SRM-18																		
1316	HLW																		
1317	HLWD1-01								0.127		0.133	0.102	9.300						
1318	HLWD1-02								0.395		0.339	0.125	10.300						
1319	HLWD1-03								0.179		0.175	0.095	9.200						
1320	HLWD1-04								0.175		0.191	0.068	9.800						
1321	HLWD1-05								0.330	0.305	0.273	0.128	10.300						
1322	HLWD1-07								0.526	0.529	0.512	0.243	10.000						
1323	HLWD1-08								0.327	0.338	0.290	0.188	9.300						
1324	HLWD1-09								0.497	0.481	0.498	0.267	10.400						
1325	HLWD1-10								0.368		0.371	0.157	9.300						
1326	HLWD1-11								0.801	0.666	0.633	0.308	11.300						
1327	HLWD1-12																		
1328	HLWD1-13								0.194	0.250	0.263	0.160	10.500						
1329	HLWD1-14								1.330	0.980	0.840	0.140	10.100						
1330	HLWD1-15																		
1331	HLWD1-16																		
1332	HLWD1-17								1.221	1.009	0.792	0.218	10.700						
1333	HLWD1-18								0.648	0.536	0.477	0.176	9.600						
1334	HLWD1-19								1.470	1.400	1.890	0.490	11.800						
1335	HLWD1-20								0.612	0.565	0.739	0.229	11.600						
1336	HLWD1-21								0.608	0.513	0.432	0.198	10.100						
1337	HLWD1-23								2.493	2.006	1.694	0.380	10.820						
1338	HLWD1-24																		
1339	HLWD1-25								1.961	1.558	1.524	0.374	10.300						
1340	HLWD1-26																		
1341	HLWD1-27								1.050	0.980	1.120	0.280	11.100						
1342	HLWD1-28																		
1343	HLWD2-01								0.232	0.253	0.213	0.111	10.000						
1344	HLWD2-02								0.475	0.439	0.432	0.286	10.000						
1345	HLWD2-03								0.227	0.342	0.526	0.185	11.200						
1346	HLWD2-04								3.570	2.870	3.010	0.630	11.900						
1347	HLWD2-05								5.810	4.200	4.690	0.560	12.200						
1348	HLWD2-06								0.210	0.210	0.280	0.140	10.200						
1349	HLWD2-07																		
1350	HLWD3-01								0.770	0.700	0.910	0.210	11.300						
1351	HLWD3-02								0.420		0.490	0.210	10.200						
1352	HLWD3-03								0.109	0.148	0.150	0.066	10.300						
1353	HLWD3-04								0.279	0.298	0.282	0.071	9.400						
1354	HLWD3-05																		
1355	HLWD3-06								0.561	0.512	0.535	0.144	9.900						
1356	HLWD3-07								0.691	0.465	0.582	0.254	10.900						
1357	HLWD3-08								4.656		2.493	0.223	11.500						
1358	EnvDSR1								0.630	0.700	0.840	0.280	11.300						
1359	Frit-1-78-35																		
1360	Frit-2-78-35																		
1361	Frit-3-78-35																		
1362	Frit-4-78-35																		
1363	Frit-5-78-35								0.098	0.168	0.033	0.034							
1364	Frit-6-78-35																		
1365	Frit-5-78-30								0.180	0.280	0.162	0.087							
1366	Frit-5-78-37								0.098	0.155	0.015	0.027							
1367	Frit-5-78-40								0.078	0.146	0.015	0.021							
1368	Frit-5-78a-35																		
1369	Frit-5-78b-35																		
1370	Frit-5-78c-35																		
1371	DZr-3a																		
1372	DZr-3c																		
1373	DZr-4a																		
1374	DZr-4c																		
1375	DZr-5a																		
1376	DZr-5c																		
1377	DZr-6a																		
1378	DZr-6c																		
1379	DZr-7a																		
1380	DZr-7c																		
1381	DZr-8a																		
1382	DZr-8c																		
1383	DZr-9-78-38								0.199		0.418	0.065							
1384	DZr-9-78-40								0.190		0.320	0.061							
1385	DZr-10-78-38								0.208		0.339	0.065							
1386	DZr-10-78-40								0.169		0.295	0.058							
1387	GLA 78-21								0.228	0.348	0.395	0.091	11.200						
1388	GLA 78-22								0.180	0.304	0.330	0.077	11.150						
1389	GLA 78-23								0.169	0.293	0.336	0.089	11.110						
1390	GLA 78-9-11								0.188	0.281	0.302	0.076	10.930						
1391	GLA 78-9-15								0.173	0.304	0.349	0.100	10.790						
1392	GLA 78-9-18								0.222	0.284	0.338	0.079	10.900						
1393	GLA 78-10-14								0.260	0.369	0.326	0.113	10.860						
1394	GLA 78-10-15								0.231	0.403	0.326	0.112	10.930						

#	Glass ID	EC1 (S/cm)	T2 (°C)	EC2 (S/cm)	T3 (°C)	EC3 (S/cm)	T4 (°C)	EC4 (S/cm)	T5 (°C)	EC5 (S/cm)	T6 (°C)	EC6 (S/cm)	A	B	To
1313	SRM-12														
1314	SRM-26														
1315	SRM-18														
1316	HLW														
1317	HLWD1-01														
1318	HLWD1-02														
1319	HLWD1-03														
1320	HLWD1-04														
1321	HLWD1-05														
1322	HLWD1-07														
1323	HLWD1-08														
1324	HLWD1-09														
1325	HLWD1-10														
1326	HLWD1-11														
1327	HLWD1-12														
1328	HLWD1-13														
1329	HLWD1-14														
1330	HLWD1-15														
1331	HLWD1-16														
1332	HLWD1-17														
1333	HLWD1-18														
1334	HLWD1-19														
1335	HLWD1-20														
1336	HLWD1-21														
1337	HLWD1-23														
1338	HLWD1-24														
1339	HLWD1-25														
1340	HLWD1-26														
1341	HLWD1-27														
1342	HLWD1-28														
1343	HLWD2-01														
1344	HLWD2-02														
1345	HLWD2-03														
1346	HLWD2-04														
1347	HLWD2-05														
1348	HLWD2-06														
1349	HLWD2-07														
1350	HLWD3-01														
1351	HLWD3-02														
1352	HLWD3-03														
1353	HLWD3-04														
1354	HLWD3-05														
1355	HLWD3-06														
1356	HLWD3-07														
1357	HLWD3-08														
1358	EnvDSR1														
1359	Frit-1-78-35														
1360	Frit-2-78-35														
1361	Frit-3-78-35														
1362	Frit-4-78-35														
1363	Frit-5-78-35														
1364	Frit-6-78-35														
1365	Frit-5-78-30														
1366	Frit-5-78-37														
1367	Frit-5-78-40														
1368	Frit-5-78a-35														
1369	Frit-5-78b-35														
1370	Frit-5-78c-35														
1371	DZr-3a														
1372	DZr-3c														
1373	DZr-4a														
1374	DZr-4c														
1375	DZr-5a														
1376	DZr-5c														
1377	DZr-6a														
1378	DZr-6c														
1379	DZr-7a														
1380	DZr-7c														
1381	DZr-8a														
1382	DZr-8c														
1383	DZr-9-78-38														
1384	DZr-9-78-40														
1385	DZr-10-78-38														
1386	DZr-10-78-40														
1387	GLA 78-21														
1388	GLA 78-22														
1389	GLA 78-23														
1390	GLA 78-9-11														
1391	GLA 78-9-15														
1392	GLA 78-9-18														
1393	GLA 78-10-14														
1394	GLA 78-10-15														

#	Glass ID	Study	Reference	Al2O3-t	B2O3-t	CaO-t	Fe2O3-t	FeO-t	K2O-t	Li2O-t	MgO-t	Na2O-t	NiO-t	P2O5-t	SiO2-t	ZrO2-t	Ag2O-t	As2O3-t	As2O5-t	BaO-t	BeO-t	Bi2O3-t	Br-t	CdO-t	Ce2O3-t	CeO2-t	Cl-t
1395	GLA 78-10-16	INEEL DZr Process Demonstr	Musick et al. 2000																								
1396	P2-0Ca-0F	INEEL CVS 2a	Peeler et al. 1999	0.0772	0.1096	0.0000	0.0243		0.0015	0.0365	0.0012	0.0684	0.0003	0.0002	0.6235	0.0538											0.0003
1397	P2-0Ca-1F	INEEL CVS 2a	Peeler et al. 1999	0.0694	0.0986	0.0000	0.0219		0.0013	0.0329	0.0011	0.1556	0.0003	0.0001	0.5612	0.0485											0.0003
1398	P2-0Ca-2F	INEEL CVS 2a	Peeler et al. 1999	0.0691	0.0981	0.0000	0.0218		0.0013	0.0327	0.0011	0.1548	0.0003	0.0001	0.5581	0.0481											0.0003
1399	P2-0Ca-3F	INEEL CVS 2a	Peeler et al. 1999	0.0688	0.0976	0.0000	0.0216		0.0013	0.0326	0.0011	0.1540	0.0003	0.0001	0.5552	0.0479											0.0003
1400	P2-0Ca-4F	INEEL CVS 2a	Peeler et al. 1999	0.0684	0.0971	0.0000	0.0215		0.0013	0.0324	0.0011	0.1533	0.0003	0.0001	0.5526	0.0478											0.0003
1401	P2-0Ca-5F	INEEL CVS 2a	Peeler et al. 1999	0.0679	0.0964	0.0000	0.0214		0.0013	0.0322	0.0011	0.1521	0.0003	0.0001	0.5485	0.0473											0.0003
1402	P2-3Ca-0F	INEEL CVS 2a	Peeler et al. 1999	0.0749	0.1063	0.0300	0.0236		0.0014	0.0354	0.0012	0.0664	0.0003	0.0001	0.6048	0.0522											0.0003
1403	P2-3Ca-1F	INEEL CVS 2a	Peeler et al. 1999	0.0676	0.0959	0.0270	0.0213		0.0013	0.0320	0.0011	0.1514	0.0003	0.0001	0.5458	0.0472											0.0002
1404	P2-3Ca-2F	INEEL CVS 2a	Peeler et al. 1999	0.0672	0.0954	0.0269	0.0212		0.0013	0.0318	0.0011	0.1505	0.0003	0.0001	0.5428	0.0468											0.0002
1405	P2-3Ca-3F	INEEL CVS 2a	Peeler et al. 1999	0.0667	0.0948	0.0268	0.0211		0.0013	0.0316	0.0011	0.1495	0.0003	0.0001	0.5392	0.0465											0.0002
1406	P2-3Ca-4F	INEEL CVS 2a	Peeler et al. 1999	0.0664	0.0943	0.0266	0.0210		0.0013	0.0314	0.0011	0.1487	0.0003	0.0001	0.5363	0.0463											0.0002
1407	P2-3Ca-5F	INEEL CVS 2a	Peeler et al. 1999	0.0660	0.0937	0.0264	0.0209		0.0013	0.0312	0.0010	0.1478	0.0003	0.0001	0.5330	0.0460											0.0002
1408	P2-9Ca-0F	INEEL CVS 2a	Peeler et al. 1999	0.0645	0.0916	0.0943	0.0203		0.0012	0.0305	0.0010	0.1273	0.0002	0.0001	0.5211	0.0450											0.0002
1409	P2-9Ca-1F	INEEL CVS 2a	Peeler et al. 1999	0.0630	0.0894	0.0920	0.0199		0.0012	0.0298	0.0010	0.1411	0.0002	0.0001	0.5087	0.0439											0.0002
1410	P2-9Ca-2F	INEEL CVS 2a	Peeler et al. 1999	0.0624	0.0886	0.0913	0.0197		0.0012	0.0295	0.0010	0.1398	0.0002	0.0001	0.5043	0.0435											0.0002
1411	P2-9Ca-3F	INEEL CVS 2a	Peeler et al. 1999	0.0620	0.0880	0.0906	0.0195		0.0012	0.0294	0.0010	0.1388	0.0002	0.0001	0.5007	0.0432											0.0002
1412	P2-9Ca-4F	INEEL CVS 2a	Peeler et al. 1999	0.0616	0.0875	0.0901	0.0195		0.0012	0.0292	0.0010	0.1380	0.0002	0.0001	0.4977	0.0430											0.0002
1413	P2-9Ca-5F	INEEL CVS 2a	Peeler et al. 1999	0.0616	0.0875	0.0900	0.0194		0.0012	0.0291	0.0010	0.1380	0.0002	0.0001	0.4975	0.0430											0.0002
1414	SRL 165 HiFe	SRL 165 Glasses	Pye 1985	0.0177	0.0684	0.0113	0.1454			0.0476	0.0074	0.1154	0.0183		0.4991	0.0091											
1415	SRL 165 TDS	SRL 165 Glasses	Pye 1985	0.0418	0.0692	0.0153	0.1202			0.0479	0.0081	0.1049	0.0000		0.5509	0.0122											
1416	SRL 165 HiAl	SRL 165 Glasses	Pye 1985	0.0928	0.0739	0.0114	0.0635			0.0514	0.0080	0.1176	0.0068		0.5429	0.0101											
1417	HLW98-01	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.1071	0.1062	0.0097	0.1169		0.0043	0.0195	0.0097	0.1305	0.0043	0.0085	0.3213	0.0604	0.0019	0.0005		0.0043		0.0004		0.0063		0.0049	0.0011
1418	HLW98-02	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.1106	0.1096	0.0101	0.1207		0.0044	0.0201	0.0101	0.1347	0.0044	0.0087	0.3318	0.0302	0.0020	0.0005		0.0045		0.0004		0.0065		0.0051	0.0011
1419	HLW98-03	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.1179	0.1000	0.0142	0.0943		0.0024	0.0300	0.0094	0.1179	0.0024	0.0094	0.3943	0.0377	0.0009	0.0005		0.0024		0.0005		0.0024		0.0024	0.0024
1420	HLW98-04	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.1179	0.1300	0.0142	0.0943		0.0024	0.0000	0.0094	0.1179	0.0024	0.0094	0.3943	0.0377	0.0009	0.0005		0.0024		0.0005		0.0024		0.0024	0.0024
1421	HLW98-05	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.1146	0.1300	0.0137	0.1217		0.0023		0.0092	0.1146	0.0023	0.0092	0.4117		0.0009	0.0005		0.0023		0.0005		0.0046		0.0023	0.0023
1422	HLW98-06	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0851	0.1000	0.0043	0.1276		0.0043	0.0300	0.0085	0.1106	0.0043	0.0064	0.4276	0.0213	0.0009	0.0009		0.0043		0.0004		0.0034		0.0013	0.0009
1423	HLW98-07	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0882	0.1000	0.0044	0.1323		0.0044	0.0100	0.0088	0.1146	0.0044	0.0066	0.4323	0.0220	0.0009	0.0009		0.0044		0.0004		0.0035		0.0013	0.0009
1424	HLW98-08	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0743	0.1200	0.0153	0.1226		0.0044	0.0300	0.0087	0.0918	0.0044	0.0066	0.4093	0.0219	0.0009	0.0009		0.0044		0.0004		0.0035		0.0013	0.0009
1425	HLW98-09	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0797	0.1200	0.0040	0.1196		0.0040	0.0300	0.0080	0.0837	0.0040	0.0060	0.4496	0.0199	0.0008	0.0008		0.0040		0.0004		0.0032		0.0012	0.0008
1426	HLW98-10	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0701	0.1200	0.0144	0.1157		0.0041	0.0300	0.0084	0.0867	0.0041	0.0062	0.4332	0.0206	0.0008	0.0008		0.0041		0.0004		0.0033		0.0012	0.0008
1427	HLW98-11	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0729	0.1200	0.0150	0.1202		0.0043	0.0300	0.0086	0.0901	0.0043	0.0064	0.4173	0.0215	0.0009	0.0009		0.0043		0.0004		0.0034		0.0013	0.0009
1428	HLW98-12	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0749	0.1500	0.0027	0.1267		0.0030	0.0700	0.0009	0.0293	0.0046	0.0059	0.4099	0.0388	0.0008	0.0006		0.0006				0.0053		0.0012	0.0001
1429	HLW98-13	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0666	0.1500	0.0024	0.1126		0.0026	0.0300	0.0008	0.1060	0.0041	0.0053	0.4088	0.0344	0.0007	0.0005		0.0005				0.0047		0.0011	0.0001
1430	HLW98-14	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0870	0.1200	0.0190	0.0876		0.0019	0.0300	0.0114	0.1404	0.0016	0.0065	0.4169	0.0031	0.0011			0.0059		0.0006		0.0004			0.0007
1431	HLW98-15	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0870	0.1500	0.0190	0.0876		0.0019	0.0000	0.0114	0.1404	0.0016	0.0065	0.4169	0.0031	0.0011			0.0059		0.0006		0.0004			0.0007
1432	HLW98-16	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0720	0.1200	0.0148	0.1187		0.0043	0.0171	0.0085	0.0890	0.0043	0.0064	0.4356	0.0212		0.0009		0.0043		0.0004		0.0034		0.0013	0.0009
1433	HLW98-17	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0703	0.1200	0.0145	0.1154		0.0042	0.0300	0.0083	0.0867	0.0042	0.0062	0.4323	0.0207		0.0009		0.0042		0.0004		0.0033		0.0013	0.0009
1434	HLW98-18	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0772	0.0500	0.0028	0.1296		0.0031	0.0700	0.0009	0.0302	0.0048	0.0061	0.5102	0.0400		0.0006		0.0006				0.0054		0.0012	0.0001
1435	HLW98-19	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0915	0.1200	0.0200	0.0921		0.0020	0.0000	0.0120	0.1477	0.0017	0.0068	0.4256	0.0033	0.0012			0.0062		0.0006		0.0004			0.0007
1436	HLW98-20	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0891	0.1200	0.0195	0.0978		0.0020	0.0150	0.0117	0.1438	0.0016	0.0066	0.4360	0.0032	0.0000			0.0061		0.0006		0.0004			0.0007
1437	HLW98-21	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0677	0.0700	0.0024	0.1136		0.0027	0.0600	0.0008	0.0664	0.0042	0.0053	0.5089	0.0350		0.0005		0.0005				0.0048		0.0011	0.0001
1438	HLW98-22	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0535	0.1200	0.0117	0.1462		0.0012	0.0300	0.0070	0.0863	0.0010	0.0040	0.4026	0.0019				0.0036		0.0004		0.0002			0.0004
1439	HLW98-23	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0485	0.1200	0.0106	0.1324		0.0011	0.0300	0.0064	0.0782	0.0009	0.0036	0.4429	0.0017				0.0033		0.0003		0.0002			0.0004
1440	HLW98-24	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0677	0.1100	0.0024	0.1136		0.0027	0.0600	0.0008	0.0664	0.0042	0.0053	0.4689	0.0350		0.0005		0.0005				0.0048		0.0011	0.0001
1441	HLW98-25	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0664	0.1000	0.0024	0.1114		0.0026	0.0600	0.0008	0.0659	0.0041	0.0052	0.4688	0.0343	0.0007	0.0005		0.0005				0.0047		0.0011	0.0001
1442	HLW98-26	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0781	0.0700	0.0026	0.1305		0.0018	0.0650	0.0007	0.0611	0.0057	0.0013	0.4626	0.0279		0.0004		0.0004				0.0039		0.0009	0.0001
1443	HLW98-27B	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0781	0.0400	0.0026	0.1305		0.0018	0.0450	0.0007	0.1435	0.0057	0.0013	0.4302	0.0279		0.0004		0.0004				0.0039		0.0009	0.0001
1444	HLW98-28	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0781	0.0200	0.0026	0.1305		0.0018	0.0400	0.0007	0.1435	0.0057	0.0013	0.4552	0.0279	0.0000	0.0004		0.0004				0.0039		0.0009	0.0001
1445	HLW98-29	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0781	0.1289	0.0026	0.1305		0.0018	0.0400	0.0007	0.0796	0.0057	0.0013	0.4102	0.0279	0.0000	0.0004		0.0004				0.0039		0.0009	0.0001
1446	HLW98-30	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0781	0.1000	0.0026	0.1097		0.0018	0.0600	0.0007	0.0661	0.0057	0.0013	0.4534	0.0279	0.0000	0.0004		0.0004				0.0039		0.0009	0.0001
1447	HLW98-31	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0740	0.1000	0.0025	0.1039		0.0017	0.0600	0.0006	0.0659	0.0054	0.0013	0.4553	0.0356	0.0000	0.0004		0.0004				0.0037		0.0008	0.0001
1448	HLW98-32A	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.1368	0.0900	0.0024	0.1110		0.0005	0.0700	0.0007	0.0358	0.0067	0.0005	0.4550	0.0146	0.0000	0.0004		0.0003				0.0078		0.0004	0.0001
1449	HLW98-33	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.1003	0.0700	0.0067	0.1092		0.0003	0.0300	0.0020	0.0879	0.0014	0.0014	0.3773	0.0011	0.0022	0.0000		0.0006				0.0004		0.0003	0.0003
1450	HLW98-34	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.1078	0.0700	0.0071	0.1173		0.0003	0.0400	0.0022	0.0936	0.0015	0.0015	0.4089	0.0012	0.0024			0.0007				0.0004	0.0003		0.0002
1451	HLW98-34CG	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.1078	0.0700	0.0071	0.1173		0.0003	0.0400	0.0022	0.0936	0.0015	0.0015	0.4089	0.0012	0.0024			0.0007				0.0004	0.0003		0.0002
1452	HLW98-35	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.1034	0.0700	0.0176	0.1206		0.0006	0.0500	0.0008	0.0971	0.0073	0.0006	0.4354	0.0158	0.0000	0.0004		0.0003				0.0085		0.0005	0.0002
1453	HLW98-36	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0939	0.0900	0.0281	0.0382		0.0008	0.0500	0.0003	0.1263	0.0024	0.0021	0.4350	0.0784	0.0000	0.0000		0.0000				0.0006		0.0000	0.0001
1454	HLW98-37	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0443	0.0505	0.0045	0.0561		0.0000	0.0450	0.0005	0.1528	0.0020	0.0007	0.4177	0.1156	0.0000	0.0000		0.0000				0.0009		0.0000	0.0000
1455	HLW98-38	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0336	0.0500	0.0064	0.0663		0.0010	0.0450	0.0008	0.1143	0.0033	0.0047	0.3823	0.0684	0.0009	0.0000		0.0003				0.0009		0.0012	0.0000
1456	HLW98-39	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0370	0.0300	0.0070	0.0730		0.0011	0.0400	0.0009	0.1223	0.0036	0.0051	0.3696	0.0753	0.0010	0.0000		0.0003				0.0009		0.0013	0.0000
1457	HLW98-40	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0823	0.0600	0.0026	0.1189		0.0006	0.0450	0.0008	0.1419	0.0072	0.0006	0.4353	0.0156	0.0004	0.0004		0.0003				0.0084		0.0005	0.0000
1458	HLW98-41	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0343	0.0300	0.0065	0.0677		0.0010	0.0500	0.0008	0.1404	0.0033	0.0048	0.3628	0.0698	0.0009	0.0000		0.0003				0.0009		0.0012	0.0000
1459	HLW98-42	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0797	0.0850	0.0025	0.1152		0.0006	0.0700	0.0007	0.0889	0.0069	0.0006	0.4477	0.0151	0.0004	0.0004		0.0003				0.0081		0.0005	0.0000
1460	HLW98-43	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0325	0.0500	0.0062	0.0641		0.0010	0.0600	0.0008	0.1275	0.0032	0.0045	0.3666	0.0661	0.0009	0.0000		0.0003				0.0008		0.0011	0.0000
1461	HLW98-44	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0325	0.0700	0.0062	0.0641		0.0010	0.0600	0.0008	0.1025	0.0032	0.0045	0.3716	0.0661	0.0009	0.0000		0.0003		0.0000		0.0008		0.0011	0.0000
1462	HLW98-45	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0314	0.0700	0.0060	0.0620		0.0010	0.0600	0.0007	0.1033	0.0031	0.0044	0.3834	0.0639	0.0009	0.0000		0.0003		0.0000		0.0008		0.0011	0.0000
1463	HLW98-46	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0300	0.0750	0.0057	0.0591		0.0009	0.0700	0.0007	0.0984	0.0029	0.0042	0.3899	0.0610	0.0008	0.0000		0.0002		0.0000		0.0008		0.0011	0.0000
1464	HLW98-47	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0287	0.0750	0.0055	0.0567		0.0009	0.0700	0.0007	0.1014	0.0028	0.0040	0.4016	0.0584	0.0008	0.0000		0.0002		0.0000		0.0007		0.0010	0.0000
1465	HLW98-48	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0449	0.0900	0.0047	0.0492		0.0008	0.0500	0.0006	0.1103	0.0024	0.0035	0.4216	0.0507	0.0007	0.0000		0.0002		0.0000		0.0006		0.0009	0.0000
1466	HLW98-49	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0588	0.0700	0.0045	0.0470		0.0007	0.0400	0.0006	0.1385	0.0023	0.0033	0.4208	0.0485	0.0007	0.0000		0.0002		0.0000		0.0006		0.0008	0.0000
1467	HLW98-50	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0250	0.1100	0.0043	0.0458		0.0002	0.0400	0.0006	0.1359	0.0026	0.0035	0.4544	0.0546	0.0007	0.0000		0.0002		0.0000		0.0007		0.0008	0.0000
1468	HLW98-51R	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0238	0.0900	0.0045	0.0470		0.0007	0.0500	0.0006	0.0860	0.0023	0.0033	0.4783	0.0485	0.0007	0.0000		0.0002		0.0000		0.0006		0.0008	0.0000
1469	HLW98-52	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0797	0.0700	0.0025	0.1152		0.0006	0.0600	0.0007	0.0989	0.0069	0.0006	0.4626	0.0151	0.0004	0.0004		0.0003				0.0081		0.0005	0.0000
1470	HLW98-53A	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0811	0.0725	0.0025	0.1172		0.0006	0.0600	0.0007	0.0992	0.0071	0.0006	0.4638	0.0154	0.0004	0.0004		0.0003				0.0083		0.0005	0.0000
1471	HLW98-54	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0797	0.1000	0.0025	0.1152		0.0006	0.0600	0.0007	0.0564	0.0069	0.0006	0.4752	0.0151	0.0004	0.0004		0.0003				0.0081		0.0005	0.0000
1472	HLW98-55	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0797	0.0700	0.0025	0.1152		0.0006	0.0700	0.0007	0.0914	0.0069	0.0006	0.4886	0.0151	0.0004	0.0004		0.0003				0.0081		0.0005	0.0000
1473	HLW98-56	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0756	0.0700	0.0058	0.1179		0.0000	0.0700	0.0012	0.0954	0.0077	0.0024	0.4972	0.0165	0.0002	0.0000		0.0004		0.0000		0.0137		0.0007	0.0005
1474	HLW98-57	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0744	0.0400	0.0062	0.1195		0.0003	0.0500	0.0012	0.1302	0.0075	0.0025	0.4713	0.0162	0.0002	0.0000		0.0004		0.0000		0.0133		0.0008	0.0005
1475	HLW98-58	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0763	0.0400	0.0061	0.1208		0.0003	0.0500	0.0012	0.1376	0.0078	0.0025	0.4787	0.0166	0.0002	0.0000		0.0004		0.0000		0.0137		0.0008	0.0005
1476	HLW98-59	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0800	0.0400	0.0025	0.1156		0.0006	0.0500	0.0007	0.1315	0.0070	0.0006	0.4775	0.0152	0.0004	0.0004		0.0003				0.0082		0.0005	0.0002

#	Glass ID	CoO-t	Co2O3-t	Cr2O3-t	Cs2O-t	CuO-t	Dy2O3-t	Eu2O3-t	F-t	Ga2O3-t	Gd2O3-t	HfO2-t	HgO-t	I-t	La2O3-t	MnO2-t	MnO-t	MoO-t	MoO2-t	MoO3-t	Nb2O5-t	Nd2O3-t	NpO2-t	PbO-t	PdO2-t	PdO-t	Pr2O3-t	Pr6O11-t	Rb2O-t	ReO-t
1395	GLA 78-10-16																												
1396	P2-0Ca-0F			0.0010					0.0000													0.0001								
1397	P2-0Ca-1F			0.0009					0.0060													0.0001								
1398	P2-0Ca-2F			0.0009					0.0114													0.0001								
1399	P2-0Ca-3F			0.0009					0.0164													0.0001								
1400	P2-0Ca-4F			0.0009					0.0209													0.0001								
1401	P2-0Ca-5F			0.0009					0.0283													0.0001								
1402	P2-3Ca-0F			0.0010					0.0000													0.0001								
1403	P2-3Ca-1F			0.0009					0.0061													0.0001								
1404	P2-3Ca-2F			0.0009					0.0116													0.0001								
1405	P2-3Ca-3F			0.0009					0.0180													0.0001								
1406	P2-3Ca-4F			0.0009					0.0231													0.0001								
1407	P2-3Ca-5F			0.0009					0.0294													0.0001								
1408	P2-9Ca-0F			0.0009					0.0000													0.0001								
1409	P2-9Ca-1F			0.0008					0.0070													0.0001								
1410	P2-9Ca-2F			0.0008					0.0157													0.0001								
1411	P2-9Ca-3F			0.0008					0.0225													0.0001								
1412	P2-9Ca-4F			0.0008					0.0282													0.0001								
1413	P2-9Ca-5F			0.0008					0.0286													0.0001								
1414	SRL 165 HiFe															0.0602													
1415	SRL 165 TDS															0.0295													
1416	SRL 165 HiAl															0.0217													
1417	HLW98-01	0.0013		0.0029	0.0014	0.0010			0.0010						0.0017	0.0097							0.0022						
1418	HLW98-02	0.0013		0.0030	0.0014	0.0010			0.0010						0.0017	0.0101							0.0023						
1419	HLW98-03	0.0009		0.0014	0.0024	0.0000			0.0005						0.0047	0.0047						0.0047	0.0024						
1420	HLW98-04	0.0009		0.0014	0.0024				0.0005						0.0047	0.0047						0.0047	0.0024						
1421	HLW98-05	0.0009		0.0014	0.0023				0.0005						0.0046	0.0046						0.0046	0.0023						
1422	HLW98-06			0.0017	0.0017	0.0009			0.0009						0.0009	0.0043							0.0043						
1423	HLW98-07			0.0018	0.0018	0.0009			0.0009						0.0009	0.0044							0.0044						
1424	HLW98-08			0.0017	0.0063	0.0009			0.0009						0.0009	0.0044						0.0044	0.0026						
1425	HLW98-09			0.0016	0.0032	0.0008			0.0008						0.0008	0.0040						0.0040	0.0024						
1426	HLW98-10			0.0017	0.0059	0.0008			0.0008						0.0008	0.0041						0.0041	0.0025						
1427	HLW98-11			0.0017	0.0062	0.0009			0.0009						0.0009	0.0043						0.0043	0.0026						
1428	HLW98-12			0.0009	0.0048	0.0004			0.0005						0.0037	0.0039							0.0005						
1429	HLW98-13			0.0008	0.0042	0.0004			0.0005						0.0032	0.0035							0.0004						
1430	HLW98-14			0.0018	0.0078										0.0004	0.0042							0.0027						
1431	HLW98-15			0.0018	0.0078										0.0004	0.0042							0.0027						
1432	HLW98-16			0.0017	0.0061	0.0009			0.0009						0.0009	0.0043						0.0043	0.0026						
1433	HLW98-17			0.0017	0.0060	0.0009			0.0009						0.0009	0.0042						0.0042	0.0025						
1434	HLW98-18			0.0010	0.0044	0.0004			0.0006						0.0038	0.0040							0.0005						
1435	HLW98-19			0.0019	0.0082										0.0004	0.0044							0.0028						
1436	HLW98-20			0.0018	0.0038										0.0004	0.0043							0.0027						
1437	HLW98-21			0.0009	0.0039	0.0004			0.0005						0.0033	0.0035							0.0004						
1438	HLW98-22			0.0011	0.0023										0.0003	0.0026							0.0016						
1439	HLW98-23			0.0010	0.0021										0.0002	0.0023							0.0015						
1440	HLW98-24			0.0009	0.0039	0.0004			0.0005						0.0033	0.0035							0.0004						
1441	HLW98-25			0.0008	0.0038	0.0004			0.0005						0.0032	0.0192							0.0004						
1442	HLW98-26			0.0005	0.0008	0.0003			0.0004						0.0034	0.0271							0.0016						
1443	HLW98-27B			0.0005	0.0008	0.0003			0.0004						0.0034	0.0271							0.0016						
1444	HLW98-28	0.0000		0.0005	0.0008	0.0003			0.0004				0.0000		0.0034	0.0271	0.0000					0.0000	0.0016		0.0000				
1445	HLW98-29	0.0000		0.0005	0.0008	0.0003			0.0004				0.0000		0.0034	0.0271	0.0000					0.0000	0.0016		0.0000				
1446	HLW98-30	0.0000		0.0005	0.0008	0.0003			0.0004				0.0000		0.0034	0.0271	0.0000					0.0000	0.0016		0.0000				
1447	HLW98-31	0.0000		0.0004	0.0008	0.0003			0.0004				0.0000		0.0032	0.0000	0.0303					0.0000	0.0015		0.0000				
1448	HLW98-32A	0.0000		0.0008	0.0009	0.0002			0.0001				0.0000		0.0031	0.0141	0.0000					0.0000	0.0007		0.0000				
1449	HLW98-33	0.0000		0.0015	0.0009	0.0000			0.0003				0.0000		0.0010	0.0000	0.0664					0.0000	0.0020		0.0000				
1450	HLW98-34			0.0016	0.0010				0.0002						0.0011		0.0444						0.0022						
1451	HLW98-34CG			0.0016	0.0010				0.0002						0.0011		0.0444						0.0022						
1452	HLW98-35	0.0000		0.0008	0.0010	0.0002			0.0002				0.0000		0.0034	0.0153	0.0000					0.0000	0.0008		0.0000				
1453	HLW98-36	0.0005		0.0014	0.0000	0.0000			0.0001				0.0000		0.0000	0.0000	0.0059					0.0000	0.0005		0.0000				
1454	HLW98-37	0.0007		0.0011	0.0011	0.0000			0.0000				0.0000		0.0001	0.0000	0.0244					0.0000	0.0008		0.0000				
1455	HLW98-38	0.0000		0.0019	0.0000	0.0004			0.0000				0.0000		0.0003	0.0000	0.0364					0.0007	0.0022		0.0000				
1456	HLW98-39	0.0000		0.0021	0.0000	0.0004			0.0000				0.0000		0.0003	0.0000	0.0401					0.0009	0.0024		0.0002				
1457	HLW98-40	0.0000		0.0008	0.0010	0.0002			0.0002				0.0000		0.0033	0.0151	0.0000					0.0000	0.0007		0.0000				
1458	HLW98-41	0.0000		0.0020	0.0000	0.0004			0.0000				0.0000		0.0003	0.0000	0.0372					0.0008	0.0022		0.0002				
1459	HLW98-42	0.0000		0.0008	0.0009	0.0002			0.0002				0.0000		0.0032	0.0146	0.0000					0.0000	0.0007		0.0000				
1460	HLW98-43	0.0000		0.0019	0.0000	0.0004			0.0000				0.0000		0.0003	0.0000	0.0352					0.0008	0.0021		0.0002				
1461	HLW98-44	0.0000		0.0019	0.0000	0.0004			0.0000						0.0003		0.0352	0.0000				0.0008	0.0021		0.0002				0.0000
1462	HLW98-45	0.0000		0.0018	0.0000	0.0003			0.0000						0.0003		0.0340	0.0000				0.0008	0.0020		0.0002				0.0000
1463	HLW98-46	0.0000		0.0017	0.0000	0.0003			0.0000						0.0002		0.0325	0.0000				0.0007	0.0019		0.0001				0.0000
1464	HLW98-47	0.0000		0.0017	0.0000	0.0003			0.0000						0.0002		0.0311	0.0000				0.0007	0.0019		0.0001				0.0000
1465	HLW98-48	0.0000		0.0014	0.0000	0.0003			0.0000						0.0002		0.0270	0.0000				0.0006	0.0016		0.0001				0.0000
1466	HLW98-49	0.0000		0.0014	0.0000	0.0003			0.0000						0.0002		0.0258	0.0000				0.0006	0.0016		0.0001				0.0000
1467	HLW98-50	0.0000		0.0010	0.0000	0.0002			0.0000						0.0001		0.0091	0.0000				0.0004	0.0011		0.0000				0.0000
1468	HLW98-51R	0.0000		0.0014	0.0000	0.0003			0.0000						0.0002		0.0258	0.0000				0.0006	0.0016		0.0001				0.0000
1469	HLW98-52	0.0000		0.0008	0.0009	0.0002			0.0002				0.0000		0.0032	0.0000	0.0146					0.0000	0.0007		0.0000				
1470	HLW98-53A	0.0000		0.0008	0.0010	0.0002			0.0002				0.0000		0.0033	0.0000	0.0149					0.0000	0.0007		0.0000				
1471	HLW98-54	0.0000		0.0008	0.0009	0.0002			0.0002				0.0000		0.0032	0.0000	0.0146					0.0000	0.0007		0.0000				
1472	HLW98-55	0.0000		0.0008	0.0009	0.0002			0.0002				0.0000		0.0032	0.0000	0.0146					0.0000	0.0007		0.0000				
1473	HLW98-56	0.0000		0.0009	0.0000	0.0000			0.0001						0.0031		0.0026	0.0000				0.0001	0.0000		0.0000				0.0000
1474	HLW98-57	0.0001		0.0012	0.0000	0.0000			0.0001						0.0031		0.0162	0.0000				0.0003	0.0005		0.0001				0.0000
1475	HLW98-58	0.0001		0.0011	0.0000	0.0000			0.0001						0.0031		0.0097	0.0000				0.0002	0.0003		0.0000				0.0000
1476	HLW98-59	0.0000		0.0008	0.0009	0.0002			0.0002				0.0000		0.0033	0.0000	0.0147					0.0000	0.0007		0.0000				

#	Glass ID	ReO2-t	Re2O7-t	Rh2O3-t	RhO2-t	RuO2-t	Ru2O3-t	Sb2O3-t	Sb2O5-t	SeO2-t	Sm2O3-t	SnO-t	SnO2-t	SO3-t	SrO-t	Tc2O7-t	TeO2-t	ThO2-t	TiO2-t	Tl2O-t	Tl2O3-t	U3O8-t	UO2-t	UO3-t	V2O5-t	WO3-t	Y2O3-t	ZnO-t	Sum-t	Al2O3-a
1395	GLA 78-10-16																											0.0000	0.0873
1396	P2-0Ca-0F												0.0007	0.0003	0.0010													1.0000	
1397	P2-0Ca-1F												0.0006	0.0002	0.0009													1.0000	
1398	P2-0Ca-2F												0.0006	0.0002	0.0009													1.0000	
1399	P2-0Ca-3F												0.0006	0.0002	0.0009													1.0000	
1400	P2-0Ca-4F												0.0006	0.0002	0.0009													1.0000	
1401	P2-0Ca-5F												0.0006	0.0002	0.0009													1.0000	
1402	P2-3Ca-0F												0.0007	0.0003	0.0010													1.0000	
1403	P2-3Ca-1F												0.0006	0.0002	0.0009													1.0000	
1404	P2-3Ca-2F												0.0006	0.0002	0.0009													1.0000	
1405	P2-3Ca-3F												0.0006	0.0002	0.0009													1.0000	
1406	P2-3Ca-4F												0.0006	0.0002	0.0009													1.0000	
1407	P2-3Ca-5F												0.0006	0.0002	0.0008													1.0000	
1408	P2-9Ca-0F												0.0006	0.0002	0.0008													1.0000	
1409	P2-9Ca-1F												0.0006	0.0002	0.0008													1.0000	
1410	P2-9Ca-2F												0.0006	0.0002	0.0008													1.0000	
1411	P2-9Ca-3F												0.0006	0.0002	0.0008													1.0000	
1412	P2-9Ca-4F												0.0006	0.0002	0.0008													1.0000	
1413	P2-9Ca-5F												0.0006	0.0002	0.0008													1.0000	
1414	SRL 165 HiFe																											0.9999	
1415	SRL 165 TDS																											1.0000	
1416	SRL 165 HiAl																											1.0001	
1417	HLW98-01								0.0019	0.0019				0.0043	0.0263		0.0013		0.0013		0.0044						0.0195	0.9999	
1418	HLW98-02								0.0020	0.0020				0.0044	0.0271		0.0013		0.0013		0.0045						0.0201	1.0000	
1419	HLW98-03								0.0005	0.0005				0.0024	0.0118		0.0005		0.0005		0.0005		0.0005				0.0200	1.0003	0.1085
1420	HLW98-04								0.0005	0.0005				0.0024	0.0118		0.0005		0.0005		0.0005		0.0005				0.0200	1.0003	0.1070
1421	HLW98-05								0.0005	0.0005				0.0023	0.0115		0.0005		0.0005		0.0005		0.0005	0.0000			0.0200	1.0007	0.1048
1422	HLW98-06								0.0043	0.0026				0.0021	0.0085		0.0013		0.0013		0.0021		0.0009	0.0009			0.0200	1.0008	0.0819
1423	HLW98-07								0.0044	0.0026				0.0022	0.0088		0.0013		0.0013		0.0022		0.0009	0.0009			0.0200	1.0000	0.0844
1424	HLW98-08								0.0022	0.0026				0.0022	0.0229		0.0014		0.0013		0.0022		0.0009	0.0009			0.0200	1.0003	0.0723
1425	HLW98-09								0.0020	0.0024				0.0020	0.0104		0.0012		0.0012		0.0020		0.0008	0.0008			0.0200	1.0001	0.0839
1426	HLW98-10								0.0021	0.0025				0.0021	0.0216		0.0012		0.0012		0.0021		0.0008	0.0008			0.0200	1.0000	0.0715
1427	HLW98-11								0.0021	0.0026				0.0021	0.0225		0.0013		0.0013		0.0021		0.0009	0.0009			0.0200	1.0003	0.0665
1428	HLW98-12								0.0030	0.0021				0.0038	0.0175		0.0020		0.0009		0.0060	0.0050					0.0200	1.0003	0.0749
1429	HLW98-13								0.0027	0.0019				0.0033	0.0156		0.0018		0.0008		0.0053	0.0044					0.0200	1.0000	
1430	HLW98-14													0.0013	0.0275													0.0200	0.9998	0.0835
1431	HLW98-15													0.0013	0.0275													0.0200	0.9998	0.0800
1432	HLW98-16								0.0021	0.0025				0.0021	0.0222		0.0013		0.0013		0.0021		0.0000	0.0009	0.0009		0.0200	1.0002	0.0749
1433	HLW98-17								0.0021	0.0025				0.0021	0.0217		0.0013		0.0013		0.0021			0.0009	0.0009		0.0200	1.0000	0.0660
1434	HLW98-18								0.0031	0.0022				0.0039	0.0143		0.0021		0.0009		0.0062						0.0200	1.0002	
1435	HLW98-19													0.0014	0.0290													0.0200	0.9999	0.0835
1436	HLW98-20													0.0014	0.0116													0.0200	1.0001	0.0844
1437	HLW98-21								0.0027	0.0019				0.0034	0.0125		0.0018		0.0008								0.0200	1.0000	0.0623
1438	HLW98-22													0.0008	0.1013													0.0200	1.0000	0.0559
1439	HLW98-23													0.0007	0.0917													0.0200	1.0000	0.0481
1440	HLW98-24								0.0027	0.0019				0.0034	0.0125		0.0018		0.0008								0.0200	1.0000	0.0668
1441	HLW98-25								0.0027	0.0019				0.0033	0.0117		0.0018		0.0008								0.0200	1.0000	
1442	HLW98-26								0.0022	0.0015				0.0026	0.0245		0.0015		0.0007								0.0200	1.0001	
1443	HLW98-27B								0.0022	0.0015				0.0026	0.0245		0.0015		0.0007								0.0200	1.0001	0.0784
1444	HLW98-28			0.0000		0.0000			0.0022	0.0015			0.0000	0.0026	0.0245		0.0015	0.0000	0.0007			0.0000					0.0200	1.0001	
1445	HLW98-29			0.0000		0.0000			0.0022	0.0015			0.0000	0.0026	0.0245		0.0015	0.0000	0.0007			0.0000					0.0200	1.0001	
1446	HLW98-30			0.0000		0.0000			0.0022	0.0015			0.0000	0.0026	0.0245		0.0015	0.0000	0.0007			0.0000					0.0200	1.0001	
1447	HLW98-31			0.0000		0.0000			0.0021	0.0015			0.0000	0.0025	0.0232		0.0014	0.0000	0.0006			0.0000					0.0200	0.9998	0.0740
1448	HLW98-32A			0.0000		0.0000			0.0034	0.0006			0.0000	0.0002	0.0226		0.0002	0.0000	0.0000			0.0000					0.0200	0.9999	0.1170
1449	HLW98-33			0.0000		0.0000			0.0000	0.0000			0.0000	0.0003	0.1156		0.0000	0.0000	0.0004			0.0000					0.0200	0.9998	
1450	HLW98-34													0.0002	0.0735				0.0004									0.0200	1.0000	0.1040
1451	HLW98-34CG													0.0002	0.0735				0.0004									0.0200	1.0000	0.1040
1452	HLW98-35			0.0000		0.0000			0.0037	0.0007			0.0000	0.0003	0.0245		0.0002	0.0000	0.0000			0.0000					0.0200	1.0002	0.0947
1453	HLW98-36			0.0000		0.0000			0.0000	0.0000			0.0000	0.0001	0.0000		0.0000	0.0000	0.0000			0.0249					0.0200	0.9996	0.0844
1454	HLW98-37			0.0000		0.0000			0.0000	0.0000			0.0000	0.0000	0.0296		0.0000	0.0000	0.0000			0.0316					0.0200	1.0000	0.0453
1455	HLW98-38			0.0005		0.0002			0.0000	0.0000			0.0010	0.0000	0.0480		0.0000	0.0579	0.0002			0.0511					0.0200	1.0002	0.0340
1456	HLW98-39			0.0005		0.0003			0.0000	0.0000			0.0011	0.0000	0.0529		0.0000	0.0637	0.0003			0.0562					0.0100	0.9998	0.0401
1457	HLW98-40			0.0000		0.0000			0.0037	0.0006			0.0000	0.0003	0.0242		0.0002	0.0000	0.0000			0.0090					0.0200	1.0001	0.0767
1458	HLW98-41			0.0005		0.0002			0.0000	0.0000			0.0010	0.0000	0.0490		0.0000	0.0591	0.0002			0.0521					0.0200	0.9999	0.0485
1459	HLW98-42			0.0000		0.0000			0.0036	0.0006			0.0000	0.0003	0.0234		0.0002	0.0000	0.0000			0.0087					0.0200	1.0000	
1460	HLW98-43			0.0004		0.0002			0.0000	0.0000			0.0009	0.0000	0.0464		0.0000	0.0560	0.0002			0.0494					0.0200	1.0000	0.0322
1461	HLW98-44			0.0004		0.0002			0.0000	0.0000			0.0009	0.0000	0.0464	0.0000	0.0000	0.0560	0.0002		0.0000	0.0494		0.0000	0.0000	0.0000	0.0200	1.0000	0.0303
1462	HLW98-45			0.0004		0.0002			0.0000	0.0000			0.0009	0.0000	0.0449	0.0000	0.0000	0.0541	0.0002		0.0000	0.0477		0.0000	0.0000	0.0000	0.0200	1.0001	0.0313
1463	HLW98-46			0.0004		0.0002			0.0000	0.0000			0.0009	0.0000	0.0428	0.0000	0.0000	0.0516	0.0002		0.0000	0.0455		0.0000	0.0000	0.0000	0.0200	0.9997	0.0315
1464	HLW98-47			0.0004		0.0002			0.0000	0.0000			0.0008	0.0000	0.0410	0.0000	0.0000	0.0494	0.0002		0.0000	0.0436		0.0000	0.0000	0.0000	0.0200	1.0000	0.0280
1465	HLW98-48			0.0003		0.0002			0.0000	0.0000			0.0007	0.0000	0.0356	0.0000	0.0000	0.0429	0.0002		0.0000	0.0379		0.0000	0.0000	0.0000	0.0200	1.0001	0.0423
1466	HLW98-49			0.0003		0.0002			0.0000	0.0000			0.0007	0.0000	0.0340	0.0000	0.0000	0.0410	0.0002		0.0000	0.0362		0.0000	0.0000	0.0000	0.0200	0.9999	0.0562
1467	HLW98-50			0.0004		0.0002			0.0000	0.0000			0.0008	0.0000	0.0001	0.0000	0.0000	0.0463	0.0002		0.0000	0.0408		0.0000	0.0000	0.0000	0.0200	1.0000	0.0275
1468	HLW98-51R			0.0003		0.0002			0.0000	0.0000			0.0007	0.0000	0.0340	0.0000	0.0000	0.0410	0.0002		0.0000	0.0362		0.0000	0.0000	0.0000	0.0200	0.9999	0.0282
1469	HLW98-52			0.0000		0.0000			0.0036	0.0006			0.0000	0.0003	0.0234		0.0002	0.0000	0.0000			0.0087					0.0200	0.9999	
1470	HLW98-53A			0.0000		0.0000			0.0036	0.0006			0.0000	0.0003	0.0238		0.0002	0.0000	0.0000			0.0000					0.0200	1.0002	0.0756
1471	HLW98-54			0.0000		0.0000			0.0036	0.0006			0.0000	0.0003	0.0234		0.0002	0.0000	0.0000			0.0087					0.0200	1.0000	0.0577
1472	HLW98-55			0.0000		0.0000			0.0036	0.0006			0.0000	0.0003	0.0234		0.0002	0.0000	0.0000			0.0000					0.0002	0.9999	
1473	HLW98-56			0.0000		0.0000			0.0000	0.0000			0.0000	0.0002	0.0000	0.0000	0.0000	0.0000	0.0001		0.0000	0.0172		0.0000	0.0000	0.0001	0.0004	1.0000	0.0723
1474	HLW98-57			0.0000		0.0000			0.0000	0.0000			0.0000	0.0003	0.0262	0.0000	0.0000	0.0001	0.0001		0.0000	0.0168		0.0000	0.0000	0.0001	0.0005	1.0002	
1475	HLW98-58			0.0000		0.0000			0.0000	0.0000			0.0000	0.0003	0.0136	0.0000	0.0000	0.0001	0.0001		0.0000	0.0173		0.0000	0.0000	0.0001	0.0005	1.0001	0.0697
1476	HLW98-59			0.0000		0.0000			0.0036	0.0006			0.0000	0.0003	0.0235		0.0002	0.0000	0.0000			0.0000					0.0200	1.0002	0.0766

#	Glass ID	B2O3-a	CaO-a	Fe2O3-a	FeO-a	K2O-a	Li2O-a	MgO-a	Na2O-a	NiO-a	P2O5-a	SiO2-a	ZrO2-a	Ag2O-a	As2O3-a	As2O5-a	BaO-a	BeO-a	Bi2O3-a	Br-a	CdO-a	Ce2O3-a	CeO2-a	Cl-a	CoO-a	Co2O3-a	Cr2O3-a	Cs2O-a	CuO-a	F-a
1395	GLA 78-10-16	0.0849	0.0671	0.0174		0.0030	0.0600		0.1229	0.0002	0.0394	0.4119	0.0708											0.0003			0.0014			0.0265
1396	P2-0Ca-0F																													
1397	P2-0Ca-1F																													
1398	P2-0Ca-2F																													
1399	P2-0Ca-3F																													
1400	P2-0Ca-4F																													
1401	P2-0Ca-5F																													
1402	P2-3Ca-0F																													
1403	P2-3Ca-1F																													
1404	P2-3Ca-2F																													
1405	P2-3Ca-3F																													
1406	P2-3Ca-4F																													
1407	P2-3Ca-5F																													
1408	P2-9Ca-0F																													
1409	P2-9Ca-1F																													
1410	P2-9Ca-2F																													
1411	P2-9Ca-3F																													
1412	P2-9Ca-4F																													
1413	P2-9Ca-5F																													
1414	SRL 165 HiFe																													
1415	SRL 165 TDS																													
1416	SRL 165 HiAl																													
1417	HLW98-01																													
1418	HLW98-02																													
1419	HLW98-03	0.1025	0.0183	0.0897		0.0032	0.0289	0.0089	0.1124	0.0022	0.0108	0.3883	0.0324	0.0010	0.0003		0.0028	0.0006	0.0024					0.0011			0.0012		0.0001	
1420	HLW98-04	0.1269	0.0151	0.0878		0.0032	0.0003	0.0084	0.1052	0.0020	0.0105	0.3764	0.0193	0.0009	0.0004		0.0026		0.0007		0.0023			0.0010			0.0011			
1421	HLW98-05	0.1309	0.0148	0.1108		0.0030	0.0004	0.0082	0.1061	0.0019	0.0105	0.4102	0.0002	0.0009	0.0005		0.0025	0.0006	0.0045					0.0010			0.0009		0.0001	
1422	HLW98-06	0.0988	0.0051	0.1171		0.0052	0.0286	0.0081	0.0953	0.0040	0.0073	0.4224	0.0186	0.0033	0.0008		0.0048	0.0006	0.0033					0.0001			0.0015		0.0009	
1423	HLW98-07	0.1003	0.0056	0.1248		0.0050	0.0111	0.0084	0.1081	0.0041	0.0077	0.4253	0.0184	0.0033			0.0049		0.0035					0.0002			0.0015			
1424	HLW98-08	0.1264	0.0163	0.1168		0.0057	0.0302	0.0083	0.0810	0.0041	0.0075	0.4085	0.0205	0.0007	0.0007		0.0051	0.0005	0.0034					0.0001			0.0015		0.0008	
1425	HLW98-09	0.1220	0.0058	0.1143		0.0053	0.0268	0.0084	0.0762	0.0038	0.0070	0.4336	0.0199	0.0008	0.0005		0.0085	0.0004	0.0029					0.0002			0.0015		0.0007	
1426	HLW98-10	0.1049	0.0135	0.1110		0.0039	0.0243	0.0073	0.0682	0.0051	0.0081	0.3799	0.0162	0.0018	0.0004		0.0405	0.0005	0.0028					0.0001			0.0012		0.0011	
1427	HLW98-11	0.1258	0.0170	0.1061		0.0050	0.0308	0.0090	0.0848	0.0042	0.0069	0.4215	0.0207	0.0006	0.0005		0.0030	0.0006	0.0033					0.0001			0.0015		0.0010	
1428	HLW98-12	0.1466	0.0037	0.1194		0.0042	0.0615	0.0012	0.0290	0.0046	0.0095	0.4074	0.0359	0.0007	0.0006		0.0010	0.0003	0.0050					0.0002			0.0008		0.0003	
1429	HLW98-13																													
1430	HLW98-14	0.1260	0.0196	0.0853		0.0031	0.0280	0.0118	0.1274	0.0018	0.0104	0.4214	0.0044	0.0010			0.0071	0.0010	0.0005					0.0002			0.0016		0.0001	
1431	HLW98-15	0.1579	0.0199	0.0850		0.0029	0.0007	0.0115	0.1237	0.0016	0.0088	0.4107	0.0041	0.0010	0.0001		0.0068	0.0008	0.0004					0.0002			0.0014			
1432	HLW98-16	0.1141	0.0151	0.1072		0.0034	0.0164	0.0106	0.0986	0.0042	0.0055	0.4265	0.0121	0.0001	0.0007		0.0047	0.0008	0.0032					0.0002			0.0014		0.0009	
1433	HLW98-17	0.1238	0.0134	0.1065		0.0031	0.0294	0.0092	0.0893	0.0038	0.0049	0.4226	0.0109		0.0007		0.0042	0.0006	0.0030					0.0002			0.0013		0.0008	
1434	HLW98-18																													
1435	HLW98-19	0.1200	0.0200	0.0821		0.0027	0.0006	0.0111	0.1205	0.0016	0.0079	0.3933	0.0032	0.0011			0.0070	0.0007	0.0004					0.0002			0.0016			
1436	HLW98-20	0.1245	0.0203	0.0922		0.0027	0.0167	0.0112	0.1188	0.0022	0.0077	0.4113	0.0032	0.0000			0.0067	0.0008	0.0004					0.0003			0.0028		0.0001	
1437	HLW98-21	0.0728	0.0033	0.1058		0.0032	0.0609	0.0010	0.0622	0.0047	0.0073	0.4804	0.0307	0.0001	0.0006		0.0009	0.0003	0.0047					0.0003			0.0017		0.0004	
1438	HLW98-22	0.1176	0.0129	0.1274		0.0019	0.0301	0.0067	0.0775	0.0010	0.0048	0.3734	0.0018		0.0002		0.0055	0.0005	0.0003					0.0002			0.0010			
1439	HLW98-23	0.1158	0.0117	0.1189		0.0016	0.0289	0.0059	0.0699	0.0008	0.0041	0.4169	0.0017				0.0049	0.0006	0.0002					0.0001			0.0009		0.0001	
1440	HLW98-24	0.1133	0.0032	0.1056		0.0036	0.0552	0.0010	0.0642	0.0041	0.0061	0.4516	0.0307	0.0001	0.0007		0.0009	0.0002	0.0045					0.0001			0.0007		0.0004	
1441	HLW98-25																													
1442	HLW98-26																													
1443	HLW98-27B	0.0388	0.0040	0.1238		0.0035	0.0403	0.0011	0.1267	0.0054	0.0019	0.4232	0.0241	0.0001	0.0003		0.0015	0.0003	0.0041					0.0002			0.0004		0.0006	
1444	HLW98-28																													
1445	HLW98-29																													
1446	HLW98-30																													
1447	HLW98-31	0.0950	0.0029	0.0964		0.0024	0.0520	0.0009	0.0568	0.0048	0.0023	0.4434	0.0312	0.0001	0.0007		0.0008	0.0001	0.0034					0.0002			0.0003		0.0004	
1448	HLW98-32A	0.0900	0.0029	0.1014		0.0011	0.0634	0.0010	0.0342	0.0063	0.0022	0.4353	0.0139	0.0001	0.0005		0.0008	0.0000	0.0075					0.0002			0.0007		0.0004	
1449	HLW98-33																													
1450	HLW98-34	0.0678	0.0086	0.1101		0.0018	0.0362	0.0029	0.0880	0.0014	0.0023	0.4019	0.0019	0.0023	0.0002		0.0020	0.0001	0.0004					0.0002			0.0014		0.0002	
1451	HLW98-34CG	0.0678	0.0086	0.1101		0.0018	0.0362	0.0029	0.0880	0.0014	0.0023	0.4019	0.0019	0.0023	0.0002		0.0020	0.0001	0.0004					0.0002			0.0014		0.0002	
1452	HLW98-35	0.0671	0.0163	0.1095		0.0023	0.0425	0.0016	0.0852	0.0067	0.0017	0.4119	0.0132	0.0001	0.0003		0.0010	0.0001	0.0078					0.0002			0.0008		0.0005	
1453	HLW98-36	0.0868	0.0279	0.0376		0.0018	0.0462	0.0005	0.1217	0.0026	0.0036	0.4324	0.0710	0.0000	0.0000		0.0002	0.0000	0.0007					0.0013			0.0016		0.0000	
1454	HLW98-37	0.0519	0.0053	0.0537		0.0010	0.0404	0.0007	0.1373	0.0023	0.0016	0.4299	0.1058	0.0003	0.0000		0.0006	0.0000	0.0009					0.0013			0.0011		0.0000	
1455	HLW98-38	0.0529	0.0075	0.0656		0.0017	0.0410	0.0010	0.1033	0.0036	0.0063	0.3700	0.0681	0.0011	0.0000		0.0012	0.0000	0.0009					0.0006			0.0019		0.0005	
1456	HLW98-39	0.0323	0.0087	0.0711		0.0019	0.0368	0.0013	0.1116	0.0039	0.0065	0.3695	0.0692	0.0012	0.0000		0.0014	0.0002	0.0010					0.0007			0.0020		0.0006	
1457	HLW98-40	0.0603	0.0035	0.1123		0.0014	0.0397	0.0010	0.1274	0.0070	0.0020	0.4235	0.0142	0.0005	0.0000		0.0009	0.0000	0.0073					0.0001			0.0009		0.0000	
1458	HLW98-41	0.0359	0.0120	0.0672		0.0034	0.0428	0.0027	0.1249	0.0039	0.0072	0.3526	0.0565	0.0002	0.0000		0.0015	0.0005	0.0011					0.0007			0.0022		0.0010	
1459	HLW98-42																													
1460	HLW98-43	0.0598	0.0066	0.0610		0.0013	0.0539	0.0010	0.1035	0.0033	0.0055	0.3383	0.0560	0.0011	0.0003		0.0008	0.0003	0.0014					0.0004			0.0017		0.0005	
1461	HLW98-44	0.0705	0.0071	0.0599		0.0014	0.0538	0.0010	0.0878	0.0033	0.0058	0.3534	0.0575	0.0012	0.0006		0.0011	0.0004	0.0010					0.0005			0.0017		0.0005	
1462	HLW98-45	0.0716	0.0070	0.0600		0.0015	0.0556	0.0010	0.0926	0.0032	0.0059	0.3786	0.0593	0.0011	0.0000		0.0012	0.0002	0.0008					0.0005			0.0017		0.0004	
1463	HLW98-46	0.0730	0.0067	0.0568		0.0015	0.0646	0.0010	0.0898	0.0031	0.0057	0.3759	0.0566	0.0010	0.0000		0.0011	0.0000	0.0007					0.0005			0.0016		0.0004	
1464	HLW98-47	0.0749	0.0070	0.0532		0.0015	0.0619	0.0010	0.0893	0.0031	0.0052	0.3905	0.0526	0.0100			0.0013		0.0007					0.0006			0.0018			
1465	HLW98-48	0.0903	0.0056	0.0470		0.0013	0.0440	0.0007	0.0864	0.0027	0.0050	0.3755	0.0428	0.0010			0.0056		0.0006					0.0006			0.0014			
1466	HLW98-49	0.0717	0.0052	0.0457		0.0014	0.0359	0.0007	0.1213	0.0025	0.0049	0.4234	0.0456	0.0009			0.0006		0.0006					0.0006			0.0015			
1467	HLW98-50	0.1117	0.0051	0.0444		0.0008	0.0370	0.0009	0.1255	0.0028	0.0055	0.4480	0.0515	0.0008	0.0000		0.0003	0.0005	0.0008					0.0005			0.0010		0.0003	
1468	HLW98-51R	0.0952	0.0055	0.0473		0.0013	0.0479	0.0008	0.0732	0.0026	0.0048	0.4484	0.0478	0.0009			0.0006		0.0006					0.0005			0.0013			
1469	HLW98-52																													
1470	HLW98-53A	0.0716	0.0036	0.1173		0.0010	0.0558	0.0010	0.0857	0.0088	0.0012	0.4367	0.0146	0.0006	0.0003		0.0009	0.0001	0.0079					0.0002			0.0038		0.0003	
1471	HLW98-54	0.1014	0.0030	0.1161		0.0010	0.0534	0.0008	0.0522	0.0068	0.0017	0.4739	0.0139	0.0005	0.0000		0.0009	0.0000	0.0073					0.0003			0.0009		0.0000	
1472	HLW98-55																													
1473	HLW98-56	0.0745	0.0069	0.1128		0.0003	0.0672	0.0015	0.0811	0.0072	0.0014	0.4889	0.0168	0.0004			0.0006		0.0131					0.0003			0.0008			
1474	HLW98-57																													
1475	HLW98-58	0.0397	0.0075	0.1086		0.0009	0.0436	0.0017	0.1179	0.0076	0.0040	0.4574	0.0161	0.0002			0.0009		0.0124					0.0004			0.0011			
1476	HLW98-59	0.0427	0.0033	0.1055		0.0009	0.0459	0.0010	0.1159	0.0067	0.0022	0.4564	0.0149	0.0004	0.0000		0.0009	0.0000	0.0076					0.0002			0.0007		0.0002	

#	Glass ID	Ga2O3-a	Gd2O3-a	I-a	La2O3-a	MnO2-a	MnO-a	MoO-a	MoO3-a	Nb2O5-a	Nd2O3-a	NpO2-a	PbO-a	PdO2-a	PdO-a	Pr2O3-a	Pr6O11-a	PuO2-a	Rb2O-a	ReO-a	ReO2-a	Re2O7-a	Rh2O3-a	RhO2-a	RuO2-a	Sb2O3-a	Sb2O5-a	SeO2-a
1395	GLA 78-10-16				0.0032		0.0010						0.0000															
1396	P2-0Ca-0F																											
1397	P2-0Ca-1F																											
1398	P2-0Ca-2F																											
1399	P2-0Ca-3F																											
1400	P2-0Ca-4F																											
1401	P2-0Ca-5F																											
1402	P2-3Ca-0F																											
1403	P2-3Ca-1F																											
1404	P2-3Ca-2F																											
1405	P2-3Ca-3F																											
1406	P2-3Ca-4F																											
1407	P2-3Ca-5F																											
1408	P2-9Ca-0F																											
1409	P2-9Ca-1F																											
1410	P2-9Ca-2F																											
1411	P2-9Ca-3F																											
1412	P2-9Ca-4F																											
1413	P2-9Ca-5F																											
1414	SRL 165 HiFe																											
1415	SRL 165 TDS																											
1416	SRL 165 HiAl																											
1417	HLW98-01																											
1418	HLW98-02																											
1419	HLW98-03					0.0047							0.0026														0.0007	0.0003
1420	HLW98-04					0.0045							0.0024														0.0008	0.0002
1421	HLW98-05					0.0045							0.0025														0.0008	0.0001
1422	HLW98-06					0.0047							0.0050														0.0038	0.0012
1423	HLW98-07					0.0049							0.0053															
1424	HLW98-08					0.0047							0.0028														0.0021	0.0014
1425	HLW98-09					0.0046							0.0026														0.0013	0.0007
1426	HLW98-10					0.0479							0.0026														0.0013	0.0001
1427	HLW98-11					0.0028							0.0029														0.0013	0.0009
1428	HLW98-12					0.0042							0.0007														0.0031	0.0010
1429	HLW98-13																											
1430	HLW98-14					0.0049							0.0029														0.0004	0.0005
1431	HLW98-15					0.0048							0.0030														0.0030	0.0004
1432	HLW98-16					0.0051							0.0028														0.0022	0.0011
1433	HLW98-17					0.0044							0.0025														0.0021	0.0014
1434	HLW98-18																											
1435	HLW98-19					0.0049							0.0030														0.0002	
1436	HLW98-20					0.0049							0.0030														0.0003	
1437	HLW98-21					0.0043							0.0007														0.0030	0.0006
1438	HLW98-22					0.0029							0.0020													0.0003		
1439	HLW98-23					0.0027							0.0019													0.0004		
1440	HLW98-24					0.0038							0.0007														0.0029	0.0007
1441	HLW98-25																											
1442	HLW98-26																											
1443	HLW98-27B					0.0263							0.0018														0.0023	0.0005
1444	HLW98-28																											
1445	HLW98-29																											
1446	HLW98-30																											
1447	HLW98-31					0.0000	0.0363						0.0019		0.0000												0.0026	0.0006
1448	HLW98-32A					0.0144	0.0000						0.0009		0.0000												0.0036	0.0000
1449	HLW98-33																											
1450	HLW98-34					0.0000	0.0415						0.0028		0.0000												0.0004	
1451	HLW98-34CG					0.0000	0.0415						0.0028		0.0000												0.0004	
1452	HLW98-35					0.0146	0.0000						0.0012		0.0000												0.0041	0.0005
1453	HLW98-36					0.0000	0.0060						0.0011		0.0000													
1454	HLW98-37					0.0000	0.0246						0.0013		0.0002								0.0001				0.0007	
1455	HLW98-38					0.0000	0.0353						0.0030		0.0004								0.0003		0.0002		0.0008	
1456	HLW98-39					0.0000	0.0367						0.0036		0.0005								0.0003		0.0002		0.0008	
1457	HLW98-40					0.0160	0.0000						0.0013		0.0000										0.0001		0.0039	0.0000
1458	HLW98-41					0.0000	0.0319						0.0045		0.0003								0.0003		0.0001		0.0016	
1459	HLW98-42																											
1460	HLW98-43					0.0000	0.0326						0.0028		0.0002								0.0003		0.0001		0.0005	
1461	HLW98-44						0.0413						0.0029		0.0002								0.0003		0.0001		0.0005	0.0000
1462	HLW98-45						0.0334						0.0030		0.0004								0.0004		0.0001		0.0008	0.0000
1463	HLW98-46						0.0317						0.0028		0.0004								0.0004		0.0001		0.0009	0.0000
1464	HLW98-47						0.0290						0.0027		0.0003								0.0002		0.0002		0.0004	0.0000
1465	HLW98-48						0.0268						0.0020		0.0002								0.0002		0.0001		0.0005	0.0001
1466	HLW98-49						0.0261						0.0019		0.0002								0.0001		0.0002		0.0006	0.0000
1467	HLW98-50						0.0100						0.0017		0.0003								0.0004		0.0002		0.0008	0.0002
1468	HLW98-51R						0.0271						0.0020		0.0041								0.0002		0.0002			
1469	HLW98-52																											
1470	HLW98-53A					0.0000	0.0159						0.0011		0.0001										0.0001		0.0045	0.0001
1471	HLW98-54					0.0000	0.0157						0.0010		0.0000								0.0001		0.0001		0.0041	
1472	HLW98-55																											
1473	HLW98-56						0.0028						0.0004															
1474	HLW98-57																											
1475	HLW98-58						0.0106						0.0005		0.0001								0.0001		0.0001		0.0006	0.0001
1476	HLW98-59					0.0000	0.0161						0.0010		0.0000												0.0038	0.0004

#	Glass ID	Sm2O3-a	SnO-a	SnO2-a	SO3-a	SrO-a	Tc2O7-a	TeO2-a	ThO2-a	TiO2-a	Tl2O-a	Tl2O3-a	U3O8-a	UO2-a	UO3-a	V2O5-a	WO3-a	Y2O3-a	ZnO-a	Sum-a	T_M (°C)	$T_{L,G}$ (°C)	$T_{L,U}$ (°C)	$T_{1\%}$ (°C)	Primary Phase	$C_{650°C}$	$C_{700°C}$	$C_{750°C}$
1395	GLA 78-10-16				0.0026															0.9999			~950					
1396	P2-0Ca-0F																			0.0000								
1397	P2-0Ca-1F																			0.0000								
1398	P2-0Ca-2F																			0.0000								
1399	P2-0Ca-3F																			0.0000								
1400	P2-0Ca-4F																			0.0000								
1401	P2-0Ca-5F																			0.0000								
1402	P2-3Ca-0F																			0.0000								
1403	P2-3Ca-1F																			0.0000								
1404	P2-3Ca-2F																			0.0000								
1405	P2-3Ca-3F																			0.0000								
1406	P2-3Ca-4F																			0.0000								
1407	P2-3Ca-5F																			0.0000								
1408	P2-9Ca-0F																			0.0000								
1409	P2-9Ca-1F																			0.0000								
1410	P2-9Ca-2F																			0.0000								
1411	P2-9Ca-3F																			0.0000								
1412	P2-9Ca-4F																			0.0000								
1413	P2-9Ca-5F																			0.0000								
1414	SRL 165 HiFe																			0.0000								
1415	SRL 165 TDS																			0.0000								
1416	SRL 165 HiAl																			0.0000								
1417	HLW98-01																			0.0000	1150		> 1050					
1418	HLW98-02																			0.0000	1150		> 1050					
1419	HLW98-03					0.0113		0.0006		0.0008		0.0007		0.0005		0.0007	0.0018		0.0200	0.9603	1150		< 1050					
1420	HLW98-04					0.0115		0.0006		0.0008		0.0006		0.0005		0.0007	0.0017		0.0191	0.9145	1150		> 1050					
1421	HLW98-05					0.0155		0.0006		0.0007		0.0004			0.0005	0.0006	0.0017		0.0196	0.9603	1150		> 1050					
1422	HLW98-06					0.0091		0.0011		0.0018		0.0012			0.0002	0.0009	0.0010		0.0195	0.9572	1150		< 1050					
1423	HLW98-07					0.0095				0.0017					0.0003				0.0197	0.9580	1150		> 1050					
1424	HLW98-08					0.0224		0.0011		0.0020		0.0013			0.0006	0.0010	0.0016		0.0207	0.9721	1150		< 1050					
1425	HLW98-09					0.0115		0.0007		0.0021		0.0006			0.0005	0.0001	0.0015		0.0194	0.9681	1150		< 1050					
1426	HLW98-10					0.0432		0.0011		0.0017		0.0004			0.0007	0.0009	0.0007		0.0172	0.9801	1150		~950					
1427	HLW98-11					0.0204		0.0012		0.0018		0.0005			0.0005	0.0010	0.0006		0.0204	0.9632	1150		~950					
1428	HLW98-12					0.0153		0.0017		0.0018		0.0045			0.0010	0.0001	0.0014		0.0178	0.9594	1150		< 950					
1429	HLW98-13																			0.0000	1150							
1430	HLW98-14					0.0261		0.0006		0.0006		0.0001		0.0010		0.0002	0.0021		0.0178	0.9914	1150		< 950					
1431	HLW98-15					0.0258		0.0001		0.0005		0.0001		0.0010		0.0002	0.0020		0.0177	0.9761	1150		< 950					
1432	HLW98-16					0.0182		0.0010		0.0024		0.0004			0.0009	0.0009	0.0027		0.0177	0.9560	1150		< 950					
1433	HLW98-17					0.0165		0.0010		0.0020		0.0008				0.0008	0.0024		0.0197	0.9473	1150		< 950					
1434	HLW98-18																			0.0000	1150		> 950					
1435	HLW98-19					0.0257		0.0002		0.0003		0.0001		0.0007		0.0001	0.0002		0.0190	0.9119	1150		< 950					
1436	HLW98-20					0.0118				0.0002		0.0001		0.0006		0.0001	0.0006		0.0193	0.9472	1150		< 950					
1437	HLW98-21					0.0121		0.0019		0.0012		0.0003			0.0005	0.0001	0.0008		0.0193	0.9484	1150		< 950					
1438	HLW98-22					0.0817		0.0001		0.0006		0.0002		0.0014		0.0001	0.0003		0.0191	0.9274	1150		< 950					
1439	HLW98-23					0.0740				0.0004		0.0001		0.0012		0.0001	0.0003		0.0193	0.9315	1150		< 950					
1440	HLW98-24					0.0116		0.0017		0.0014		0.0004			0.0004	0.0005	0.0002		0.0197	0.9570	1150		< 950					
1441	HLW98-25																			0.0000	1150		< 950					
1442	HLW98-26																			0.0000	1150		> 950					
1443	HLW98-27B					0.0212		0.0013		0.0014		0.0003			0.0004	0.0001	0.0002		0.0195	0.9540	1150		> 950					
1444	HLW98-28																			0.0000	1150		> 950					
1445	HLW98-29																			0.0000	1150		> 950					
1446	HLW98-30																			0.0000	1150		< 950					
1447	HLW98-31					0.0219		0.0015		0.0013		0.0005		0.0006		0.0001	0.0004		0.0208	0.9566	1150		< 950					
1448	HLW98-32A					0.0226		0.0004		0.0003		0.0002		0.0005		0.0001	0.0002		0.0194	0.9415	1150		> 950					
1449	HLW98-33																			0.0000	1150		> 950					
1450	HLW98-34					0.0669		0.0001		0.0007		0.0004		0.0009		0.0001			0.0207	0.9682	1150		< 950					
1451	HLW98-34CG					0.0669		0.0001		0.0007		0.0004		0.0009		0.0001			0.0207	0.9682								
1452	HLW98-35					0.0209		0.0004		0.0012		0.0002		0.0008		0.0001			0.0204	0.9279	1150		~ 950					
1453	HLW98-36					0.0001				0.0005		0.0005		0.0219					0.0185	0.9689	1150		< 950					
1454	HLW98-37					0.0277		0.0001		0.0005				0.0255					0.0201	0.9802	1150		> 950					
1455	HLW98-38			0.0018		0.0422		0.0004		0.0006		0.0010		0.0473		0.0003	0.0006		0.0192	0.9146	1150		> 950					
1456	HLW98-39			0.0019		0.0462		0.0006		0.0007		0.0010		0.0508		0.0003			0.0103	0.9139	1150		> 950					
1457	HLW98-40					0.0222		0.0004		0.0003				0.0095					0.0191	0.9515	1150							
1458	HLW98-41			0.0017		0.0382		0.0006		0.0010		0.0010		0.0497		0.0005	0.0006		0.0183	0.9151	1150		> 950					
1459	HLW98-42																			0.0000	1150		< 950					
1460	HLW98-43					0.0337		0.0007		0.0005		0.0008		0.0396			0.0006		0.0185	0.8598	1150		> 950					
1461	HLW98-44					0.0367		0.0007		0.0005		0.0009		0.0424			0.0006		0.0195	0.8854	1150		> 950					
1462	HLW98-45			0.0016		0.0416		0.0003		0.0006		0.0011		0.0414		0.0002	0.0005		0.0194	0.9183	1150		> 950					
1463	HLW98-46			0.0016		0.0395		0.0004		0.0006				0.0412					0.0192	0.9103	1150		< 950					
1464	HLW98-47					0.0366				0.0006				0.0391					0.0190	0.9107	1150		< 950					
1465	HLW98-48					0.0316		0.0003		0.0005				0.0309					0.0188	0.8648	1150		< 950					
1466	HLW98-49					0.0314		0.0004		0.0006				0.0289					0.0195	0.9286	1150		< 950					
1467	HLW98-50			0.0012		0.0007		0.0005		0.0006		0.0007		0.0341		0.0002	0.0004		0.0191	0.9360	1150		< 950					
1468	HLW98-51R					0.0317				0.0006				0.0305					0.0204	0.9237	1150		< 950					
1469	HLW98-52																			0.0000	1150		< 950					
1470	HLW98-53A					0.0219		0.0005		0.0002		0.0003		0.0006		0.0001	0.0006		0.0196	0.9526	1150		< 950					
1471	HLW98-54					0.0218		0.0007		0.0003				0.0097					0.0196	0.9649	1150		< 950					
1472	HLW98-55																			0.0000	1150							
1473	HLW98-56					0.0010				0.0003				0.0154					0.0011	0.9671	1150		< 950					
1474	HLW98-57																			0.0000	1150		< 950					
1475	HLW98-58					0.0120				0.0003				0.0146					0.0009	0.9296	1150		< 950					
1476	HLW98-59					0.0247		0.0008						0.0008					0.0190	0.9486	1150		< 950					

#	Glass ID	$C_{800°C}$	$C_{850°C}$	$C_{900°C}$	$C_{950°C}$	$C_{1000°C}$	$C_{1050°C}$	$C_{1100°C}$	$C_{1150°C}$	$C_{1200°C}$	Quenched Visual/OM	Quenched XRD	CCC XRD	ρ (g/cm³)	Fulc Visc A	Fulc Visc B	Fulc Visc To	Arrh Visc E	Arrh Visc F	T1 (°C)	V1 (Pa·s)
1395	GLA 78-10-16												~1 vol% hematite and spinel								
1396	P2-0Ca-0F																				
1397	P2-0Ca-1F																				
1398	P2-0Ca-2F																				
1399	P2-0Ca-3F																				
1400	P2-0Ca-4F																				
1401	P2-0Ca-5F																				
1402	P2-3Ca-0F																				
1403	P2-3Ca-1F																				
1404	P2-3Ca-2F																				
1405	P2-3Ca-3F																				
1406	P2-3Ca-4F																				
1407	P2-3Ca-5F																				
1408	P2-9Ca-0F																				
1409	P2-9Ca-1F																				
1410	P2-9Ca-2F																				
1411	P2-9Ca-3F																				
1412	P2-9Ca-4F																				
1413	P2-9Ca-5F																				
1414	SRL 165 HiFe													2.801						1100.0	4.600
1415	SRL 165 TDS													2.662						1100.0	7.700
1416	SRL 165 HiAl													2.622						1100.0	6.700
1417	HLW98-01										Homogeneous glass with a few undissolved inclusions										
1418	HLW98-02										Homogeneous glass										
1419	HLW98-03										Homogeneous glass with some undissolved solids at bottom of crucible							-12.081	20002.5	1000.0	37.953
1420	HLW98-04										Dark brown homogeneous glass										
1421	HLW98-05										Homogeneous brown glass										
1422	HLW98-06										Mostly homogeneous glass with some multicolor swirls							-11.363	18962.8	1000.0	34.228
1423	HLW98-07										Dark brown glass with light brown swirls							-13.517	23522.8	1000.0	142.840
1424	HLW98-08										Inhomogeneous glass with brown swirls. Undissolved secondary phase							-11.691	18832.3	1000.0	22.380
1425	HLW98-09										Dull looking brown glass										
1426	HLW98-10										Homogeneous dark brown glass										
1427	HLW98-11										Homogeneous dark brown glass										
1428	HLW98-12										Inhomogeneous glass shows iridescent swirls							-11.723	18293.2	1000.0	14.450
1429	HLW98-13										Inhomogeneous glass with greenish brown crystallization										
1430	HLW98-14										Homogeneous dark brown glass							-10.742	16937.1	1000.0	13.128
1431	HLW98-15										Homogeneous dark brown glass							-12.045	20178.3	1000.0	46.060
1432	HLW98-16										Homogeneous dark brown glass										
1433	HLW98-17										Homogeneous brown glass										
1434	HLW98-18										Homogeneous brown glass										
1435	HLW98-19										Homogeneous dark brown glass										
1436	HLW98-20										Homogeneous dark brown glass										
1437	HLW98-21										Homogeneous glass with some undissolved solids							-11.278	19350.5	1000.0	51.088
1438	HLW98-22										Homogeneous dark brown glass										
1439	HLW98-23										Homogeneous dark brown glass							-10.746	17369.6	1000.0	18.481
1440	HLW98-24										Dark brown homogeneous glass							-10.833	17819.0	1000.0	24.045
1441	HLW98-25										Inhomogeneous glass shows multicolor swirls										
1442	HLW98-26										Homogeneous dark brown glass										
1443	HLW98-27B										Homogeneous dark brown glas										
1444	HLW98-28										Homogeneous glass										
1445	HLW98-29										Homogeneous dark brown glass										
1446	HLW98-30										Homogeneous amber tinted glass										
1447	HLW98-31										Homogeneous dark brown glass			2.750				-11.094	17871.5	1000.0	19.199
1448	HLW98-32A										Homogeneous dark brown glass										
1449	HLW98-33										Mostly homogeneous with small amount of undissolved solids										
1450	HLW98-34										Homogeneous dark brown glass			2.830				-11.803	18764.9	1000.0	19.235
1451	HLW98-34CG																				
1452	HLW98-35										Homogeneous dark brown glass										
1453	HLW98-36										Homogeneous dark brown glass										
1454	HLW98-37										Homogeneous dark brown glass										
1455	HLW98-38										Homogeneous dark brown glass with metallic appearance										
1456	HLW98-39										Homogeneous dark brown glass with bluish metallic appearance										
1457	HLW98-40										Inhomogeneous glass with multicolor swirls										
1458	HLW98-41										Metallic looking glass with surface crystallization										
1459	HLW98-42										Homogeneous dark brown glass							-10.165	15695.5	1000.0	8.833
1460	HLW98-43										Homogeneous dark brown glass										
1461	HLW98-44										Homogeneous dark brown glass							-10.165	15695.5	1000.0	8.833
1462	HLW98-45										Homogeneous dark brown glass										
1463	HLW98-46										Homogeneous dark brown glass										
1464	HLW98-47										Dark brown glass with very small amount of undissolved solids							-11.392	16326.0	1000.0	4.251
1465	HLW98-48										Homogeneous dark brown glass										
1466	HLW98-49										Homogeneous dark brown glass										
1467	HLW98-50										Clear, homogeneous dark brown glass										
1468	HLW98-51R										Homogeneous dark brown glass			2.890				-11.433	18175.2	1000.0	17.670
1469	HLW98-52										Inhomogeneous brown opaque glass with light color swirls										
1470	HLW98-53A										Inhomogeneous brown glass with apparently undissolved fractions			2.770							
1471	HLW98-54										Inhomogeneous brown glass with multicolor swirls										
1472	HLW98-55										Inhomogeneous glass with many brown and green streaks										
1473	HLW98-56										Homogeneous brown glass			2.690							
1474	HLW98-57										Homogeneous dark brown glass			2.790							
1475	HLW98-58										Homogeneous dark brown glass										
1476	HLW98-59										Inhomogeneous brown glass with swirling patterns throughout										

#	Glass ID	T2 (°C)	V2 (Pa·s)	T3 (°C)	V3 (Pa·s)	T4 (°C)	V4 (Pa·s)	T5 (°C)	V5 (Pa·s)	T6 (°C)	V6 (Pa·s)	T7 (°C)	V7 (Pa·s)	T8 (°C)	V8 (Pa·s)	T9 (°C)	V9 (Pa·s)	T10 (°C)	V10 (Pa·s)	TCLP Ag	TCLP As	TCLP Ba	TCLP Cd	TCLP Cr	TCLP Ni	TCLP Pb
1395	GLA 78-10-16																									
1396	P2-0Ca-0F																									
1397	P2-0Ca-1F																									
1398	P2-0Ca-2F																									
1399	P2-0Ca-3F																									
1400	P2-0Ca-4F																									
1401	P2-0Ca-5F																									
1402	P2-3Ca-0F																									
1403	P2-3Ca-1F																									
1404	P2-3Ca-2F																									
1405	P2-3Ca-3F																									
1406	P2-3Ca-4F																									
1407	P2-3Ca-5F																									
1408	P2-9Ca-0F																									
1409	P2-9Ca-1F																									
1410	P2-9Ca-2F																									
1411	P2-9Ca-3F																									
1412	P2-9Ca-4F																									
1413	P2-9Ca-5F																									
1414	SRL 165 HiFe																									
1415	SRL 165 TDS																									
1416	SRL 165 HiAl																									
1417	HLW98-01																			0.071	0.05	0.285	0.318	0.025	0.136	0.121
1418	HLW98-02																			0.098	0.07	0.317	0.365	0.023	0.17	0.137
1419	HLW98-03	1050	20.793	1100	12.0	1150.0	7.2	1200.0	4.5											0.015	0.05	0.091	0.064	0.014	0.052	0.089
1420	HLW98-04																			0.013	0.05	0.097	0.067	0.019	0.05	0.087
1421	HLW98-05																			0.015	0.05	0.082	0.116	0.012	0.04	0.09
1422	HLW98-06	1050	19.493	1100	11.6	1150.0	7.1	1200.0	4.5											0.014	0.05	0.112	0.072	0.01	0.07	0.08
1423	HLW98-07	1050	71.050	1100	37.2	1150.0	20.4	1200.0	11.6											0.017	0.05	0.098	0.06	<0.006	0.04	0.08
1424	HLW98-08	1050	12.686	1100	7.5	1150.0	4.7	1200.0	3.0											0.03	0.05	0.13	0.08	0.01	0.08	0.07
1425	HLW98-09																			0.02	0.05	0.22	0.07	<0.01	0.06	0.06
1426	HLW98-10																									
1427	HLW98-11																									
1428	HLW98-12	1050	8.072	1100	4.8	1150.0	3.1	1200.0	2.1											0.02	0.05	0.03	0.11	0.01	0.06	<0.03
1429	HLW98-13																			0.033	0.012	0.053	0.179	0.01	0.111	0.261
1430	HLW98-14	1050	7.782	1100	4.9	1150.0	3.2	1200.0	2.2											0.037	0.075	0.303	0.05	0.02	0.05	0.11
1431	HLW98-15	1050	24.311	1100	13.8	1150.0	8.4	1200.0	5.4											0.029	0.08	0.224	0.03	0.01	0.03	0.1
1432	HLW98-16																									
1433	HLW98-17																									
1434	HLW98-18																			0.002	0.017	0.026	0.076	0.011	0.031	<0.03
1435	HLW98-19																			0.023	0.05	0.228	0.01	0.01	0.015	0.08
1436	HLW98-20																			<0.004	0.05	0.208	0.009	0.008	0.032	0.09
1437	HLW98-21	1050	28.278	1100	16.5	1150.0	10.1	1200.0	6.5											<0.003	0.05	0.022	0.058	<0.006	0.04	0.036
1438	HLW98-22																			<0.003	0.05	0.2	0.008	0.01	0.04	0.065
1439	HLW98-23	1050	10.717	1100	6.6	1150.0	4.3	1200.0	2.9											<0.003	0.05	0.16	0.004	<0.006	0.01	0.057
1440	HLW98-24	1050	13.813	1100	8.4	1150.0	5.4	1200.0	3.6											<0.003	0.05	0.027	0.071	<0.006	0.046	<0.03
1441	HLW98-25																			0.014	0.05	0.039	0.091	0.009	0.06	<0.03
1442	HLW98-26																			0.01	0.05	0.02	0.06	<0.006	0.06	0.04
1443	HLW98-27B																			<.0031	0.05	0.04	0.09	0.03	0.11	0.06
1444	HLW98-28																			<.0031	0.05	0.03	0.08	0.02	0.09	0.07
1445	HLW98-29																			<.0031	0.05	0.03	0.08	0.01	0.1	0.04
1446	HLW98-30																			0.01	0.06	0.16	0.15	0.01	0.15	0.03
1447	HLW98-31	1050	11.114	1100	6.8	1150.0	4.3	1200.0	2.9											<0.0031	0.05	0.03	0.07	0.02	0.09	0.03
1448	HLW98-32A																			<0.0031	0.061	0.097	0.172	<0.0055	0.088	0.026
1449	HLW98-33																			0.07	0.05	0.118	0.014	0.007	0.034	0.203
1450	HLW98-34	1050	10.676	1100	6.3	1150.0	4.0	1200.0	2.6											0.064	0.05	0.193	0.079	0.012	0.107	0.081
1451	HLW98-34CG																									
1452	HLW98-35																									
1453	HLW98-36																									
1454	HLW98-37																									
1455	HLW98-38																									
1456	HLW98-39																									
1457	HLW98-40																									
1458	HLW98-41																			0.02	0.05	0.126	0.082	0.024	0.291	0.162
1459	HLW98-42	1050	5.420	1100	3.5	1150.0	2.4	1200.0	1.7											0.02	NA	0.09	0.484	0.011	0.179	0.635
1460	HLW98-43																			0.06	NA	0.122	0.077	0.017	0.213	0.242
1461	HLW98-44	1050	5.420	1100	3.5	1150.0	2.4	1200.0	1.7											0.065	NA	0.106	0.072	0.013	0.201	0.249
1462	HLW98-45																									
1463	HLW98-46																									
1464	HLW98-47	1050	2.558	1100	1.6	1150.0	1.1	1200.0	0.7											0.061	NA	0.106	0.066	0.011	0.183	0.232
1465	HLW98-48																									
1466	HLW98-49																									
1467	HLW98-50																									
1468	HLW98-51R	1050	9.850	1100	5.9	1150.0	3.8	1200.0	2.5											0.025	0.05	0.038	0.029	0.02	0.247	0.101
1469	HLW98-52																									
1470	HLW98-53A																									
1471	HLW98-54																			0.014	0.05	0.041	0.203	0.014	0.187	0.06
1472	HLW98-55																									
1473	HLW98-56																									
1474	HLW98-57																									
1475	HLW98-58																			<0.0031	0.05	0.465	0.268	<0.0055	0.11	0.081
1476	HLW98-59																			0.007	0.118	0.469	0.157	<0.0055	0.095	<0.0243

#	Glass ID	TCLP Se	TCLP Zn	TCLP Al	TCLP B	TCLP Sb	TCLP Tl	TCLP V	Q PCT B (g/m²)	Q PCT Li (g/m²)	Q PCT Na (g/m²)	Q PCT Si (g/m²)	Q PCT pH	CCC PCT B (g/m²)	CCC PCT Li (g/m²)	CCC PCT Na (g/m²)	CCC PCT Si (g/m²)	CCC PCT pH	T1 (°C)
1395	GLA 78-10-16								0.230	0.310	0.250	0.113	10.920						
1396	P2-0Ca-0F								0.150	0.345 (0.02)		0.135	9.170						
1397	P2-0Ca-1F								0.220	0.205	0.270	0.130	10.120						
1398	P2-0Ca-2F								0.245	0.205	0.280	0.125	10.080						
1399	P2-0Ca-3F								0.255	0.200	0.280	0.120	10.040						
1400	P2-0Ca-4F								0.285	0.215	0.300	0.115	9.950						
1401	P2-0Ca-5F								0.290	0.220	0.305	0.115	9.830						
1402	P2-3Ca-0F								0.110	0.275 (0.03)		0.080	9.420						
1403	P2-3Ca-1F								0.220	0.220	0.290	0.110	10.400						
1404	P2-3Ca-2F								0.230	0.200	0.285	0.115	10.300						
1405	P2-3Ca-3F								0.225	0.195	0.270	0.110	10.080						
1406	P2-3Ca-4F								0.240	0.195	0.270	0.110	10.100						
1407	P2-3Ca-5F								0.270	0.200	0.280	0.110	10.070						
1408	P2-9Ca-0F								0.105	0.210	0.120	0.050	10.010						
1409	P2-9Ca-1F								0.225	0.325	0.380	0.105	10.900						
1410	P2-9Ca-2F								0.260	0.290	0.360	0.105	10.810						
1411	P2-9Ca-3F								0.285	0.325	0.405	0.120	10.830						
1412	P2-9Ca-4F								0.300	0.320	0.390	0.115	10.800						
1413	P2-9Ca-5F								0.280	0.290	0.370	0.100	10.710						
1414	SRL 165 HiFe																		
1415	SRL 165 TDS																		
1416	SRL 165 HiAl																		
1417	HLW98-01	0.0532	0.894																
1418	HLW98-02	0.0532	1.02						0.330	0.335	0.370	0.115	9.850						
1419	HLW98-03	0.0532	0.488																
1420	HLW98-04	0.0532	0.505						0.215		0.235	0.085	9.220						
1421	HLW98-05	0.0532	0.45																
1422	HLW98-06	0.0532	0.44																
1423	HLW98-07	0.0532	0.35																
1424	HLW98-08	0.0532	0.46																
1425	HLW98-09	0.0532	0.42																
1426	HLW98-10																		
1427	HLW98-11																		
1428	HLW98-12	0.0532	0.401						0.280	0.310	0.150	0.135	9.510						
1429	HLW98-13	0.038	0.77																
1430	HLW98-14	0.0532	0.79																
1431	HLW98-15	0.0532	0.54																
1432	HLW98-16																		
1433	HLW98-17																		
1434	HLW98-18	0.0532	0.007																
1435	HLW98-19	0.0532	0.529	0.745	1.43														
1436	HLW98-20	0.0532	0.531	0.525	1.4				0.295	0.225	0.250	0.145	9.520						
1437	HLW98-21	0.0532	0.246						0.280	0.290	0.135	0.165	9.810						
1438	HLW98-22	0.0532	0.59						0.215	0.230	0.215	0.100	9.670						
1439	HLW98-23	0.0532	0.51						0.220	0.235	0.205	0.110	9.510						
1440	HLW98-24	0.0532	0.29	0.511	0.892														
1441	HLW98-25	0.0532	0.343																
1442	HLW98-26	0.0532	0.34																
1443	HLW98-27B	0.0532	0.45						0.355	0.340	0.420	0.215	10.850						
1444	HLW98-28	0.0532	0.37																
1445	HLW98-29	0.0532	0.41																
1446	HLW98-30	0.0532	0.41	0.394	0.642														
1447	HLW98-31	0.09	0.33						0.365	0.260	0.190	0.160	9.840						
1448	HLW98-32A	0.0532	0.337						0.235	0.215	0.075	0.155	9.540						
1449	HLW98-33	0.0532	0.607																
1450	HLW98-34	0.0532	0.547			<0.0338	<0.0417		0.235	0.235	0.205	0.115	9.750						
1451	HLW98-34CG													0.139	0.180	0.171			
1452	HLW98-35																		
1453	HLW98-36																		
1454	HLW98-37																		
1455	HLW98-38																		
1456	HLW98-39																		
1457	HLW98-40																		
1458	HLW98-41	0.0532	1.475																
1459	HLW98-42	NA	0.692																
1460	HLW98-43	NA	1.581																
1461	HLW98-44	NA	1.449																
1462	HLW98-45																		
1463	HLW98-46																		
1464	HLW98-47	NA	1.636																
1465	HLW98-48																		
1466	HLW98-49																		
1467	HLW98-50								1.765	1.265	1.095	0.450	10.510						
1468	HLW98-51R	0.068	3.23						1.355	1.080	0.915	0.405	10.550						
1469	HLW98-52																		
1470	HLW98-53A								0.425	0.405	0.355	0.225	10.430						
1471	HLW98-54	0.062	1.479																
1472	HLW98-55																		
1473	HLW98-56								0.695	0.445	0.455	0.265	10.610						
1474	HLW98-57																		
1475	HLW98-58	0.0532	0.13						0.475	0.550	0.670	0.330	11.320						
1476	HLW98-59	0.0532	0.422	0.507	0.404				0.695	0.445	0.455	0.265	10.610						

#	Glass ID	EC1 (S/cm)	T2 (°C)	EC2 (S/cm)	T3 (°C)	EC3 (S/cm)	T4 (°C)	EC4 (S/cm)	T5 (°C)	EC5 (S/cm)	T6 (°C)	EC6 (S/cm)	A	B	To
1395	GLA 78-10-16														
1396	P2-0Ca-0F														
1397	P2-0Ca-1F														
1398	P2-0Ca-2F														
1399	P2-0Ca-3F														
1400	P2-0Ca-4F														
1401	P2-0Ca-5F														
1402	P2-3Ca-0F														
1403	P2-3Ca-1F														
1404	P2-3Ca-2F														
1405	P2-3Ca-3F														
1406	P2-3Ca-4F														
1407	P2-3Ca-5F														
1408	P2-9Ca-0F														
1409	P2-9Ca-1F														
1410	P2-9Ca-2F														
1411	P2-9Ca-3F														
1412	P2-9Ca-4F														
1413	P2-9Ca-5F														
1414	SRL 165 HiFe														
1415	SRL 165 TDS														
1416	SRL 165 HiAl														
1417	HLW98-01														
1418	HLW98-02														
1419	HLW98-03														
1420	HLW98-04														
1421	HLW98-05														
1422	HLW98-06														
1423	HLW98-07														
1424	HLW98-08														
1425	HLW98-09														
1426	HLW98-10														
1427	HLW98-11														
1428	HLW98-12														
1429	HLW98-13														
1430	HLW98-14														
1431	HLW98-15														
1432	HLW98-16														
1433	HLW98-17														
1434	HLW98-18														
1435	HLW98-19														
1436	HLW98-20														
1437	HLW98-21														
1438	HLW98-22														
1439	HLW98-23														
1440	HLW98-24														
1441	HLW98-25														
1442	HLW98-26														
1443	HLW98-27B														
1444	HLW98-28														
1445	HLW98-29														
1446	HLW98-30														
1447	HLW98-31														
1448	HLW98-32A														
1449	HLW98-33														
1450	HLW98-34														
1451	HLW98-34CG														
1452	HLW98-35														
1453	HLW98-36														
1454	HLW98-37														
1455	HLW98-38														
1456	HLW98-39														
1457	HLW98-40														
1458	HLW98-41														
1459	HLW98-42														
1460	HLW98-43														
1461	HLW98-44														
1462	HLW98-45														
1463	HLW98-46														
1464	HLW98-47														
1465	HLW98-48														
1466	HLW98-49														
1467	HLW98-50														
1468	HLW98-51R														
1469	HLW98-52														
1470	HLW98-53A														
1471	HLW98-54														
1472	HLW98-55														
1473	HLW98-56														
1474	HLW98-57														
1475	HLW98-58														
1476	HLW98-59														

#	Glass ID	Study	Reference	Al2O3-t	B2O3-t	CaO-t	Fe2O3-t	FeO-t	K2O-t	Li2O-t	MgO-t	Na2O-t	NiO-t	P2O5-t	SiO2-t	ZrO2-t	Ag2O-t	As2O3-t	As2O5-t	BaO-t	BeO-t	Bi2O3-t	Br-t	CdO-t	Ce2O3-t	CeO2-t	Cl-t
1477	HLW98-60	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0760	0.0400	0.0059	0.1194		0.0003	0.0500	0.0012	0.1325	0.0077	0.0024	0.4765	0.0166	0.0002	0.0000		0.0004		0.0000		0.0137		0.0007	0.0005
1478	HLW98-61	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0769	0.0400	0.0049	0.1223		0.0003	0.0500	0.0012	0.1390	0.0076	0.0046	0.4704	0.0147	0.0002			0.0004				0.0139	0.0006		0.0003
1479	HLW98-61CG1	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0769	0.0400	0.0049	0.1223		0.0003	0.0500	0.0012	0.1390	0.0076	0.0046	0.4704	0.0147	0.0002			0.0004				0.0139	0.0006		0.0003
1480	HLW98-62	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0967	0.1200	0.0231	0.0393		0.0008	0.0500	0.0003	0.0964	0.0025	0.0022	0.4255	0.0808	0.0000	0.0000		0.0000				0.0006		0.0000	0.0002
1481	HLW98-63	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.1185	0.0627	0.0079	0.1290		0.0003	0.0358	0.0024	0.1010	0.0017	0.0017	0.3783	0.0013	0.0026	0.0000		0.0007				0.0005		0.0003	0.0003
1482	HLW98-64	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0814	0.0956	0.0027	0.1143		0.0019	0.0574	0.0007	0.0639	0.0059	0.0014	0.4354	0.0392	0.0000	0.0004		0.0005				0.0041		0.0009	0.0001
1483	HLWMS-01	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0500	0.0600					0.0600		0.0260		0.0100	0.3800												
1484	HLWMS-02	RPP-WTP HLW Formulation	Kot and Pegg 2001		0.1100					0.0600		0.0340			0.3500												
1485	HLWMS-03	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0100	0.0560					0.0600		0.0280			0.3800												
1486	HLWMS-04	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0400	0.0500					0.0500		0.0200		0.0050	0.3310												
1487	HLWMS-05	RPP-WTP HLW Formulation	Kot and Pegg 2001		0.0600					0.0450		0.0200			0.3390												
1488	HLWMS-06	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0100	0.0400					0.0450		0.0200			0.3340												
1489	HLWMS-07	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0300	0.1300					0.0600		0.0300			0.2500	0.0200											
1490	HLWMS-08	RPP-WTP HLW Formulation	Kot and Pegg 2001		0.1200					0.0600		0.0300			0.3350	0.0200											
1491	HLWMS-09	RPP-WTP HLW Formulation	Kot and Pegg 2001		0.1100					0.0450		0.0150			0.3350	0.0600											
1492	HLWMS-10	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0300	0.1100					0.0400		0.0150			0.3100	0.0600											
1493	HLWMS-11	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0500	0.1000					0.0350		0.0100			0.3000	0.0700											
1494	HLWMS-12	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.1120	0.1000					0.0350		0.0100			0.3660	0.0700											
1495	HLWMS-13	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.1120	0.1000					0.0350		0.0100			0.3340	0.0700											
1496	HLWMS-14	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.1120	0.1000					0.0350		0.0100			0.3960	0.0400											
1497	HLWMS-15	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.1320	0.1000					0.0350		0.0100			0.3760	0.0400											
1498	HLW99-01	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0000	0.0500	0.0700	0.0200		0.0100	0.0350	0.0200	0.0500	0.0300	0.0000	0.5500	0.0000	0.0025	0.0020		0.0400		0.0200		0.0300		0.0020	0.0020
1499	HLW99-02	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0000	0.2000	0.0000	0.1250		0.0100	0.0000	0.0000	0.2000	0.0000	0.0270	0.3000	0.0000	0.0025	0.0020		0.0000		0.0000		0.0000		0.0020	0.0020
1500	HLW99-03	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.1100	0.2000	0.0000	0.0200		0.0100	0.0650	0.0200	0.0500	0.0300	0.0000	0.3000	0.0300	0.0025	0.0020		0.0400		0.0200		0.0300		0.0020	0.0020
1501	HLW99-04	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.1100	0.0500	0.0000	0.0200		0.0100	0.0700	0.0000	0.0500	0.0000	0.0300	0.4900	0.0230	0.0025	0.0020		0.0000		0.0000		0.0000		0.0020	0.0020
1502	HLW99-05	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0000	0.0600	0.0000	0.0200		0.0100	0.0100	0.0200	0.2000	0.0300	0.0184	0.3100	0.1000	0.0025	0.0020		0.0400		0.0200		0.0300		0.0020	0.0020
1503	HLW99-06	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.1100	0.0500	0.0700	0.0200		0.0100	0.0000	0.0000	0.2000	0.0000	0.0000	0.4800	0.0050	0.0025	0.0020		0.0000		0.0000		0.0000		0.0020	0.0020
1504	HLW99-07	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0000	0.2000	0.0700	0.0200		0.0100	0.0350	0.0000	0.1500	0.0000	0.0037	0.3450	0.1000	0.0025	0.0020		0.0000		0.0000		0.0000		0.0020	0.0020
1505	HLW99-08	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0000	0.0500	0.0700	0.1250		0.0100	0.0700	0.0000	0.0800	0.0000	0.0300	0.3800	0.0380	0.0025	0.0020		0.0000		0.0000		0.0000		0.0020	0.0020
1506	HLW99-09	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0000	0.2000	0.0700	0.0200		0.0100	0.0350	0.0173	0.0500	0.0259	0.0300	0.3000	0.0000	0.0025	0.0020		0.0345		0.0173		0.0259		0.0020	0.0020
1507	HLW99-10	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0000	0.0500	0.0630	0.0200		0.0100	0.0000	0.0000	0.1300	0.0000	0.0300	0.5500	0.0000	0.0025	0.0020		0.0000		0.0000		0.0000		0.0020	0.0020
1508	HLW99-11	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.1100	0.2000	0.0700	0.0200		0.0100	0.0070	0.0000	0.1060	0.0000	0.0300	0.3000	0.0000	0.0025	0.0020		0.0000		0.0000		0.0000		0.0020	0.0020
1509	HLW99-12	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0100	0.2000	0.0700	0.1250		0.0100	0.0350	0.0000	0.0500	0.0000	0.0000	0.4450	0.0000	0.0025	0.0020		0.0000		0.0000		0.0000		0.0020	0.0020
1510	HLW99-13	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0000	0.0500	0.0000	0.0200		0.0100	0.0000	0.0200	0.2000	0.0300	0.0061	0.4800	0.0000	0.0025	0.0020		0.0400		0.0200		0.0300		0.0020	0.0020
1511	HLW99-14	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0000	0.2000	0.0000	0.1250		0.0100	0.0350	0.0200	0.0500	0.0300	0.0000	0.3317	0.0333	0.0025	0.0020		0.0400		0.0200		0.0300		0.0020	0.0020
1512	HLW99-15	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0000	0.2000	0.0350	0.0200		0.0100	0.0100	0.0200	0.2000	0.0300	0.0000	0.3100	0.0000	0.0025	0.0020		0.0400		0.0200		0.0300		0.0020	0.0020
1513	HLW99-16	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0000	0.0500	0.0000	0.1250		0.0100	0.0700	0.0113	0.0500	0.0169	0.0000	0.5500	0.0000	0.0025	0.0020		0.0225		0.0113		0.0169		0.0020	0.0020
1514	HLW99-17	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0000	0.0500	0.0700	0.0200		0.0100	0.0100	0.0000	0.2000	0.0000	0.0300	0.3630	0.1000	0.0025	0.0020		0.0000		0.0000		0.0000		0.0020	0.0020
1515	HLW99-18	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.1100	0.0700	0.0700	0.0200		0.0100	0.0100	0.0156	0.2000	0.0234	0.0000	0.3000	0.0300	0.0025	0.0020		0.0313		0.0156		0.0234		0.0020	0.0020
1516	HLW99-19	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0850	0.2000	0.0000	0.1250		0.0100	0.0530	0.0000	0.0500	0.0000	0.0300	0.3000	0.0000	0.0025	0.0020		0.0000		0.0000		0.0000		0.0020	0.0020
1517	HLW99-20	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0530	0.0900	0.0000	0.0200		0.0100	0.0700	0.0200	0.0800	0.0300	0.0300	0.3400	0.0000	0.0025	0.0020		0.0400		0.0200		0.0300		0.0020	0.0020
1518	HLW99-21	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0650	0.0500	0.0700	0.0200		0.0100	0.0700	0.0000	0.0750	0.0000	0.0000	0.5350	0.0500	0.0025	0.0020		0.0000		0.0000		0.0000		0.0020	0.0020
1519	HLW99-22	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0400	0.2000	0.0000	0.0230		0.0100	0.0000	0.0000	0.1500	0.0000	0.0300	0.3000	0.1000	0.0025	0.0020		0.0000		0.0000		0.0000		0.0020	0.0020
1520	HLW99-23	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0000	0.0500	0.0700	0.0200		0.0100	0.0000	0.0179	0.2000	0.0268	0.0300	0.3300	0.0000	0.0025	0.0020		0.0358		0.0179		0.0268		0.0020	0.0020
1521	HLW99-24R	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0000	0.1550	0.0700	0.1100		0.0100	0.0000	0.0000	0.2000	0.0000	0.0000	0.3000	0.1000	0.0025	0.0020		0.0000		0.0000		0.0000		0.0020	0.0020
1522	HLW99-25	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.1100	0.0900	0.0700	0.1000		0.0100	0.0700	0.0094	0.0800	0.0141	0.0000	0.3400	0.0000	0.0025	0.0020		0.0188		0.0094		0.0141		0.0020	0.0020
1523	HLW99-26	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0000	0.0500	0.0000	0.0730		0.0100	0.0350	0.0200	0.0500	0.0300	0.0300	0.4450	0.0000	0.0025	0.0020		0.0400		0.0200		0.0300		0.0020	0.0020
1524	HLW99-27	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0000	0.1600	0.0700	0.1250		0.0100	0.0700	0.0200	0.0500	0.0300	0.0000	0.3000	0.0000	0.0025	0.0020		0.0400		0.0200		0.0300		0.0020	0.0020
1525	HLW99-28	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0250	0.1600	0.0700	0.0200		0.0100	0.0000	0.0200	0.1200	0.0300	0.0000	0.3000	0.0800	0.0025	0.0020		0.0400		0.0200		0.0300		0.0020	0.0020
1526	HLW99-29	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0000	0.0500	0.0000	0.0200		0.0100	0.0300	0.0123	0.1300	0.0184	0.0000	0.5200	0.0867	0.0025	0.0020		0.0246		0.0123		0.0184		0.0020	0.0020
1527	HLW99-30	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0400	0.1250	0.0000	0.0200		0.0100	0.0100	0.0056	0.2000	0.0084	0.0000	0.3950	0.1000	0.0025	0.0020		0.0113		0.0056		0.0084		0.0020	0.0020
1528	HLW99-31	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.1100	0.1830	0.0000	0.0200		0.0100	0.0000	0.0000	0.2000	0.0000	0.0300	0.3000	0.0000	0.0025	0.0020		0.0000		0.0000		0.0000		0.0020	0.0020
1529	HLW99-32	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0000	0.0500	0.0000	0.1250		0.0100	0.0463	0.0029	0.1275	0.0043	0.0300	0.3563	0.0850	0.0025	0.0020		0.0058		0.0029		0.0043		0.0020	0.0020
1530	HLW99-33	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0000	0.2000	0.0700	0.0200		0.0100	0.0700	0.0000	0.0800	0.0000	0.0300	0.3730	0.0000	0.0025	0.0020		0.0000		0.0000		0.0000		0.0020	0.0020
1531	HLW99-34	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0000	0.0500	0.0000	0.0297		0.0100	0.0700	0.0000	0.0800	0.0000	0.0300	0.5300	0.0533	0.0025	0.0020		0.0000		0.0000		0.0000		0.0020	0.0020
1532	HLW99-35	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0914	0.0500	0.0400	0.0700		0.0100	0.0536	0.0000	0.0729	0.0000	0.0000	0.5086	0.0486	0.0025	0.0020		0.0000		0.0000		0.0000		0.0020	0.0020
1533	HLW99-36	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0000	0.2000	0.0133	0.1250		0.0100	0.0700	0.0017	0.0800	0.0025	0.0000	0.3800	0.0533	0.0025	0.0020		0.0033		0.0017		0.0025		0.0020	0.0020
1534	HLW99-37	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.1100	0.0700	0.0000	0.0200		0.0100	0.0500	0.0094	0.1200	0.0141	0.0000	0.4900	0.0000	0.0025	0.0020		0.0188		0.0094		0.0141		0.0020	0.0020
1535	HLW99-38	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0000	0.0500	0.0700	0.0200		0.0100	0.0700	0.0137	0.0500	0.0206	0.0300	0.4100	0.0333	0.0025	0.0020		0.0274		0.0137		0.0206		0.0020	0.0020
1536	HLW99-39	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0000	0.1250	0.0700	0.1250		0.0100	0.0400	0.0013	0.1400	0.0019	0.0000	0.4250	0.0000	0.0025	0.0020		0.0025		0.0013		0.0019		0.0020	0.0020
1537	HLW99-40	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.1100	0.2000	0.0000	0.0675		0.0100	0.0000	0.0000	0.1200	0.0000	0.0000	0.4075	0.0300	0.0025	0.0020		0.0000		0.0000		0.0000		0.0020	0.0020
1538	HLW99-41	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0516	0.1171	0.0303	0.0614		0.0100	0.0317	0.0062	0.1129	0.0094	0.0124	0.3973	0.0322	0.0025	0.0020		0.0125		0.0062		0.0094		0.0020	0.0020
1539	HLW99-42	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.1100	0.1775	0.0450	0.0200		0.0100	0.0350	0.0000	0.0500	0.0000	0.0000	0.4675	0.0300	0.0025	0.0020		0.0000		0.0000		0.0000		0.0020	0.0020
1540	HLW99-43	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0850	0.2000	0.0700	0.1250		0.0100	0.0675	0.0000	0.0850	0.0000	0.0000	0.3025	0.0000	0.0025	0.0020		0.0000		0.0000		0.0000		0.0020	0.0020
1541	HLW99-44	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0850	0.0700	0.0700	0.1250		0.0100	0.0100	0.0000	0.2000	0.0000	0.0184	0.3000	0.0000	0.0025	0.0020		0.0000		0.0000		0.0000		0.0020	0.0020
1542	HLW99-45	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.1067	0.1600	0.0700	0.0200		0.0100	0.0700	0.0004	0.0500	0.0006	0.0300	0.3000	0.0333	0.0025	0.0020		0.0008		0.0004		0.0006		0.0020	0.0020
1543	HLW99-46	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0000	0.1158	0.0700	0.0200		0.0100	0.0700	0.0200	0.0800	0.0300	0.0000	0.3658	0.0533	0.0025	0.0020		0.0400		0.0200		0.0300		0.0020	0.0020
1544	HLW99-47	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0500	0.0500	0.0350	0.1250		0.0100	0.0300	0.0000	0.0950	0.0000	0.0000	0.5500	0.0000	0.0025	0.0020		0.0000		0.0000		0.0000		0.0020	0.0020
1545	HLW99-48	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.1100	0.0650	0.0000	0.0850		0.0100	0.0000	0.0200	0.2000	0.0300	0.0000	0.3150	0.0000	0.0025	0.0020		0.0400		0.0200		0.0300		0.0020	0.0020
1546	HLW99-49	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0425	0.0650	0.0000	0.1250		0.0100	0.0000	0.0029	0.2000	0.0043	0.0300	0.3150	0.0425	0.0025	0.0020		0.0058		0.0029		0.0043		0.0020	0.0020
1547	HLW99-50	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0500	0.0600	0.0000	0.0200		0.0100	0.0700	0.0000	0.0500	0.0000	0.0250	0.5500	0.0333	0.0025	0.0020		0.0000		0.0000		0.0000		0.0020	0.0020
1548	HLW99-51R	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0000	0.2000	0.0700	0.0200		0.0100	0.0000	0.0000	0.2000	0.0000	0.0300	0.3000	0.0230	0.0025	0.0020		0.0000		0.0000		0.0000		0.0020	0.0020
1549	HLW99-52	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0250	0.2000	0.0000	0.0200		0.0100	0.0000	0.0200	0.1600	0.0300	0.0000	0.3700	0.0000	0.0025	0.0020		0.0400		0.0200		0.0300		0.0020	0.0020
1550	HLW99-53	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0000	0.0500	0.0700	0.1250		0.0100	0.0000	0.0124	0.1200	0.0186	0.0150	0.4100	0.0000	0.0025	0.0020		0.0248		0.0124		0.0186		0.0020	0.0020
1551	HLW99-54	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.1100	0.0500	0.0000	0.0200		0.0100	0.0350	0.0138	0.1200	0.0206	0.0000	0.4900	0.0000	0.0025	0.0020		0.0275		0.0138		0.0206		0.0020	0.0020
1552	HLW99-55	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0400	0.0500	0.0700	0.0700		0.0100	0.0100	0.0094	0.2000	0.0141	0.0000	0.3200	0.1000	0.0025	0.0020		0.0188		0.0094		0.0141		0.0020	0.0020
1553	HLW99-56R	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0367	0.0500	0.0000	0.1250		0.0100	0.0700	0.0200	0.0500	0.0300	0.0000	0.4100	0.0333	0.0025	0.0020		0.0400		0.0200		0.0300		0.0020	0.0020
1554	HLW99-57	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0000	0.0500	0.0000	0.1250		0.0100	0.0100	0.0000	0.2000	0.0000	0.0000	0.4700	0.0800	0.0025	0.0020		0.0000		0.0000		0.0000		0.0020	0.0020
1555	HLW99-58	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.1100	0.2000	0.0700	0.0200		0.0100	0.0000	0.0044	0.2000	0.0066	0.0000	0.3000	0.0000	0.0025	0.0020		0.0088		0.0044		0.0066		0.0020	0.0020
1556	HLW99-59	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.1100	0.0500	0.0650	0.0200		0.0100	0.0700	0.0200	0.0500	0.0300	0.0000	0.4100	0.0000	0.0025	0.0020		0.0400		0.0200		0.0300		0.0020	0.0020
1557	HLW99-60	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0000	0.1350	0.0000	0.1250		0.0100	0.0233	0.0135	0.0733	0.0203	0.0300	0.3483	0.0000	0.0025	0.0020		0.0270		0.0135		0.0203		0.0020	0.0020
1558	HLW99-61	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0250	0.2000	0.0000	0.0200		0.0100	0.0000	0.0200	0.1600	0.0300	0.0000	0.3700	0.0000	0.0025	0.0020		0.0400		0.0200		0.0300		0.0020	0.0020

#	Glass ID	CoO-t	Co2O3-t	Cr2O3-t	Cs2O-t	CuO-t	Dy2O3-t	Eu2O3-t	F-t	Ga2O3-t	Gd2O3-t	HfO2-t	HgO-t	I-t	La2O3-t	MnO2-t	MnO-t	MoO-t	MoO2-t	MoO3-t	Nb2O5-t	Nd2O3-t	NpO2-t	PbO-t	PdO2-t	PdO-t	Pr2O3-t	Pr6O11-t	Rb2O-t	ReO-t
1477	HLW98-60	0.0001		0.0010	0.0000	0.0000			0.0001						0.0031		0.0061	0.0000				0.0002		0.0001		0.0000				0.0000
1478	HLW98-61	0.0001		0.0011		0.0003			0.0001						0.0030		0.0103					0.0022		0.0011		0.0001				
1479	HLW98-61CG1	0.0001		0.0011		0.0003			0.0001						0.0030		0.0103					0.0022		0.0011		0.0001				
1480	HLW98-62	0.0005		0.0014	0.0007	0.0000			0.0002				0.0001		0.0000	0.0000	0.0171					0.0000		0.0005		0.0000				
1481	HLW98-63	0.0000		0.0018	0.0011	0.0000			0.0003				0.0000		0.0012	0.0000	0.0488					0.0000		0.0024		0.0000				
1482	HLW98-64	0.0000		0.0005	0.0009	0.0003			0.0004				0.0000		0.0036	0.0333	0.0000					0.0000		0.0017		0.0000				
1483	HLWMS-01																0.1200													
1484	HLWMS-02																0.1300													
1485	HLWMS-03								0.0200								0.1300													
1486	HLWMS-04																0.1510													
1487	HLWMS-05																0.1610													
1488	HLWMS-06								0.0150								0.1610													
1489	HLWMS-07																0.1500													
1490	HLWMS-08																0.1360													
1491	HLWMS-09																0.1360													
1492	HLWMS-10																0.1360													
1493	HLWMS-11																0.1360													
1494	HLWMS-12																0.0960													
1495	HLWMS-13																0.1060													
1496	HLWMS-14																0.0960													
1497	HLWMS-15																0.0960													
1498	HLW99-01	0.0020		0.0000	0.0020	0.0020			0.0020						0.0020	0.0020								0.0100		0.0004				
1499	HLW99-02	0.0020		0.0045	0.0020	0.0020			0.0020						0.0020	0.0020								0.0000		0.0004				
1500	HLW99-03	0.0020		0.0000	0.0020	0.0020			0.0020						0.0020	0.0020								0.0100		0.0004				
1501	HLW99-04	0.0020		0.0050	0.0020	0.0020			0.0020						0.0020	0.0020								0.0000		0.0004				
1502	HLW99-05	0.0020		0.0031	0.0020	0.0020			0.0020						0.0020	0.0020								0.0100		0.0004				
1503	HLW99-06	0.0020		0.0000	0.0020	0.0020			0.0020						0.0020	0.0020								0.0000		0.0004				
1504	HLW99-07	0.0020		0.0006	0.0020	0.0020			0.0020						0.0020	0.0020								0.0000		0.0004				
1505	HLW99-08	0.0020		0.0050	0.0020	0.0020			0.0020						0.0020	0.0020								0.0000		0.0004				
1506	HLW99-09	0.0020		0.0050	0.0020	0.0020			0.0020						0.0020	0.0020								0.0086		0.0004				
1507	HLW99-10	0.0020		0.0050	0.0020	0.0020			0.0020						0.0020	0.0020								0.0000		0.0004				
1508	HLW99-11	0.0020		0.0050	0.0020	0.0020			0.0020						0.0020	0.0020								0.0000		0.0004				
1509	HLW99-12	0.0020		0.0000	0.0020	0.0020			0.0020						0.0020	0.0020								0.0000		0.0004				
1510	HLW99-13	0.0020		0.0010	0.0020	0.0020			0.0020						0.0020	0.0020								0.0100		0.0004				
1511	HLW99-14	0.0020		0.0000	0.0020	0.0020			0.0020						0.0020	0.0020								0.0100		0.0004				
1512	HLW99-15	0.0020		0.0000	0.0020	0.0020			0.0020						0.0020	0.0020								0.0100		0.0004				
1513	HLW99-16	0.0020		0.0000	0.0020	0.0020			0.0020						0.0020	0.0020								0.0056		0.0004				
1514	HLW99-17	0.0020		0.0050	0.0020	0.0020			0.0020						0.0020	0.0020								0.0000		0.0004				
1515	HLW99-18	0.0020		0.0000	0.0020	0.0020			0.0020						0.0020	0.0020								0.0078		0.0004				
1516	HLW99-19	0.0020		0.0050	0.0020	0.0020			0.0020						0.0020	0.0020								0.0000		0.0004				
1517	HLW99-20	0.0020		0.0050	0.0020	0.0020			0.0020						0.0020	0.0020								0.0100		0.0004				
1518	HLW99-21	0.0020		0.0000	0.0020	0.0020			0.0020						0.0020	0.0020								0.0000		0.0004				
1519	HLW99-22	0.0020		0.0050	0.0020	0.0020			0.0020						0.0020	0.0020								0.0000		0.0004				
1520	HLW99-23	0.0020		0.0050	0.0020	0.0020			0.0020						0.0020	0.0020								0.0089		0.0004				
1521	HLW99-24R	0.0020		0.0000	0.0020	0.0020			0.0020						0.0020	0.0020								0.0000		0.0004				
1522	HLW99-25	0.0020		0.0000	0.0020	0.0020			0.0020						0.0020	0.0020								0.0047		0.0004				
1523	HLW99-26	0.0020		0.0050	0.0020	0.0020			0.0020						0.0020	0.0020								0.0100		0.0004				
1524	HLW99-27	0.0020		0.0000	0.0020	0.0020			0.0020						0.0020	0.0020								0.0100		0.0004				
1525	HLW99-28	0.0020		0.0000	0.0020	0.0020			0.0020						0.0020	0.0020								0.0100		0.0004				
1526	HLW99-29	0.0020		0.0000	0.0020	0.0020			0.0020						0.0020	0.0020								0.0061		0.0004				
1527	HLW99-30	0.0020		0.0000	0.0020	0.0020			0.0020						0.0020	0.0020								0.0028		0.0004				
1528	HLW99-31	0.0020		0.0050	0.0020	0.0020			0.0020						0.0020	0.0020								0.0000		0.0004				
1529	HLW99-32	0.0020		0.0050	0.0020	0.0020			0.0020						0.0020	0.0020								0.0014		0.0004				
1530	HLW99-33	0.0020		0.0050	0.0020	0.0020			0.0020						0.0020	0.0020								0.0000		0.0004				
1531	HLW99-34	0.0020		0.0050	0.0020	0.0020			0.0020						0.0020	0.0020								0.0000		0.0004				
1532	HLW99-35	0.0020		0.0000	0.0020	0.0020			0.0020						0.0020	0.0020								0.0000		0.0004				
1533	HLW99-36	0.0020		0.0000	0.0020	0.0020			0.0020						0.0020	0.0020								0.0008		0.0004				
1534	HLW99-37	0.0020		0.0000	0.0020	0.0020			0.0020						0.0020	0.0020								0.0047		0.0004				
1535	HLW99-38	0.0020		0.0050	0.0020	0.0020			0.0020						0.0020	0.0020								0.0069		0.0004				
1536	HLW99-39	0.0020		0.0000	0.0020	0.0020			0.0020						0.0020	0.0020								0.0006		0.0004				
1537	HLW99-40	0.0020		0.0000	0.0020	0.0020			0.0020						0.0020	0.0020								0.0000		0.0004				
1538	HLW99-41	0.0020		0.0021	0.0020	0.0020			0.0020						0.0020	0.0020								0.0031		0.0004				
1539	HLW99-42	0.0020		0.0000	0.0020	0.0020			0.0020						0.0020	0.0020								0.0000		0.0004				
1540	HLW99-43	0.0020		0.0000	0.0020	0.0020			0.0020						0.0020	0.0020								0.0000		0.0004				
1541	HLW99-44	0.0020		0.0031	0.0020	0.0020			0.0020						0.0020	0.0020								0.0000		0.0004				
1542	HLW99-45	0.0020		0.0050	0.0020	0.0020			0.0020						0.0020	0.0020								0.0002		0.0004				
1543	HLW99-46	0.0020		0.0000	0.0020	0.0020			0.0020						0.0020	0.0020								0.0100		0.0004				
1544	HLW99-47	0.0020		0.0000	0.0020	0.0020			0.0020						0.0020	0.0020								0.0000		0.0004				
1545	HLW99-48	0.0020		0.0000	0.0020	0.0020			0.0020						0.0020	0.0020								0.0100		0.0004				
1546	HLW99-49	0.0020		0.0050	0.0020	0.0020			0.0020						0.0020	0.0020								0.0014		0.0004				
1547	HLW99-50	0.0020		0.0042	0.0020	0.0020			0.0020						0.0020	0.0020								0.0000		0.0004				
1548	HLW99-51R	0.0020		0.0050	0.0020	0.0020			0.0020						0.0020	0.0020								0.0000		0.0004				
1549	HLW99-52	0.0020		0.0000	0.0020	0.0020			0.0020						0.0020	0.0020								0.0100		0.0004				
1550	HLW99-53	0.0020		0.0025	0.0020	0.0020			0.0020						0.0020	0.0020								0.0062		0.0004				
1551	HLW99-54	0.0020		0.0000	0.0020	0.0020			0.0020						0.0020	0.0020								0.0069		0.0004				
1552	HLW99-55	0.0020		0.0000	0.0020	0.0020			0.0020						0.0020	0.0020								0.0047		0.0004				
1553	HLW99-56R	0.0020		0.0000	0.0020	0.0020			0.0020						0.0020	0.0020								0.0100		0.0004				
1554	HLW99-57	0.0020		0.0000	0.0020	0.0020			0.0020						0.0020	0.0020								0.0000		0.0004				
1555	HLW99-58	0.0020		0.0000	0.0020	0.0020			0.0020						0.0020	0.0020								0.0022		0.0004				
1556	HLW99-59	0.0020		0.0000	0.0020	0.0020			0.0020						0.0020	0.0020								0.0100		0.0004				
1557	HLW99-60	0.0020		0.0050	0.0020	0.0020			0.0020						0.0020	0.0020								0.0068		0.0004				
1558	HLW99-61	0.0020		0.0000	0.0020	0.0020			0.0020						0.0020	0.0020								0.0100		0.0004				

#	Glass ID	ReO2-t	Re2O7-t	Rh2O3-t	RhO2-t	RuO2-t	Ru2O3-t	Sb2O3-t	Sb2O5-t	SeO2-t	Sm2O3-t	SnO-t	SnO2-t	SO3-t	SrO-t	Tc2O7-t	TeO2-t	ThO2-t	TiO2-t	Tl2O-t	Tl2O3-t	U3O8-t	UO2-t	UO3-t	V2O5-t	WO3-t	Y2O3-t	ZnO-t	Sum-t	Al2O3-a
1477	HLW98-60			0.0000		0.0000			0.0000	0.0000			0.0000	0.0002	0.0068	0.0000	0.0000	0.0000	0.0001		0.0000		0.0173		0.0000	0.0000	0.0001	0.0204	0.9996	0.0694
1478	HLW98-61												0.0016	0.0002	0.0150			0.0001	0.0001					0.0171			0.0001	0.0004	1.0000	0.0665
1479	HLW98-61CG1												0.0016	0.0002	0.0150			0.0001	0.0001					0.0171			0.0001	0.0004	1.0000	
1480	HLW98-62			0.0000		0.0000			0.0000	0.0000			0.0000	0.0002	0.0208		0.0000	0.0000	0.0000				0.0000					0.0201	1.0000	0.0903
1481	HLW98-63			0.0000		0.0000			0.0000	0.0000			0.0000	0.0003	0.0808		0.0000	0.0000	0.0004				0.0000					0.0179	1.0000	0.1122
1482	HLW98-64			0.0000		0.0000			0.0023	0.0016			0.0000	0.0027	0.0255		0.0016	0.0000	0.0007				0.0000					0.0191	1.0000	
1483	HLWMS-01														0.2640													0.0300	1.0000	
1484	HLWMS-02														0.2860													0.0300	1.0000	
1485	HLWMS-03														0.2860													0.0300	1.0000	
1486	HLWMS-04														0.3330													0.0200	1.0000	
1487	HLWMS-05														0.3550													0.0200	1.0000	
1488	HLWMS-06														0.3550													0.0200	1.0000	
1489	HLWMS-07														0.3300														1.0000	
1490	HLWMS-08														0.2990														1.0000	
1491	HLWMS-09														0.2990														1.0000	
1492	HLWMS-10														0.2990														1.0000	
1493	HLWMS-11														0.2990														1.0000	
1494	HLWMS-12														0.2110														1.0000	
1495	HLWMS-13														0.2330														1.0000	
1496	HLWMS-14														0.2110														1.0000	
1497	HLWMS-15														0.2110														1.0000	
1498	HLW99-01			0.0008		0.0013			0.0020	0.0020				0.0000	0.0020		0.0020	0.0000	0.0100		0.0020		0.0000			0.0020		0.0200	1.0000	0.0182
1499	HLW99-02			0.0008		0.0013			0.0020	0.0020				0.0045	0.0020		0.0020	0.0018	0.0000		0.0020		0.0721			0.0020		0.0200	0.9999	0.0157
1500	HLW99-03			0.0008		0.0013			0.0020	0.0020				0.0000	0.0020		0.0020	0.0000	0.0100		0.0020		0.0000			0.0020		0.0200	1.0000	0.1052
1501	HLW99-04			0.0008		0.0013			0.0020	0.0020				0.0050	0.0020		0.0020	0.0020	0.0000		0.0020		0.0800			0.0020		0.0200	1.0000	0.1040
1502	HLW99-05			0.0008		0.0013			0.0020	0.0020				0.0031	0.0020		0.0020	0.0012	0.0100		0.0020		0.0492			0.0020		0.0200	1.0000	0.0103
1503	HLW99-06			0.0008		0.0013			0.0020	0.0020				0.0000	0.0020		0.0020	0.0000	0.0000		0.0020		0.0000			0.0020		0.0200	1.0000	0.1037
1504	HLW99-07			0.0008		0.0013			0.0020	0.0020				0.0006	0.0020		0.0020	0.0002	0.0000		0.0020		0.0098			0.0020		0.0200	0.9999	0.0178
1505	HLW99-08			0.0008		0.0013			0.0020	0.0020				0.0050	0.0020		0.0020	0.0020	0.0000		0.0020		0.0800			0.0020		0.0200	1.0000	0.0106
1506	HLW99-09			0.0008		0.0013			0.0020	0.0020				0.0050	0.0020		0.0020	0.0020	0.0086		0.0020		0.0800			0.0020		0.0200	1.0001	0.0229
1507	HLW99-10			0.0008		0.0013			0.0020	0.0020				0.0050	0.0020		0.0020	0.0020	0.0000		0.0020		0.0800			0.0020		0.0200	1.0000	0.0081
1508	HLW99-11			0.0008		0.0013			0.0020	0.0020				0.0050	0.0020		0.0020	0.0020	0.0000		0.0020		0.0800			0.0020		0.0200	1.0000	0.1037
1509	HLW99-12			0.0008		0.0013			0.0020	0.0020				0.0000	0.0020		0.0020	0.0000	0.0000		0.0020		0.0000			0.0020		0.0200	1.0000	0.0248
1510	HLW99-13			0.0008		0.0013			0.0020	0.0020				0.0010	0.0020		0.0020	0.0004	0.0100		0.0020		0.0164			0.0020		0.0200	0.9999	0.0065
1511	HLW99-14			0.0008		0.0013			0.0020	0.0020				0.0000	0.0020		0.0020	0.0000	0.0100		0.0020		0.0000			0.0020		0.0200	1.0000	0.0249
1512	HLW99-15			0.0008		0.0013			0.0020	0.0020				0.0000	0.0020		0.0020	0.0000	0.0100		0.0020		0.0000			0.0020		0.0200	1.0000	0.0173
1513	HLW99-16			0.0008		0.0013			0.0020	0.0020				0.0000	0.0020		0.0020	0.0000	0.0056		0.0020		0.0000			0.0020		0.0200	1.0001	0.0137
1514	HLW99-17			0.0008		0.0013			0.0020	0.0020				0.0050	0.0020		0.0020	0.0020	0.0000		0.0020		0.0800			0.0020		0.0200	1.0000	0.0080
1515	HLW99-18			0.0008		0.0013			0.0020	0.0020				0.0000	0.0020		0.0020	0.0000	0.0078		0.0020		0.0000			0.0020		0.0200	0.9999	0.1074
1516	HLW99-19			0.0008		0.0013			0.0020	0.0020				0.0050	0.0020		0.0020	0.0020	0.0000		0.0020		0.0800			0.0020		0.0200	1.0000	0.0797
1517	HLW99-20			0.0008		0.0013			0.0020	0.0020				0.0050	0.0020		0.0020	0.0020	0.0100		0.0020		0.0800			0.0020		0.0200	1.0000	0.0551
1518	HLW99-21			0.0008		0.0013			0.0020	0.0020				0.0000	0.0020		0.0020	0.0000	0.0000		0.0020		0.0000			0.0020		0.0200	1.0000	0.0680
1519	HLW99-22			0.0008		0.0013			0.0020	0.0020				0.0050	0.0020		0.0020	0.0020	0.0000		0.0020		0.0800			0.0020		0.0200	1.0000	0.0407
1520	HLW99-23			0.0008		0.0013			0.0020	0.0020				0.0050	0.0020		0.0020	0.0020	0.0089		0.0020		0.0800			0.0020		0.0200	1.0000	0.0086
1521	HLW99-24R			0.0008		0.0013			0.0020	0.0020				0.0000	0.0020		0.0020	0.0000	0.0000		0.0020		0.0000			0.0020		0.0200	1.0000	0.0072
1522	HLW99-25			0.0008		0.0013			0.0020	0.0020				0.0000	0.0020		0.0020	0.0000	0.0047		0.0020		0.0000			0.0020		0.0200	1.0002	0.1126
1523	HLW99-26			0.0008		0.0013			0.0020	0.0020				0.0050	0.0020		0.0020	0.0020	0.0100		0.0020		0.0800			0.0020		0.0200	1.0000	0.0051
1524	HLW99-27			0.0008		0.0013			0.0020	0.0020				0.0000	0.0020		0.0020	0.0000	0.0100		0.0020		0.0000			0.0020		0.0200	1.0000	0.0297
1525	HLW99-28			0.0008		0.0013			0.0020	0.0020				0.0000	0.0020		0.0020	0.0000	0.0100		0.0020		0.0000			0.0020		0.0200	1.0000	0.0397
1526	HLW99-29			0.0008		0.0013			0.0020	0.0020				0.0000	0.0020		0.0020	0.0000	0.0061		0.0020		0.0000			0.0020		0.0200	0.9999	0.0046
1527	HLW99-30			0.0008		0.0013			0.0020	0.0020				0.0000	0.0020		0.0020	0.0000	0.0028		0.0020		0.0000			0.0020		0.0200	0.9999	0.0437
1528	HLW99-31			0.0008		0.0013			0.0020	0.0020				0.0050	0.0020		0.0020	0.0020	0.0000		0.0020		0.0800			0.0020		0.0200	1.0000	0.1018
1529	HLW99-32			0.0008		0.0013			0.0020	0.0020				0.0050	0.0020		0.0020	0.0020	0.0014		0.0020		0.0800			0.0020		0.0200	1.0001	0.0116
1530	HLW99-33			0.0008		0.0013			0.0020	0.0020				0.0050	0.0020		0.0020	0.0020	0.0000		0.0020		0.0800			0.0020		0.0200	1.0000	0.0118
1531	HLW99-34			0.0008		0.0013			0.0020	0.0020				0.0050	0.0020		0.0020	0.0020	0.0000		0.0020		0.0800			0.0020		0.0200	1.0000	0.0060
1532	HLW99-35			0.0008		0.0013			0.0020	0.0020				0.0000	0.0020		0.0020	0.0000	0.0000		0.0020		0.0000			0.0020		0.0200	1.0001	0.0895
1533	HLW99-36			0.0008		0.0013			0.0020	0.0020				0.0000	0.0020		0.0020	0.0000	0.0008		0.0020		0.0000			0.0020		0.0200	0.9999	0.0140
1534	HLW99-37			0.0008		0.0013			0.0020	0.0020				0.0000	0.0020		0.0020	0.0000	0.0047		0.0020		0.0000			0.0020		0.0200	1.0002	0.1076
1535	HLW99-38			0.0008		0.0013			0.0020	0.0020				0.0050	0.0020		0.0020	0.0020	0.0069		0.0020		0.0800			0.0020		0.0200	1.0001	0.0086
1536	HLW99-39			0.0008		0.0013			0.0020	0.0020				0.0000	0.0020		0.0020	0.0000	0.0006		0.0020		0.0000			0.0020		0.0200	1.0001	0.0098
1537	HLW99-40			0.0008		0.0013			0.0020	0.0020				0.0000	0.0020		0.0020	0.0000	0.0000		0.0020		0.0000			0.0020		0.0200	1.0000	0.1037
1538	HLW99-41			0.0008		0.0013			0.0020	0.0020				0.0021	0.0020		0.0020	0.0008	0.0031		0.0020		0.0332			0.0020		0.0200	1.0000	0.0521
1539	HLW99-42			0.0008		0.0013			0.0020	0.0020				0.0000	0.0020		0.0020	0.0000	0.0000		0.0020		0.0000			0.0020		0.0200	1.0000	0.1060
1540	HLW99-43			0.0008		0.0013			0.0020	0.0020				0.0000	0.0020		0.0020	0.0000	0.0000		0.0020		0.0000			0.0020		0.0200	1.0000	0.0913
1541	HLW99-44			0.0008		0.0013			0.0020	0.0020				0.0031	0.0020		0.0020	0.0012	0.0000		0.0020		0.0492			0.0020		0.0200	1.0000	0.0835
1542	HLW99-45			0.0008		0.0013			0.0020	0.0020				0.0050	0.0020		0.0020	0.0020	0.0002		0.0020		0.0800			0.0020		0.0200	1.0002	0.1003
1543	HLW99-46			0.0008		0.0013			0.0020	0.0020				0.0000	0.0020		0.0020	0.0000	0.0100		0.0020		0.0000			0.0020		0.0200	0.9999	0.0152
1544	HLW99-47			0.0008		0.0013			0.0020	0.0020				0.0000	0.0020		0.0020	0.0000	0.0000		0.0020		0.0000			0.0020		0.0200	1.0000	0.0481
1545	HLW99-48			0.0008		0.0013			0.0020	0.0020				0.0000	0.0020		0.0020	0.0000	0.0100		0.0020		0.0000			0.0020		0.0200	1.0000	0.1050
1546	HLW99-49			0.0008		0.0013			0.0020	0.0020				0.0050	0.0020		0.0020	0.0020	0.0014		0.0020		0.0800			0.0020		0.0200	1.0000	0.0404
1547	HLW99-50			0.0008		0.0013			0.0020	0.0020				0.0042	0.0020		0.0020	0.0017	0.0000		0.0020		0.0667			0.0020		0.0200	1.0001	0.0486
1548	HLW99-51R			0.0008		0.0013			0.0020	0.0020				0.0050	0.0020		0.0020	0.0020	0.0000		0.0020		0.0800			0.0020		0.0200	1.0000	0.0098
1549	HLW99-52			0.0008		0.0013			0.0020	0.0020				0.0000	0.0020		0.0020	0.0000	0.0100		0.0020		0.0000			0.0020		0.0200	1.0000	0.0301
1550	HLW99-53			0.0008		0.0013			0.0020	0.0020				0.0025	0.0020		0.0020	0.0010	0.0062		0.0020		0.0400			0.0020		0.0200	1.0002	0.0077
1551	HLW99-54			0.0008		0.0013			0.0020	0.0020				0.0000	0.0020		0.0020	0.0000	0.0069		0.0020		0.0000			0.0020		0.0200	1.0001	0.1043
1552	HLW99-55			0.0008		0.0013			0.0020	0.0020				0.0000	0.0020		0.0020	0.0000	0.0047		0.0020		0.0000			0.0020		0.0200	1.0002	0.0443
1553	HLW99-56R			0.0008		0.0013			0.0020	0.0020				0.0000	0.0020		0.0020	0.0000	0.0100		0.0020		0.0000			0.0020		0.0200	1.0000	0.0415
1554	HLW99-57			0.0008		0.0013			0.0020	0.0020				0.0000	0.0020		0.0020	0.0000	0.0000		0.0020		0.0000			0.0020		0.0200	1.0000	0.0060
1555	HLW99-58			0.0008		0.0013			0.0020	0.0020				0.0000	0.0020		0.0020	0.0000	0.0022		0.0020		0.0000			0.0020		0.0200	1.0002	0.1043
1556	HLW99-59			0.0008		0.0013			0.0020	0.0020				0.0000	0.0020		0.0020	0.0000	0.0100		0.0020		0.0000			0.0020		0.0200	1.0000	0.1073
1557	HLW99-60			0.0008		0.0013			0.0020	0.0020				0.0050	0.0020		0.0020	0.0020	0.0068		0.0020		0.0800			0.0020		0.0200	1.0001	0.0115
1558	HLW99-61			0.0008		0.0013			0.0020	0.0020				0.0000	0.0020		0.0020	0.0000	0.0100		0.0020		0.0000			0.0020		0.0200	1.0000	0.0285

#	Glass ID	B2O3-a	CaO-a	Fe2O3-a	FeO-a	K2O-a	Li2O-a	MgO-a	Na2O-a	NiO-a	P2O5-a	SiO2-a	ZrO2-a	Ag2O-a	As2O3-a	As2O5-a	BaO-a	BeO-a	Bi2O3-a	Br-a	CdO-a	Ce2O3-a	CeO2-a	Cl-a	CoO-a	Co2O3-a	Cr2O3-a	Cs2O-a	CuO-a	F-a
1477	HLW98-60	0.0402	0.0075	0.1088		0.0008	0.0433	0.0015	0.1143	0.0081	0.0037	0.4603	0.0160	0.0003			0.0008				0.0125				0.0003		0.0010			
1478	HLW98-61	0.0396	0.0084	0.0904		0.0019	0.0383	0.0018	0.1015	0.0061	0.0067	0.4961	0.0132	0.0003	0.0002		0.0008		0.0006		0.0110				0.0004		0.0010		0.0007	
1479	HLW98-61CG1																													
1480	HLW98-62	0.1180	0.0231	0.0436		0.0012	0.0483	0.0007	0.0905	0.0034	0.0047	0.4224	0.0876	0.0001	0.0002		0.0005		0.0006		0.0006				0.0008		0.0027		0.0001	
1481	HLW98-63	0.0651	0.0095	0.1129		0.0010	0.0330	0.0028	0.0937	0.0015	0.0030	0.3702	0.0018	0.0028	0.0000		0.0024		0.0000		0.0005				0.0002		0.0016		0.0001	
1482	HLW98-64																													
1483	HLWMS-01																													
1484	HLWMS-02																													
1485	HLWMS-03																													
1486	HLWMS-04																													
1487	HLWMS-05																													
1488	HLWMS-06																													
1489	HLWMS-07																													
1490	HLWMS-08																													
1491	HLWMS-09																													
1492	HLWMS-10																													
1493	HLWMS-11																													
1494	HLWMS-12																													
1495	HLWMS-13																													
1496	HLWMS-14																													
1497	HLWMS-15																													
1498	HLW99-01	0.0488	0.0633	0.0206		0.0114	0.0340	0.0185	0.0475	0.0277	0.0012	0.5228	0.0004	0.0023	0.0019		0.0366		0.0200		0.0276				0.0020		0.0000		0.0020	
1499	HLW99-02	0.1860	0.0012	0.1101		0.0115	0.0003	0.0004	0.1742	0.0002	0.0280	0.3053	0.0001	0.0023	0.0018		0.0001		0.0004		0.0001				0.0023		0.0038		0.0023	
1500	HLW99-03	0.2003	0.0013	0.0201		0.0109	0.0576	0.0192	0.0471	0.0284	0.0013	0.3035	0.0253	0.0025	0.0019		0.0373		0.0201		0.0283				0.0022		0.0000		0.0021	
1501	HLW99-04	0.0529	0.0008	0.0241		0.0114	0.0604	0.0003	0.0507	0.0003	0.0309	0.4705	0.0153	0.0025	0.0020		0.0001		0.0003		0.0000				0.0027		0.0031		0.0023	
1502	HLW99-05	0.0564	0.0010	0.0200		0.0111	0.0114	0.0178	0.1807	0.0278	0.0196	0.3185	0.0821	0.0024	0.0020		0.0372		0.0192		0.0268				0.0025		0.0027		0.0025	
1503	HLW99-06	0.0504	0.0658	0.0203		0.0116	0.0009	0.0003	0.1748	0.0001	0.0013	0.4527	0.0050	0.0017	0.0019		0.0002		0.0000		0.0000				0.0021		0.0000		0.0022	
1504	HLW99-07	0.1947	0.0652	0.0209		0.0106	0.0368	0.0006	0.1338	0.0006	0.0056	0.3588	0.0862	0.0020	0.0019		0.0008		0.0005		0.0005				0.0023		0.0007		0.0023	
1505	HLW99-08	0.0487	0.0643	0.1131		0.0111	0.0618	0.0003	0.0734	0.0004	0.0346	0.3771	0.0325	0.0027	0.0019		0.0004		0.0005		0.0002				0.0027		0.0043		0.0025	
1506	HLW99-09	0.1771	0.0610	0.0194		0.0106	0.0322	0.0154	0.0449	0.0229	0.0293	0.3122	0.0020	0.0021	0.0014		0.0302		0.0149		0.0225				0.0025		0.0039		0.0021	
1507	HLW99-10	0.0506	0.0620	0.0206		0.0109	0.0012	0.0003	0.1140	0.0004	0.0351	0.5336	0.0023	0.0026	0.0021		0.0003		0.0006		0.0002				0.0026		0.0043		0.0024	
1508	HLW99-11	0.1838	0.0644	0.0218		0.0109	0.0099	0.0002	0.0924	0.0003	0.0330	0.2956	0.0011	0.0026	0.0019		0.0001		0.0003		0.0000				0.0028		0.0030		0.0024	
1509	HLW99-12	0.1858	0.0618	0.1136		0.0105	0.0324	0.0003	0.0444	0.0001	0.0015	0.4305	0.0001	0.0023	0.0019		0.0002		0.0002		0.0001				0.0019		0.0000		0.0021	
1510	HLW99-13	0.0511	0.0030	0.0199		0.0109	0.0004	0.0177	0.1879	0.0276	0.0080	0.4713	0.0004	0.0020	0.0020		0.0386		0.0190		0.0274				0.0021		0.0010		0.0023	
1511	HLW99-14	0.1885	0.0008	0.1138		0.0198	0.0328	0.0177	0.0487	0.0253	0.0010	0.3466	0.0312	0.0022	0.0019		0.0378		0.0186		0.0268				0.0017		0.0000		0.0021	
1512	HLW99-15	0.1924	0.0353	0.0214		0.0116	0.0116	0.0195	0.1808	0.0272	0.0004	0.3256	0.0004	0.0017	0.0018		0.0404		0.0196		0.0278				0.0018		0.0000		0.0021	
1513	HLW99-16	0.0516	0.0025	0.1228		0.0112	0.0666	0.0112	0.0503	0.0163	0.0016	0.5360	0.0001	0.0024	0.0019		0.0230		0.0115		0.0162				0.0018		0.0000		0.0022	
1514	HLW99-17	0.0488	0.0641	0.0197		0.0106	0.0104	0.0005	0.1829	0.0009	0.0258	0.3647	0.1009	0.0028	0.0019		0.0010		0.0006		0.0005				0.0029		0.0042		0.0021	
1515	HLW99-18	0.0708	0.0698	0.0214		0.0111	0.0123	0.0157	0.1859	0.0234	0.0012	0.3083	0.0285	0.0018	0.0020		0.0322		0.0159		0.0229				0.0023		0.0000		0.0023	
1516	HLW99-19	0.1924	0.0028	0.1127		0.0111	0.0462	0.0002	0.0485	0.0004	0.0354	0.3177	0.0032	0.0025	0.0020		0.0002		0.0002		0.0001				0.0027		0.0033		0.0023	
1517	HLW99-20	0.0970	0.0014	0.0227		0.0102	0.0635	0.0176	0.0737	0.0276	0.0354	0.3387	0.0007	0.0024	0.0021		0.0368		0.0199		0.0278				0.0027		0.0038		0.0024	
1518	HLW99-21	0.0501	0.0667	0.0202		0.0107	0.0648	0.0004	0.0757	0.0002	0.0012	0.4989	0.0483	0.0021	0.0020		0.0002		0.0000		0.0001				0.0023		0.0001		0.0023	
1519	HLW99-22	0.1856	0.0006	0.0229		0.0111	0.0026	0.0007	0.1355	0.0011	0.0337	0.3043	0.0878	0.0023	0.0023		0.0013		0.0009		0.0008				0.0027		0.0044		0.0023	
1520	HLW99-23	0.0615	0.0637	0.0201		0.0116	0.0014	0.0157	0.1754	0.0247	0.0327	0.3248	0.0045	0.0018	0.0020		0.0334		0.0183		0.0245				0.0028		0.0046		0.0023	
1521	HLW99-24R	0.1502	0.0676	0.1022		0.0112	0.0008	0.0002	0.1726	0.0003	0.0028	0.3042	0.0871	0.0028	0.0020		0.0003		0.0000		0.0001				0.0022		0.0001		0.0023	
1522	HLW99-25	0.0899	0.0686	0.0943		0.0114	0.0659	0.0100	0.0797	0.0132	0.0005	0.3496	0.0020	0.0022	0.0019		0.0188		0.0093		0.0135				0.0023		0.0000		0.0022	
1523	HLW99-26	0.0559	0.0041	0.0628		0.0106	0.0301	0.0171	0.0530	0.0260	0.0329	0.4072	0.0008	0.0025	0.0019		0.0373		0.0200		0.0279				0.0027		0.0032		0.0022	
1524	HLW99-27	0.1457	0.0642	0.1096		0.0109	0.0616	0.0182	0.0464	0.0263	0.0010	0.3299	0.0004	0.0021	0.0016		0.0372		0.0189		0.0270				0.0021		0.0001		0.0021	
1525	HLW99-28	0.1490	0.0630	0.0205		0.0106	0.0016	0.0185	0.1065	0.0268	0.0017	0.3204	0.0696	0.0024	0.0019		0.0371		0.0198		0.0276				0.0023		0.0001		0.0022	
1526	HLW99-29	0.0532	0.0012	0.0210		0.0099	0.0315	0.0122	0.1156	0.0187	0.0017	0.5209	0.0858	0.0026	0.0021		0.0254		0.0124		0.0182				0.0023		0.0002		0.0020	
1527	HLW99-30	0.1218	0.0009	0.0204		0.0117	0.0115	0.0059	0.1840	0.0078	0.0012	0.3965	0.0898	0.0024	0.0022		0.0113		0.0056		0.0080				0.0021		0.0000		0.0022	
1528	HLW99-31	0.1756	0.0011	0.0223		0.0113	0.0022	0.0012	0.1708	0.0017	0.0329	0.3014	0.0009	0.0020	0.0019		0.0025		0.0014		0.0016				0.0026		0.0046		0.0024	
1529	HLW99-32	0.0641	0.0008	0.1156		0.0115	0.0420	0.0031	0.1213	0.0044	0.0362	0.3593	0.0699	0.0023	0.0021		0.0065		0.0034		0.0044				0.0029		0.0045		0.0023	
1530	HLW99-33	0.1903	0.0631	0.0259		0.0117	0.0645	0.0005	0.0761	0.0007	0.0325	0.3727	0.0048	0.0024	0.0022		0.0008		0.0006		0.0005				0.0028		0.0045		0.0022	
1531	HLW99-34	0.0622	0.0038	0.0297		0.0113	0.0652	0.0003	0.0763	0.0004	0.0368	0.4976	0.0432	0.0026	0.0022		0.0003		0.0004		0.0002				0.0028		0.0044		0.0023	
1532	HLW99-35	0.0500	0.0387	0.0686		0.0102	0.0500	0.0004	0.0699	0.0004	0.0013	0.5114	0.0462	0.0024	0.0020		0.0005		0.0003		0.0002				0.0023		0.0001		0.0021	
1533	HLW99-36	0.1927	0.0137	0.1170		0.0101	0.0646	0.0020	0.0759	0.0023	0.0009	0.3884	0.0439	0.0024	0.0020		0.0036		0.0016		0.0023				0.0021		0.0001		0.0019	
1534	HLW99-37	0.0707	0.0009	0.0198		0.0101	0.0488	0.0096	0.1158	0.0134	0.0017	0.4988	0.0004	0.0022	0.0018		0.0191		0.0093		0.0137				0.0022		0.0001		0.0021	
1535	HLW99-38	0.0513	0.0651	0.0207		0.0115	0.0611	0.0133	0.0463	0.0189	0.0317	0.4222	0.0276	0.0025			0.0258				0.0180				0.0033		0.0047			
1536	HLW99-39	0.1233	0.0680	0.1179		0.0115	0.0404	0.0015	0.1268	0.0018	0.0010	0.4181	0.0005	0.0019	0.0021		0.0028		0.0013		0.0018				0.0020		0.0001		0.0020	
1537	HLW99-40	0.1944	0.0003	0.0645		0.0117	0.0003	0.0001	0.1123	0.0001	0.0012	0.4087	0.0228	0.0023	0.0018		0.0001		0.0002		0.0000				0.0021		0.0000		0.0020	
1538	HLW99-41	0.1124	0.0292	0.0587		0.0105	0.0297	0.0060	0.0986	0.0087	0.0151	0.3904	0.0301	0.0024	0.0016		0.0120		0.0065		0.0089				0.0022		0.0018		0.0021	
1539	HLW99-42	0.1631	0.0426	0.0195		0.0109	0.0328	0.0003	0.0461	0.0001	0.0013	0.4549	0.0230	0.0025	0.0020		0.0001		0.0003		0.0000				0.0022		0.0000		0.0021	
1540	HLW99-43	0.1901	0.0666	0.1153		0.0112	0.0617	0.0003	0.0789	0.0001	0.0010	0.3117	0.0002	0.0023	0.0022		0.0002		0.0006		0.0000				0.0022		0.0001		0.0023	
1541	HLW99-44	0.0693	0.0658	0.1169		0.0114	0.0121	0.0004	0.1792	0.0003	0.0202	0.3103	0.0007	0.0018	0.0023		0.0001		0.0003		0.0001				0.0026		0.0029		0.0022	
1542	HLW99-45	0.1584	0.0664	0.0208		0.0103	0.0666	0.0007	0.0490	0.0010	0.0312	0.3252	0.0275	0.0022	0.0018		0.0010		0.0008		0.0006				0.0031		0.0043		0.0023	
1543	HLW99-46	0.1132	0.0657	0.0206		0.0111	0.0639	0.0188	0.0724	0.0284	0.0010	0.3672	0.0438	0.0023	0.0020		0.0385		0.0216		0.0301				0.0022		0.0001		0.0020	
1544	HLW99-47	0.0466	0.0338	0.1127		0.0111	0.0272	0.0003	0.0834	0.0003	0.0008	0.5352	0.0005	0.0022	0.0021		0.0004		0.0010		0.0002				0.0021		0.0000		0.0018	
1545	HLW99-48	0.0624	0.0008	0.0808		0.0118	0.0007	0.0187	0.1799	0.0281	0.0012	0.3166	0.0175	0.0017	0.0020		0.0392		0.0204		0.0290				0.0023		0.0000		0.0021	
1546	HLW99-49	0.0628	0.0002	0.1126		0.0110		0.0029	0.1765	0.0044	0.0313	0.3077	0.0394	0.0019	0.0013		0.0058		0.0031		0.0041				0.0026		0.0047		0.0022	
1547	HLW99-50	0.0603	0.0007	0.0208		0.0116	0.0607	0.0002	0.0484	0.0005	0.0280	0.5334	0.0262	0.0025			0.0001				0.0001				0.0030		0.0040			
1548	HLW99-51R	0.1876	0.0644	0.0205		0.0118	0.0009	0.0004	0.1626	0.0004	0.0329	0.2896	0.0209	0.0026	0.0019		0.0004		0.0006		0.0003				0.0025		0.0044		0.0031	
1549	HLW99-52	0.1852	0.0008	0.0193		0.0105	0.0005	0.0182	0.1471	0.0276	0.0012	0.3728	0.0001	0.0024	0.0018		0.0393		0.0195		0.0282				0.0019		0.0000		0.0022	
1550	HLW99-53	0.0526	0.0598	0.1037		0.0093	0.0045	0.0112	0.0973	0.0157	0.0161	0.3849	0.0037	0.0024	0.0020		0.0194		0.0110		0.0165				0.0019		0.0020		0.0021	
1551	HLW99-54	0.0491	0.0010	0.0187		0.0106	0.0330	0.0133	0.1100	0.0195	0.0004	0.4768	0.0003	0.0027	0.0015		0.0269		0.0133		0.0194				0.0020		0.0000		0.0023	
1552	HLW99-55	0.0523	0.0666	0.0675		0.0117	0.0129	0.0095	0.1612	0.0129	0.0009	0.3245	0.0808	0.0020			0.0186				0.0126				0.0024		0.0002			
1553	HLW99-56R	0.0531	0.0012	0.1153		0.0105	0.0638	0.0183	0.0470	0.0275	0.0015	0.4093	0.0292	0.0024	0.0020		0.0362		0.0192		0.0268				0.0020		0.0001		0.0021	
1554	HLW99-57	0.0516	0.0006	0.1184		0.0118	0.0138	0.0007	0.1743	0.0009	0.0017	0.4646	0.0654	0.0027	0.0020		0.0014		0.0006		0.0008				0.0020		0.0001		0.0022	
1555	HLW99-58	0.1881	0.0654	0.0230		0.0114	0.0011	0.0044	0.1708	0.0062	0.0011	0.3063	0.0019	0.0023	0.0020		0.0098		0.0044		0.0061				0.0021		0.0001		0.0022	
1556	HLW99-59	0.0533	0.0617	0.0209		0.0112	0.0623	0.0190	0.0456	0.0284	0.0020	0.4121	0.0003	0.0024	0.0021		0.0381		0.0199		0.0279				0.0022		0.0001		0.0022	
1557	HLW99-60	0.1289	0.0012	0.1029		0.0106	0.0209	0.0129	0.0640	0.0154	0.0333	0.3278	0.0004	0.0026	0.0020		0.0218		0.0127		0.0181				0.0021		0.0021		0.0042	
1558	HLW99-61	0.1873	0.0008	0.0191		0.0103	0.0003	0.0182	0.1456	0.0277	0.0002	0.3710	0.0002	0.0024	0.0020		0.0384		0.0197		0.0269				0.0019		0.0001		0.0022	

#	Glass ID	Ga2O3-a	Gd2O3-a	I-a	La2O3-a	MnO2-a	MnO-a	MoO-a	MoO3-a	Nb2O5-a	Nd2O3-a	NpO2-a	PbO-a	PdO2-a	PdO-a	Pr2O3-a	Pr6O11-a	PuO2-a	Rb2O-a	ReO-a	ReO2-a	Re2O7-a	Rh2O3-a	RhO2-a	RuO2-a	Sb2O3-a	Sb2O5-a	SeO2-a
1477	HLW98-60						0.0072						0.0005		0.0000								0.0000		0.0001			
1478	HLW98-61						0.0112						0.0019		0.0000								0.0000		0.0001		0.0007	0.0000
1479	HLW98-61CG1																											
1480	HLW98-62					0.0000	0.0210						0.0009		0.0001								0.0001				0.0011	
1481	HLW98-63					0.0000	0.0562						0.0030		0.0000										0.0001		0.0005	0.0002
1482	HLW98-64																											
1483	HLWMS-01																											
1484	HLWMS-02																											
1485	HLWMS-03																											
1486	HLWMS-04																											
1487	HLWMS-05																											
1488	HLWMS-06																											
1489	HLWMS-07																											
1490	HLWMS-08																											
1491	HLWMS-09																											
1492	HLWMS-10																											
1493	HLWMS-11																											
1494	HLWMS-12																											
1495	HLWMS-13																											
1496	HLWMS-14																											
1497	HLWMS-15																											
1498	HLW99-01					0.0024							0.0033														0.0022	0.0007
1499	HLW99-02					0.0023							0.0010														0.0020	0.0006
1500	HLW99-03					0.0025							0.0032														0.0020	0.0007
1501	HLW99-04					0.0023							0.0007														0.0021	0.0009
1502	HLW99-05					0.0024							0.0108														0.0023	0.0013
1503	HLW99-06					0.0024							0.0001														0.0020	0.0013
1504	HLW99-07					0.0025							0.0008														0.0022	0.0008
1505	HLW99-08					0.0023							0.0008														0.0020	0.0011
1506	HLW99-09					0.0023							0.0089														0.0024	0.0011
1507	HLW99-10					0.0023							0.0008														0.0023	0.0009
1508	HLW99-11					0.0023							0.0008														0.0019	0.0010
1509	HLW99-12					0.0023							0.0002														0.0019	0.0002
1510	HLW99-13					0.0024							0.0109														0.0023	0.0011
1511	HLW99-14					0.0023							0.0032														0.0019	0.0006
1512	HLW99-15					0.0021							0.0035														0.0019	0.0006
1513	HLW99-16					0.0022							0.0019														0.0021	0.0010
1514	HLW99-17					0.0023							0.0011														0.0023	0.0011
1515	HLW99-18					0.0023							0.0030														0.0021	0.0017
1516	HLW99-19					0.0024							0.0007														0.0021	0.0005
1517	HLW99-20					0.0025							0.0112														0.0023	0.0014
1518	HLW99-21					0.0022							0.0002														0.0019	0.0013
1519	HLW99-22					0.0024							0.0010														0.0023	0.0008
1520	HLW99-23					0.0024							0.0099														0.0022	0.0013
1521	HLW99-24R					0.0025							0.0003														0.0018	0.0006
1522	HLW99-25					0.0024							0.0017														0.0020	0.0013
1523	HLW99-26					0.0023							0.0109														0.0023	0.0007
1524	HLW99-27					0.0022							0.0034														0.0020	0.0009
1525	HLW99-28					0.0022							0.0034														0.0020	0.0012
1526	HLW99-29					0.0021							0.0022														0.0022	0.0010
1527	HLW99-30					0.0023							0.0011														0.0022	0.0012
1528	HLW99-31					0.0025							0.0011														0.0024	0.0013
1529	HLW99-32					0.0025							0.0023														0.0025	0.0015
1530	HLW99-33					0.0023							0.0009														0.0023	0.0010
1531	HLW99-34					0.0023							0.0008														0.0023	0.0011
1532	HLW99-35					0.0023							0.0002														0.0020	0.0010
1533	HLW99-36					0.0022							0.0005														0.0019	0.0006
1534	HLW99-37					0.0023							0.0017														0.0019	0.0014
1535	HLW99-38					0.0024							0.0065		0.0003								0.0003		0.0003		0.0004	0.0014
1536	HLW99-39					0.0023							0.0003														0.0019	0.0011
1537	HLW99-40					0.0023							0.0002														0.0020	0.0006
1538	HLW99-41					0.0032							0.0035		0.0003								0.0003		0.0002		0.0030	0.0010
1539	HLW99-42					0.0025							0.0002														0.0020	0.0006
1540	HLW99-43					0.0026							0.0002														0.0018	0.0006
1541	HLW99-44					0.0025							0.0005		0.0003								0.0003		0.0004		0.0035	0.0010
1542	HLW99-45					0.0027							0.0009		0.0004								0.0005		0.0003		0.0039	0.0011
1543	HLW99-46					0.0025							0.0035														0.0020	0.0006
1544	HLW99-47					0.0024							0.0001														0.0020	0.0007
1545	HLW99-48					0.0026							0.0034														0.0019	0.0016
1546	HLW99-49					0.0024							0.0021		0.0004								0.0003		0.0003		0.0030	0.0017
1547	HLW99-50					0.0029							0.0005		0.0003								0.0002		0.0002		0.0026	0.0012
1548	HLW99-51R					0.0024							0.0006		0.0003								0.0003		0.0004		0.0022	0.0006
1549	HLW99-52					0.0024							0.0102														0.0022	0.0004
1550	HLW99-53					0.0039							0.0067		0.0003								0.0003		0.0002		0.0022	0.0011
1551	HLW99-54					0.0026							0.0074														0.0022	0.0012
1552	HLW99-55					0.0026							0.0045		0.0005								0.0004		0.0001		0.0025	0.0017
1553	HLW99-56R					0.0039							0.0101														0.0020	0.0007
1554	HLW99-57					0.0025							0.0005														0.0022	0.0007
1555	HLW99-58					0.0023							0.0026														0.0019	0.0005
1556	HLW99-59					0.0024							0.0109														0.0022	0.0010
1557	HLW99-60					0.0024							0.0074		0.0003								0.0003		0.0002		0.0022	0.0010
1558	HLW99-61					0.0023							0.0104														0.0021	0.0007

#	Glass ID	Sm2O3-a	SnO-a	SnO2-a	SO3-a	SrO-a	Tc2O7-a	TeO2-a	ThO2-a	TiO2-a	Tl2O-a	Tl2O3-a	U3O8-a	UO2-a	UO3-a	V2O5-a	WO3-a	Y2O3-a	ZnO-a	Sum-a	T_M (°C)	$T_{L,G}$ (°C)	$T_{L,U}$ (°C)	$T_{1\%}$ (°C)	Primary Phase	$C_{650°C}$	$C_{700°C}$	$C_{750°C}$
1477	HLW98-60					0.0085				0.0004				0.0147					0.0195	0.9397	1150		» 950					
1478	HLW98-61			0.0018		0.0109		0.0009		0.0006		0.0003		0.0158		0.0005			0.0013	0.9315	1150		< 950					
1479	HLW98-61CG1																			0.0000								
1480	HLW98-62			0.0007		0.0196				0.0003		0.0011		0.0015		0.0001	0.0005		0.0196	1.0060	1150		< 950					
1481	HLW98-63			0.0004		0.0731		0.0002		0.0007		0.0005		0.0018		0.0001	0.0003		0.0171	0.9685	1150		>1050					
1482	HLW98-64																			0.0000	1150		~1050					
1483	HLWMS-01																			0.0000	1150		< 950					
1484	HLWMS-02																			0.0000	1150		< 950					
1485	HLWMS-03																			0.0000	1150		> 950					
1486	HLWMS-04																			0.0000	1150		> 950					
1487	HLWMS-05																			0.0000	1150		> 950					
1488	HLWMS-06																			0.0000	1150		> 950					
1489	HLWMS-07																			0.0000	1150		< 950					
1490	HLWMS-08																			0.0000	1150		< 950					
1491	HLWMS-09																			0.0000	1200		< 950					
1492	HLWMS-10																			0.0000	1200		< 950					
1493	HLWMS-11																			0.0000	1200		< 950					
1494	HLWMS-12																			0.0000	1200		> 950					
1495	HLWMS-13																			0.0000	1200		> 950					
1496	HLWMS-14																			0.0000	1200		< 950					
1497	HLWMS-15																			0.0000	1200		< 950					
1498	HLW99-01					0.0026		0.0021		0.0101		0.0007		0.0002			0.0026		0.0196	0.9533	1150		1075					
1499	HLW99-02					0.0019		0.0019		0.0006		0.0009		0.0486			0.0023		0.0192	0.9274								
1500	HLW99-03					0.0025		0.0023		0.0109		0.0010		0.0004			0.0026		0.0198	0.9625	1150		1075					
1501	HLW99-04					0.0019		0.0021		0.0006		0.0013		0.0693			0.0025		0.0189	0.9372								
1502	HLW99-05					0.0024		0.0024		0.0106		0.0018		0.0412			0.0028		0.0200	0.9500								
1503	HLW99-06					0.0024		0.0022		0.0003		0.0007		0.0004			0.0022		0.0193	0.9283	1150		950					
1504	HLW99-07					0.0023		0.0021		0.0010		0.0018		0.0107			0.0025		0.0204	0.9897								
1505	HLW99-08					0.0021		0.0020		0.0006		0.0017		0.0617			0.0027		0.0192	0.9393								
1506	HLW99-09					0.0023		0.0019		0.0090		0.0014		0.0556			0.0028		0.0184	0.9356								
1507	HLW99-10					0.0022		0.0021		0.0004		0.0014		0.0753			0.0031		0.0203	0.9653	1150		> 1056					
1508	HLW99-11					0.0020		0.0022		0.0004		0.0019		0.0695			0.0027		0.0191	0.9340	1150		> 978					
1509	HLW99-12					0.0021		0.0020		0.0009		0.0009		0.0006			0.0023		0.0188	0.9467	1150		950					
1510	HLW99-13					0.0024		0.0020		0.0101		0.0010		0.0167			0.0030		0.0196	0.9706								
1511	HLW99-14					0.0027		0.0021		0.0110		0.0013		0.0001			0.0024		0.0186	0.9884	1150		>1150					
1512	HLW99-15					0.0025		0.0020		0.0107		0.0005		0.0001			0.0025		0.0190	0.9841	1150		850					
1513	HLW99-16					0.0023		0.0020		0.0061		0.0009		0.0001			0.0024		0.0199	0.9838	1150		1100					
1514	HLW99-17					0.0021		0.0020		0.0008		0.0029		0.0853			0.0033		0.0192	0.9757								
1515	HLW99-18					0.0024		0.0020		0.0085		0.0008		0.0003			0.0027		0.0199	0.9809	1150		1075					
1516	HLW99-19					0.0021		0.0018		0.0005		0.0012		0.0680			0.0026		0.0182	0.9637	1150		> 950					
1517	HLW99-20					0.0025		0.0022		0.0103		0.0015		0.0634			0.0029		0.0202	0.9619	1150		> 950					
1518	HLW99-21					0.0022		0.0021		0.0006		0.0010		0.0006			0.0022		0.0195	0.9481	1150		975					
1519	HLW99-22					0.0021		0.0020		0.0007		0.0021		0.0565			0.0027		0.0211	0.9373	1150		> 950					
1520	HLW99-23					0.0025		0.0020		0.0089		0.0009		0.0632			0.0031		0.0198	0.9506								
1521	HLW99-24R					0.0024		0.0022		0.0006		0.0015		0.0008			0.0024		0.0200	0.9513	1200		925					
1522	HLW99-25					0.0025		0.0017		0.0056		0.0006		0.0003			0.0024		0.0200	0.9884	1150		1125					
1523	HLW99-26					0.0023		0.0021		0.0099		0.0015		0.0712			0.0029		0.0190	0.9284	1150		> 950					
1524	HLW99-27					0.0024		0.0019		0.0115		0.0006		0.0004			0.0024		0.0193	0.9820	1150		1075					
1525	HLW99-28					0.0023		0.0020		0.0110		0.0016		0.0006			0.0026		0.0190	0.9692	1150		> 950					
1526	HLW99-29					0.0022		0.0020		0.0066		0.0013		0.0006			0.0023		0.0235	0.9875	1250		1150					
1527	HLW99-30					0.0022		0.0045		0.0031		0.0015		0.0003			0.0019		0.0199	0.9692	1150		925					
1528	HLW99-31					0.0022		0.0020		0.0009		0.0012		0.0454			0.0026		0.0203	0.9241								
1529	HLW99-32					0.0022		0.0020		0.0020		0.0021		0.0686			0.0027		0.0198	0.9764								
1530	HLW99-33					0.0022		0.0020		0.0007		0.0012		0.0680			0.0028		0.0199	0.9739	1150		< 950					
1531	HLW99-34					0.0021		0.0020		0.0005		0.0018		0.0714			0.0026		0.0193	0.9542								
1532	HLW99-35					0.0021		0.0018		0.0005		0.0012		0.0006			0.0019		0.0281	0.9882	1150		1025					
1533	HLW99-36					0.0020		0.0017		0.0016		0.0009		0.0005			0.0020		0.0218	0.9772	1150		910					
1534	HLW99-37					0.0022		0.0021		0.0049		0.0010		0.0004			0.0020		0.0229	0.9909	1150		1000					
1535	HLW99-38					0.0024		0.0024		0.0072				0.0668					0.0191	0.9421								
1536	HLW99-39					0.0023		0.0021		0.0011		0.0005		0.0004			0.0020		0.0203	0.9689	1150		875					
1537	HLW99-40					0.0022		0.0020		0.0003		0.0015		0.0002			0.0020		0.0194	0.9613	1200		1150					
1538	HLW99-41					0.0030		0.0026		0.0037		0.0015		0.0294			0.0024		0.0191	0.9522								
1539	HLW99-42					0.0021		0.0017		0.0004		0.0013		0.0004			0.0021		0.0204	0.9435	1150		1100					
1540	HLW99-43					0.0022		0.0019		0.0008		0.0006		0.0005			0.0023		0.0207	0.9725	1150		950					
1541	HLW99-44					0.0023		0.0024		0.0005		0.0009		0.0422			0.0024		0.0193	0.9609								
1542	HLW99-45					0.0025		0.0021		0.0007		0.0018		0.0698			0.0027		0.0199	0.9828								
1543	HLW99-46					0.0027		0.0021		0.0112		0.0008		0.0005			0.0026		0.0203	0.9689	1150		925					
1544	HLW99-47					0.0022		0.0020		0.0003		0.0007		0.0003			0.0020		0.0210	0.9435			1050					
1545	HLW99-48					0.0026		0.0022		0.0112		0.0012		0.0002			0.0022		0.0003	0.9496			>1150					
1546	HLW99-49					0.0021		0.0024		0.0018		0.0017		0.0611			0.0028		0.0188	0.9158	1150		> 950					
1547	HLW99-50					0.0027		0.0022		0.0004				0.0576					0.0194	0.9393								
1548	HLW99-51R					0.0023		0.0017		0.0006		0.0012		0.0658			0.0030		0.0184	0.9174								
1549	HLW99-52					0.0024		0.0021		0.0104		0.0008		0.0002			0.0023		0.0194	0.9615	1150		1000					
1550	HLW99-53					0.0034		0.0025		0.0057		0.0010		0.0344			0.0026		0.0189	0.9070								
1551	HLW99-54					0.0022		0.0021		0.0071		0.0011		0.0001			0.0022		0.0197	0.9530			1150					
1552	HLW99-55					0.0026		0.0021		0.0055				0.0010					0.0193	0.9237	1150		1100					
1553	HLW99-56R					0.0034		0.0018		0.0105		0.0013		0.0003			0.0023		0.0201	0.9654	1150		1100					
1554	HLW99-57					0.0024		0.0019		0.0007		0.0013		0.0003			0.0023		0.0207	0.9571	1150		1050					
1555	HLW99-58					0.0024		0.0020		0.0026		0.0007		0.0005			0.0023		0.0198	0.9506	1150		1000					
1556	HLW99-59					0.0028		0.0021		0.0110		0.0005		0.0004			0.0025		0.0197	0.9745	1150		1100					
1557	HLW99-60					0.0023		0.0026		0.0069		0.0012		0.0683			0.0026		0.0180	0.9111								
1558	HLW99-61					0.0023		0.0023		0.0100		0.0008		0.0004			0.0024		0.0203	0.9568	1150		950					

#	Glass ID	$C_{800°C}$	$C_{850°C}$	$C_{900°C}$	$C_{950°C}$	$C_{1000°C}$	$C_{1050°C}$	$C_{1100°C}$	$C_{1150°C}$	$C_{1200°C}$	Quenched Visual/OM	Quenched XRD	CCC XRD	ρ (g/cm³)	Fulc Visc A	Fulc Visc B	Fulc Visc To	Arrh Visc E	Arrh Visc F	T1 (°C)	V1 (Pa·s)
1477	HLW98-60										Homogeneous dark brown glass with some unmelted particles										
1478	HLW98-61										Homogeneous dark brown glass			2.770				-10.920	19143.8	1000.0	62.031
1479	HLW98-61CG1																				
1480	HLW98-62										Homogeneous dark brown glass										
1481	HLW98-63										Homogeneous dark brown glass										
1482	HLW98-64										Homogeneous brown glass										
1483	HLWMS-01										Homogeneous dark brown glass										
1484	HLWMS-02										Homogeneous dark brown glass										
1485	HLWMS-03										Brown glass with metallic blue appear-ance. Trace amount of secondary phase										
1486	HLWMS-04										Homogeneous dark glass with metallic sheen										
1487	HLWMS-05										Homogeneous glass with metallic appearance										
1488	HLWMS-06										Metallic blue glass with extensive surface crystallization										
1489	HLWMS-07										Mostly homogeneous with some metallic swirls										
1490	HLWMS-08										Homogeneous glass with metallic appearance							-11.569	14636.0	1000.0	0.937
1491	HLWMS-09										Homogeneous dark glass										
1492	HLWMS-10										Homogeneous dark glass										
1493	HLWMS-11										Homogeneous dark brown glass			3.370				-14.364	20240.2	1000.0	4.801
1494	HLWMS-12										Homogeneous dark brown glass										
1495	HLWMS-13										Homogeneous dark brown glass										
1496	HLWMS-14										Homogeneous reddish brown glass										
1497	HLWMS-15										Homogeneous dark brown glass							-13.883	22359.8	1000.0	41.183
1498	HLW99-01										Homogeneous dark brown glass with a tinge of blue. Undis-solved materials left in crucible										
1499	HLW99-02																				
1500	HLW99-03										Mostly homogeneous dark brown glass with some cloudiness on surface			2.800							
1501	HLW99-04																				
1502	HLW99-05													3.150							
1503	HLW99-06										Homogeneous deep blue glass. Silver patches on blue glass in crucible			2.640				-11.857	20819.7	1000.0	91.212
1504	HLW99-07													2.780							
1505	HLW99-08													2.940							
1506	HLW99-09													2.990							
1507	HLW99-10										Blue glass with metallic like fragments and brown regions			2.760							
1508	HLW99-11										Mostly clear brown/blue glass with dull gray lumps on surface. Some gray-colored swirls			2.720							
1509	HLW99-12										Inhomogeneous olive green glass with blue patches. Traces of silvery clusters on crucible wall			2.670							
1510	HLW99-13													2.980							
1511	HLW99-14										Dark brown glass with green swirls and streaks on the surface. Cross section appears uniform			2.930							
1512	HLW99-15										Dark green glass with black patches on top and bottom. Cross section appears uniform			2.860				-10.171	12934.2	1000.0	1.018
1513	HLW99-16										Brown glass with brownish green streaks on top and bottom. Cross section appears uniform										
1514	HLW99-17																				
1515	HLW99-18										Homogeneous black glass with silvery patches left in crucible										
1516	HLW99-19										Brown glass with blue and green regions across cross sections. Crystals found in glass shards										
1517	HLW99-20										Dark brown glass with gray swirls on surface and silvery patches. Some undissolved crystals										
1518	HLW99-21										Blue glass with green regions on surface and cross sections										
1519	HLW99-22										Mostly uniform dark brown glass with gray patches on surface and small amount of undissolved crystals										
1520	HLW99-23																				
1521	HLW99-24R										Brown glass with multicolored regions and undissolved lumps. Glass cloudy after remelt at 1300 °C										
1522	HLW99-25										Brown glass with streaks and silver patches on surface										
1523	HLW99-26										Brown glass with green areas in cross section. Glass shards with crystals										
1524	HLW99-27										Brown glass with swirls on surface. Inhomogeneous cross section with undissolved material										
1525	HLW99-28										Mostly homogeneous black glass with red tinge. Trace amount of undissolved material										
1526	HLW99-29										Inhomogeneous glass with green and gray regions and silver patches. Trace amount of undissolved material										
1527	HLW99-30										Mostly homogeneous black glass with brown streaks on surface							-13.007	19960.0	1000.0	15.036
1528	HLW99-31																				
1529	HLW99-32																				
1530	HLW99-33										Dark green glass with cross section fragments of white and green										
1531	HLW99-34																				
1532	HLW99-35										Inhomogeneous glass with green and black regions. Silvery crystals and undis-solved material										
1533	HLW99-36										Mostly uniform black glass with green and silver patches										
1534	HLW99-37										Mostly homogeneous black glass with grayish cross sections										
1535	HLW99-38																				
1536	HLW99-39										Brownish green glass with multicolored regions. Cross section appears uniform										
1537	HLW99-40										Homogeneous black glass with a reddish yellow tinge										
1538	HLW99-41																				
1539	HLW99-42										Homogeneous black glass										
1540	HLW99-43										Mostly homogeneous brown glass with small multicolored regions										
1541	HLW99-44																				
1542	HLW99-45																				
1543	HLW99-46										Green glass with multicolored patches on surface. Uniform cross section										
1544	HLW99-47																				
1545	HLW99-48																				
1546	HLW99-49										Dark brown glass with small amount of a yellow non-glassy phase. Yellow phase deposit on crucible										
1547	HLW99-50																				
1548	HLW99-51R																				
1549	HLW99-52										Homogeneous black glass with trace amount of gray precipitate										
1550	HLW99-53																				
1551	HLW99-54																				
1552	HLW99-55										Dark brown glass with patches of metallic looking precipitates on surface. Crystal-lization throughout bulk										
1553	HLW99-56R										Cloudy brown glass with traces of metallic precipitate on bottom										
1554	HLW99-57										Cloudy green glass with multicolored bottom										
1555	HLW99-58										Dark brown glass with light brown regions										
1556	HLW99-59										Mostly uniform brown glass with small areas of light brown swirls										
1557	HLW99-60																				
1558	HLW99-61										Homogeneous red glass										

#	Glass ID	T2 (°C)	V2 (Pa·s)	T3 (°C)	V3 (Pa·s)	T4 (°C)	V4 (Pa·s)	T5 (°C)	V5 (Pa·s)	T6 (°C)	V6 (Pa·s)	T7 (°C)	V7 (Pa·s)	T8 (°C)	V8 (Pa·s)	T9 (°C)	V9 (Pa·s)	T10 (°C)	V10 (Pa·s)	TCLP Ag	TCLP As	TCLP Ba	TCLP Cd	TCLP Cr	TCLP Ni	TCLP Pb
1477	HLW98-60																									
1478	HLW98-61	1050	34.638	1100	20.4	1150.0	12.6	1200.0	8.1											<0.0031	<0.049	0.994	0.19	<0.0055	0.079	0.034
1479	HLW98-61CG1																									
1480	HLW98-62																									
1481	HLW98-63																									
1482	HLW98-64																									
1483	HLWMS-01																									
1484	HLWMS-02																									
1485	HLWMS-03																									
1486	HLWMS-04																									
1487	HLWMS-05																									
1488	HLWMS-06																									
1489	HLWMS-07																									
1490	HLWMS-08	1050	0.598	1100	0.4	1150.0	0.3																			
1491	HLWMS-09																									
1492	HLWMS-10																									
1493	HLWMS-11	1050	2.493	1100	1.4	1150.0	0.9	1200.0	0.6																	
1494	HLWMS-12																									
1495	HLWMS-13																									
1496	HLWMS-14																									
1497	HLWMS-15	1050	19.961	1100	10.7	1150.0	6.2	1200.0	3.8																	
1498	HLW99-01																			0.068	0.049	1.283	0.875	<0.0055	0.66	0.111
1499	HLW99-02																			0.079	0.049	0.053	0.171	0.573	0.357	0.4
1500	HLW99-03																			0.363	0.055	12.084	8.776	<0.0055	7.382	0.727
1501	HLW99-04																			0.029	0.148	0.13	0.075	0.008	0.064	0.171
1502	HLW99-05																			0.085	0.25	35.742	33.345	1.165	29.936	1.552
1503	HLW99-06	1050	47.915	1100	26.9	1150.0	15.9	1200.0	9.9											0.09	0.049	0.013	0.006	<0.0055	<0.0079	<0.0243
1504	HLW99-07																			0.088	0.406	0.139	0.18	0.056	0.275	0.502
1505	HLW99-08																			0.169	0.089	0.408	0.269	0.022	0.252	0.12
1506	HLW99-09																			0.023	0.205	26.083	53.865	0.089	49.261	1.991
1507	HLW99-10																			0.087	1.487	0.134	0.076	0.041	0.063	0.153
1508	HLW99-11																			0.256	0.049	0.099	0.026	0.073	0.071	0.178
1509	HLW99-12																			0.1	0.074	0.197	0.12	<0.0055	0.097	<0.0243
1510	HLW99-13																			0.388	0.049	8.764	6.645	0.026	5.047	2.024
1511	HLW99-14																			0.079	0.049	3.804	2.648	0.008	1.945	0.211
1512	HLW99-15	1050	0.662	1100	0.5	1150.0	0.3	1200.0	0.3											0.577	2.768	99.555	47.236	0.073	65.141	4.868
1513	HLW99-16																			0.064	0.049	0.404	0.276	<0.0055	0.207	<0.0243
1514	HLW99-17																			0.028	0.219	0.053	0.057	1.43	0.102	0.185
1515	HLW99-18																			0.736	0.053	17.703	11.891	0.02	8.929	0.912
1516	HLW99-19																			0.07	0.049	0.048	0.011	0.021	0.022	0.082
1517	HLW99-20																			0.128	0.277	17.5	17.884	0.085	14.79	1.998
1518	HLW99-21																			0.026	0.049	0.089	0.048	<.0055	0.023	0.049
1519	HLW99-22																			0.392	0.049	0.29	0.188	0.085	0.2	0.105
1520	HLW99-23																			0.079	0.627	28.944	43.541	4.222	53.192	0.35
1521	HLW99-24R																			0.125	0.06	0.27	0.088	0.021	0.141	0.22
1522	HLW99-25																			0.072	0.049	2.239	1.626	0.011	0.967	0.156
1523	HLW99-26																			0.033	0.049	2.344	1.521	0.037	1.24	0.492
1524	HLW99-27																			0.025	0.063	41.818	30.943	0.006	23.934	0.781
1525	HLW99-28																			0.179	0.103	20.759	16.978	0.009	14.359	0.888
1526	HLW99-29																			0.086	0.049	0.719	0.482	<.0055	0.389	0.114
1527	HLW99-30	1050	7.808	1100	4.5	1150.0	2.7	1200.0	1.8											0.333	0.049	1.832	1.444	<0.0055	0.962	0.072
1528	HLW99-31																			0.254	0.087	0.111	0.082	0.582	0.203	0.362
1529	HLW99-32																			0.088	0.049	0.303	0.185	0.033	0.133	0.079
1530	HLW99-33																			0.109	2.427	0.025	0.007	0.085	0.072	0.564
1531	HLW99-34																			0.057	NA	0.041	0.019	0.025	0.011	0.168
1532	HLW99-35																			0.057	0.049	0.026	0.007	<.0055	<.0079	0.086
1533	HLW99-36																			0.059	0.049	0.666	0.423	<.0055	0.308	0.118
1534	HLW99-37																			0.049	0.049	0.538	0.362	<.0055	0.297	0.126
1535	HLW99-38																			0.678	0.398	8.047	6.407	0.104	5.539	1.188
1536	HLW99-39																			0.03	0.157	3.292	2.498	0.014	2.135	0.164
1537	HLW99-40																			0.073	0.064	0.011	<0.0027	<0.0055	<0.0079	<0.0243
1538	HLW99-41																			0.194	0.049	1.051	0.759	0.014	0.647	0.162
1539	HLW99-42																			0.05	0.086	0.082	0.045	<0.0055	0.025	<0.0243
1540	HLW99-43																			0.109	0.071	0.025	<0.0027	<0.0055	<0.0079	0.033
1541	HLW99-44																			0.492	0.049	0.031	0.007	0.157	0.038	0.101
1542	HLW99-45																			0.209	NA	0.116	0.067	0.076	0.079	0.09
1543	HLW99-46																			0.372	0.425	58.931	56.468	0.038	53.415	0.397
1544	HLW99-47																			0.058	0.049	0.005	<0.0027	<0.0055	<0.0079	<0.0243
1545	HLW99-48																			0.216	0.049	4.356	3.162	<0.0055	1.456	0.297
1546	HLW99-49																			0.197	0.375	1.213	0.408	5.363	0.334	0.06
1547	HLW99-50																			0.045	NA	0.031	0.013	0.016	0.014	1.497
1548	HLW99-51R																			0.174	2.363	0.19	<0.0027	4.729	0.234	0.777
1549	HLW99-52																			0.206	0.499	76.9	68.73	0.022	62.646	4.361
1550	HLW99-53																			0.205	0.049	1.943	1.146	0.017	0.778	0.284
1551	HLW99-54																			0.047	0.098	0.742	0.484	<0.0055	0.39	0.148
1552	HLW99-55																			0.227	0.094	5.618	4.049	0.019	2.2	0.482
1553	HLW99-56R																			0.109	0.051	1.488	0.987	<0.0055	0.466	0.282
1554	HLW99-57																			0.046	0.049	0.031	0.004	<0.0055	<0.0079	<0.0243
1555	HLW99-58																			0.054	0.189	7.817	13.979	0.05	12.915	0.681
1556	HLW99-59																			0.128	0.049	2.346	1.678	<0.0055	1.296	0.506
1557	HLW99-60																			0.056	0.074	2.242	1.553	0.019	0.862	0.369
1558	HLW99-61																			0.072	0.291	77.997	67.006	0.019	63.71	3.922

#	Glass ID	TCLP Se	TCLP Zn	TCLP Al	TCLP B	TCLP Sb	TCLP Tl	TCLP V	Q PCT B (g/m²)	Q PCT Li (g/m²)	Q PCT Na (g/m²)	Q PCT Si (g/m²)	Q PCT pH	CCC PCT B (g/m²)	CCC PCT Li (g/m²)	CCC PCT Na (g/m²)	CCC PCT Si (g/m²)	CCC PCT pH	T1 (°C)
1477	HLW98-60								0.485	0.505	0.590	0.295	11.380						
1478	HLW98-61	<0.0532	0.207			<0.0338	<0.0417		0.331	0.374	0.462	0.275	11.010						
1479	HLW98-61CG1													0.286	0.359	0.394			
1480	HLW98-62								0.285	0.305	0.230	0.135	10.160						
1481	HLW98-63																		
1482	HLW98-64																		
1483	HLWMS-01																		
1484	HLWMS-02																		
1485	HLWMS-03																		
1486	HLWMS-04																		
1487	HLWMS-05																		
1488	HLWMS-06																		
1489	HLWMS-07																		
1490	HLWMS-08								1.205	1.455	1.410	0.465	11.430						
1491	HLWMS-09								0.710	0.745	0.945	0.260	10.530						
1492	HLWMS-10								0.560	0.575	0.640	0.180	10.430						
1493	HLWMS-11																		
1494	HLWMS-12																		
1495	HLWMS-13																		
1496	HLWMS-14																		
1497	HLWMS-15																		
1498	HLW99-01	0.0532	0.598																
1499	HLW99-02	0.108	38.928																
1500	HLW99-03	0.0532	5.47	3.81	22.8	0.112	0.184												
1501	HLW99-04	0.0532	0.942																
1502	HLW99-05	0.355	20.134																
1503	HLW99-06	0.0532	0.813																
1504	HLW99-07	0.708	40.201																
1505	HLW99-08	0.121	1.547																
1506	HLW99-09	0.402	39.512																
1507	HLW99-10	0.081	0.764																
1508	HLW99-11	0.164	3.577																
1509	HLW99-12	0.0532	1.084																
1510	HLW99-13	0.266	4.531																
1511	HLW99-14	0.075	1.63	0.288	10.5	0.0568	0.111												
1512	HLW99-15	0.806	12.33						13.270	12.930	11.830	1.385	11.350						
1513	HLW99-16	0.0532	0.309																
1514	HLW99-17	0.719	16.94																
1515	HLW99-18	0.195	9.45																
1516	HLW99-19	0.138	0.96																
1517	HLW99-20	0.423	10.72																
1518	HLW99-21	0.056	0.625																
1519	HLW99-22	0.185	4.481																
1520	HLW99-23	1.333	13.138																
1521	HLW99-24R	0.106	22.953																
1522	HLW99-25	0.0532	2.102																
1523	HLW99-26	0.138	1.102																
1524	HLW99-27	0.0532	18.43	0.901	53.5	0.159	0.254		0.555	0.615	0.610	0.180	10.710						
1525	HLW99-28	0.085	9.841																
1526	HLW99-29	0.0532	0.611																
1527	HLW99-30	0.0532	3.187																
1528	HLW99-31	0.419	13.152																
1529	HLW99-32	0.116	1.024																
1530	HLW99-33	1.917	9.783																
1531	HLW99-34	NA	0.812																
1532	HLW99-35	0.0532	0.435																
1533	HLW99-36	0.0532	3.867																
1534	HLW99-37	0.0532	0.596																
1535	HLW99-38	0.198	5.482																
1536	HLW99-39	0.095	23.696																
1537	HLW99-40	0.0532	0.607																
1538	HLW99-41	0.0532	1.475																
1539	HLW99-42	0.0532	0.504																
1540	HLW99-43	0.0532	4.6																
1541	HLW99-44	0.068	3.237																
1542	HLW99-45	NA	2.138																
1543	HLW99-46	0.563	34.913																
1544	HLW99-47	0.079	0.273																
1545	HLW99-48	0.072	0.016																
1546	HLW99-49	0.062	1.479																
1547	HLW99-50	NA	0.843																
1548	HLW99-51R	1.851	8.813																
1549	HLW99-52	0.789	43.693						9.775	1.735	7.545	0.570	9.750						
1550	HLW99-53	0.125	1.214																
1551	HLW99-54	0.084	0.436																
1552	HLW99-55	0.056	5.131																
1553	HLW99-56R	0.0532	0.624																
1554	HLW99-57	0.071	0.55																
1555	HLW99-58	0.958	37.847																
1556	HLW99-59	0.088	1.022																
1557	HLW99-60	0.072	1.489																
1558	HLW99-61	0.951	44.108	0.226	174	0.282	1												

#	Glass ID	EC1 (S/cm)	T2 (°C)	EC2 (S/cm)	T3 (°C)	EC3 (S/cm)	T4 (°C)	EC4 (S/cm)	T5 (°C)	EC5 (S/cm)	T6 (°C)	EC6 (S/cm)	A	B	To
1477	HLW98-60														
1478	HLW98-61														
1479	HLW98-61CG1														
1480	HLW98-62														
1481	HLW98-63														
1482	HLW98-64														
1483	HLWMS-01														
1484	HLWMS-02														
1485	HLWMS-03														
1486	HLWMS-04														
1487	HLWMS-05														
1488	HLWMS-06														
1489	HLWMS-07														
1490	HLWMS-08														
1491	HLWMS-09														
1492	HLWMS-10														
1493	HLWMS-11														
1494	HLWMS-12														
1495	HLWMS-13														
1496	HLWMS-14														
1497	HLWMS-15														
1498	HLW99-01														
1499	HLW99-02														
1500	HLW99-03														
1501	HLW99-04														
1502	HLW99-05														
1503	HLW99-06														
1504	HLW99-07														
1505	HLW99-08														
1506	HLW99-09														
1507	HLW99-10														
1508	HLW99-11														
1509	HLW99-12														
1510	HLW99-13														
1511	HLW99-14														
1512	HLW99-15														
1513	HLW99-16														
1514	HLW99-17														
1515	HLW99-18														
1516	HLW99-19														
1517	HLW99-20														
1518	HLW99-21														
1519	HLW99-22														
1520	HLW99-23														
1521	HLW99-24R														
1522	HLW99-25														
1523	HLW99-26														
1524	HLW99-27														
1525	HLW99-28														
1526	HLW99-29														
1527	HLW99-30														
1528	HLW99-31														
1529	HLW99-32														
1530	HLW99-33														
1531	HLW99-34														
1532	HLW99-35														
1533	HLW99-36														
1534	HLW99-37														
1535	HLW99-38														
1536	HLW99-39														
1537	HLW99-40														
1538	HLW99-41														
1539	HLW99-42														
1540	HLW99-43														
1541	HLW99-44														
1542	HLW99-45														
1543	HLW99-46														
1544	HLW99-47														
1545	HLW99-48														
1546	HLW99-49														
1547	HLW99-50														
1548	HLW99-51R														
1549	HLW99-52														
1550	HLW99-53														
1551	HLW99-54														
1552	HLW99-55														
1553	HLW99-56R														
1554	HLW99-57														
1555	HLW99-58														
1556	HLW99-59														
1557	HLW99-60														
1558	HLW99-61														

#	Glass ID	Study	Reference	Al2O3-t	B2O3-t	CaO-t	Fe2O3-t	FeO-t	K2O-t	Li2O-t	MgO-t	Na2O-t	NiO-t	P2O5-t	SiO2-t	ZrO2-t	Ag2O-t	As2O3-t	As2O5-t	BaO-t	BeO-t	Bi2O3-t	Br-t	CdO-t	Ce2O3-t	CeO2-t	Cl-t
1559	HLW99-62	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0000	0.0500	0.0000	0.0200		0.0100	0.0300	0.0123	0.1300	0.0184	0.0000	0.5200	0.0867	0.0025	0.0020		0.0246		0.0123		0.0184		0.0020	0.0020
1560	HLW99-63	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0516	0.1171	0.0303	0.0614		0.0100	0.0317	0.0062	0.1129	0.0094	0.0124	0.3973	0.0322	0.0025	0.0020		0.0125		0.0062		0.0094		0.0020	0.0020
1561	HLW99-64	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0530	0.0900	0.0000	0.0200		0.0100	0.0700	0.0200	0.0800	0.0300	0.0300	0.3400	0.0000	0.0025	0.0020		0.0400		0.0200		0.0300		0.0020	0.0020
1562	HLW99-65	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.1100	0.1830	0.0000	0.0200		0.0100	0.0000	0.0000	0.2000	0.0000	0.0300	0.3000	0.0000	0.0025	0.0020		0.0000		0.0000		0.0000		0.0020	0.0020
1563	HLW99-66	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0735	0.0525	0.0210	0.0210		0.0105	0.0315	0.0000	0.0992	0.0000	0.0013	0.5008	0.0315	0.0026	0.0021		0.0000		0.0000		0.0000		0.0021	0.0021
1564	HLW99-67	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0735	0.0525	0.0210	0.1176		0.0105	0.0315	0.0000	0.0525	0.0000	0.0013	0.3146	0.0315	0.0026	0.0021		0.0000		0.0000		0.0000		0.0021	0.0021
1565	HLW99-68	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0735	0.0525	0.0210	0.1313		0.0105	0.0315	0.0131	0.0704	0.0197	0.0013	0.3145	0.0315	0.0026	0.0021		0.0263		0.0131		0.0197		0.0021	0.0021
1566	HLW99-69	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0735	0.0525	0.0210	0.0210		0.0105	0.0315	0.0131	0.0525	0.0197	0.0013	0.3146	0.0315	0.0026	0.0021		0.0263		0.0131		0.0197		0.0021	0.0021
1567	HLW99-70	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0735	0.0525	0.0210	0.0210		0.0105	0.0315	0.0000	0.1139	0.0000	0.0013	0.3495	0.0315	0.0026	0.0021		0.0000		0.0000		0.0000		0.0021	0.0021
1568	HLW99-71	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0735	0.0525	0.0210	0.1313		0.0105	0.0315	0.0000	0.0771	0.0000	0.0013	0.4127	0.0315	0.0026	0.0021		0.0000		0.0000		0.0000		0.0021	0.0021
1569	HLW99-72	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0735	0.0525	0.0210	0.0210		0.0105	0.0315	0.0131	0.0781	0.0197	0.0013	0.4169	0.0315	0.0026	0.0021		0.0263		0.0131		0.0197		0.0021	0.0021
1570	HLW99-73	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0736	0.0525	0.0210	0.0210		0.0105	0.0315	0.0000	0.1412	0.0000	0.0013	0.4586	0.0315	0.0026	0.0021		0.0000		0.0000		0.0000		0.0021	0.0021
1571	HLW99-74	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0735	0.0525	0.0210	0.1313		0.0105	0.0315	0.0066	0.0525	0.0098	0.0013	0.3146	0.0315	0.0026	0.0021		0.0131		0.0066		0.0098		0.0021	0.0021
1572	HLW99-75	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0735	0.0525	0.0210	0.1313		0.0105	0.0315	0.0088	0.1051	0.0132	0.0013	0.3142	0.0315	0.0026	0.0021		0.0176		0.0088		0.0132		0.0021	0.0021
1573	HLW99-76	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0735	0.0525	0.0210	0.0210		0.0105	0.0315	0.0131	0.1051	0.0197	0.0013	0.3142	0.0315	0.0026	0.0021		0.0263		0.0131		0.0197		0.0021	0.0021
1574	HLW99-77	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0735	0.0525	0.0210	0.1313		0.0105	0.0315	0.0000	0.1051	0.0000	0.0013	0.3142	0.0315	0.0026	0.0021		0.0000		0.0000		0.0000		0.0021	0.0021
1575	HLW99-78	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0735	0.0525	0.0210	0.0562		0.0105	0.0315	0.0044	0.0788	0.0066	0.0013	0.3144	0.0315	0.0026	0.0021		0.0088		0.0044		0.0066		0.0021	0.0021
1576	HLW99-79	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0735	0.0525	0.0210	0.0210		0.0105	0.0315	0.0000	0.0718	0.0000	0.0013	0.3917	0.0315	0.0026	0.0021		0.0000		0.0000		0.0000		0.0021	0.0021
1577	HLW99-80	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0700	0.1000	0.0200	0.0725		0.0100	0.0300	0.0125	0.0500	0.0188	0.0025	0.3000	0.0300	0.0025	0.0020		0.0250		0.0125		0.0188		0.0020	0.0020
1578	HLW99-81	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0736	0.0525	0.0210	0.0210		0.0105	0.0315	0.0000	0.1276	0.0000	0.0013	0.4040	0.0315	0.0026	0.0021		0.0000		0.0000		0.0000		0.0021	0.0021
1579	HLW99-82	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0700	0.1000	0.0200	0.0560		0.0100	0.0300	0.0125	0.1072	0.0188	0.0025	0.3288	0.0300	0.0025	0.0020		0.0250		0.0125		0.0188		0.0020	0.0020
1580	HLW99-83	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0700	0.1000	0.0200	0.0804		0.0100	0.0300	0.0000	0.0672	0.0000	0.0025	0.3690	0.0300	0.0025	0.0020		0.0000		0.0000		0.0000		0.0020	0.0020
1581	HLW99-84	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0700	0.1000	0.0200	0.0200		0.0100	0.0300	0.0073	0.0674	0.0110	0.0025	0.3698	0.0300	0.0025	0.0020		0.0146		0.0073		0.0110		0.0020	0.0020
1582	HLW99-85	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0700	0.1000	0.0200	0.0725		0.0100	0.0300	0.0063	0.0739	0.0094	0.0025	0.3956	0.0300	0.0025	0.0020		0.0125		0.0063		0.0094		0.0020	0.0020
1583	HLW99-86	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0700	0.1000	0.0200	0.0200		0.0100	0.0300	0.0000	0.0944	0.0000	0.0025	0.4776	0.0300	0.0025	0.0020		0.0000		0.0000		0.0000		0.0020	0.0020
1584	HLW99-87	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0700	0.1000	0.0200	0.0535		0.0100	0.0300	0.0042	0.0750	0.0063	0.0025	0.3000	0.0300	0.0025	0.0020		0.0084		0.0042		0.0063		0.0020	0.0020
1585	HLW99-88	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0700	0.1000	0.0200	0.1250		0.0100	0.0300	0.0125	0.0670	0.0188	0.0025	0.3000	0.0300	0.0025	0.0020		0.0250		0.0125		0.0188		0.0020	0.0020
1586	HLW99-89	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0700	0.1000	0.0200	0.1250		0.0100	0.0300	0.0000	0.0734	0.0000	0.0025	0.3936	0.0300	0.0025	0.0020		0.0000		0.0000		0.0000		0.0020	0.0020
1587	HLW99-90R	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0700	0.1000	0.0200	0.1250		0.0100	0.0300	0.0000	0.1000	0.0000	0.0025	0.3000	0.0300	0.0025	0.0020		0.0000		0.0000		0.0000		0.0020	0.0020
1588	HLW99-91	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0700	0.1000	0.0200	0.1120		0.0100	0.0300	0.0000	0.0500	0.0000	0.0025	0.3000	0.0300	0.0025	0.0020		0.0000		0.0000		0.0000		0.0020	0.0020
1589	HLW99-92	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0700	0.1000	0.0200	0.0200		0.0100	0.0300	0.0125	0.0500	0.0188	0.0025	0.3000	0.0300	0.0025	0.0020		0.0250		0.0125		0.0188		0.0020	0.0020
1590	HLW99-93R2	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0700	0.1000	0.0200	0.0200		0.0100	0.0300	0.0000	0.1084	0.0000	0.0025	0.3336	0.0300	0.0025	0.0020		0.0000		0.0000		0.0000		0.0020	0.0020
1591	HLW99-94	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0700	0.1000	0.0200	0.0200		0.0100	0.0300	0.0000	0.1344	0.0000	0.0025	0.4376	0.0300	0.0025	0.0020		0.0000		0.0000		0.0000		0.0020	0.0020
1592	HLW99-95	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0700	0.1000	0.0200	0.0200		0.0100	0.0300	0.0000	0.1344	0.0000	0.0025	0.4376	0.0300	0.0025	0.0020		0.0000		0.0000		0.0000		0.0020	0.0020
1593	HLW99-96	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0700	0.1000	0.0200	0.1250		0.0100	0.0300	0.0063	0.0500	0.0094	0.0025	0.3000	0.0300	0.0025	0.0020		0.0125		0.0063		0.0094		0.0020	0.0020
1594	HLW99-97	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0700	0.1000	0.0200	0.1250		0.0100	0.0300	0.0084	0.1000	0.0126	0.0025	0.3000	0.0300	0.0025	0.0020		0.0168		0.0084		0.0126		0.0020	0.0020
1595	HLW99-98R	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0700	0.1000	0.0200	0.0200		0.0100	0.0300	0.0125	0.1000	0.0188	0.0025	0.3000	0.0300	0.0025	0.0020		0.0250		0.0125		0.0188		0.0020	0.0020
1596	HLW99-99	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0700	0.1000	0.0200	0.0200		0.0100	0.0300	0.0000	0.0684	0.0000	0.0025	0.3736	0.0300	0.0025	0.0020		0.0000		0.0000		0.0000		0.0020	0.0020
1597	HLW99-100	RPP-WTP HLW Formulation	Kot and Pegg 2001	0.0700	0.1000	0.0200	0.0200		0.0100	0.0300	0.0000	0.1214	0.0000	0.0025	0.3856	0.0300	0.0025	0.0020		0.0000		0.0000		0.0000		0.0020	0.0020
1598	LAWA41	RPP-WTP LAW Formulation,	Muller et al. 2001	0.0620	0.0750	0.0200	0.0698		0.0310		0.0199	0.2000		0.0008	0.4341	0.0300											0.0058
1599	LAWA42	RPP-WTP LAW Formulation,	Muller et al. 2001	0.0620	0.0903	0.0240	0.0841		0.0310	0.0000	0.0240	0.2000	0.0000	0.0008	0.3800	0.0361	0.0000			0.0000							0.0058
1600	LAWA43-1	RPP-WTP LAW Formulation,	Muller et al. 2001	0.1200	0.0739	0.0197	0.0688		0.0310	0.0000	0.0197	0.2000	0.0000	0.0008	0.3800	0.0295	0.0000			0.0000							0.0058
1601	LAWA44	RPP-WTP LAW Formulation,	Muller et al. 2001	0.0620	0.0890	0.0199	0.0698		0.0050		0.0199	0.2000		0.0003	0.4455	0.0299	0.0000										0.0065
1602	LAWA45	RPP-WTP LAW Formulation,	Muller et al. 2001	0.0620	0.1190		0.0698		0.0050		0.0148	0.2000		0.0003	0.4455	0.0299	0.0000										0.0065
1603	LAWA46	RPP-WTP LAW Formulation,	Muller et al. 2001	0.0620	0.0890		0.0698		0.0050		0.0148	0.2000		0.0003	0.4455	0.0299	0.0000										0.0065
1604	LAWA47	RPP-WTP LAW Formulation,	Muller et al. 2001	0.0620	0.0890		0.0698		0.0050		0.0148	0.2000		0.0003	0.4455	0.0299	0.0000										0.0065
1605	LAWA48	RPP-WTP LAW Formulation,	Muller et al. 2001	0.0620	0.0890		0.0698		0.0300		0.0148	0.2000		0.0003	0.4455	0.0299	0.0000										0.0065
1606	LAWA49	RPP-WTP LAW Formulation,	Muller et al. 2001	0.0620	0.0890		0.0998				0.0148	0.2000		0.0003	0.4455	0.0299	0.0000										0.0065
1607	LAWA50	RPP-WTP LAW Formulation,	Muller et al. 2001	0.0620	0.0890		0.1198				0.0148	0.2000		0.0003	0.4255	0.0299	0.0000										0.0065
1608	LAWA51	RPP-WTP LAW Formulation,	Muller et al. 2001	0.0620	0.1197		0.0700				0.0148	0.1800		0.0003	0.4657	0.0300	0.0000										0.0059
1609	LAWA52	RPP-WTP LAW Formulation,	Muller et al. 2001	0.0618	0.0619	0.0788	0.0751		0.0050		0.0148	0.2000		0.0003	0.4225	0.0299	0.0000										0.0065
1610	LAWA53	RPP-WTP LAW Formulation,	Muller et al. 2001	0.0609	0.0611	0.0777	0.0740		0.0049		0.0146	0.1972		0.0003	0.4166	0.0295											0.0064
1611	LAWA54	RPP-WTP LAW Formulation,	Muller et al. 2001	0.0609	0.0611		0.0740		0.0049		0.0146	0.1972		0.0003	0.4166	0.0295											0.0064
1612	LAWA55	RPP-WTP LAW Formulation,	Muller et al. 2001	0.0609	0.0611		0.0740		0.0049		0.0146	0.1972		0.0003	0.4166	0.0295				0.0777							0.0064
1613	LAWA56	RPP-WTP LAW Formulation,	Muller et al. 2001	0.0609	0.1193	0.0195	0.0740		0.0049		0.0146	0.1972		0.0003	0.4166	0.0295											0.0064
1614	LAWA57	RPP-WTP LAW Formulation,	Muller et al. 2001	0.0609	0.0611	0.0284	0.0740		0.0049		0.0146	0.1972		0.0003	0.4166	0.0295											0.0064
1615	LAWA58	RPP-WTP LAW Formulation,	Muller et al. 2001	0.0609	0.0611	0.0284	0.0740		0.0049		0.0146	0.1972		0.0003	0.4166	0.0295						0.0493					0.0064
1616	LAWA59	RPP-WTP LAW Formulation,	Muller et al. 2001	0.0609	0.0611	0.0482	0.0740		0.0049		0.0146	0.1972		0.0003	0.4166	0.0295											0.0064
1617	LAWA60	RPP-WTP LAW Formulation,	Muller et al. 2001	0.0853	0.1123	0.0432			0.0050		0.0199	0.2000		0.0003	0.4455	0.0299	0.0000										0.0065
1618	LAWA61	RPP-WTP LAW Formulation,	Muller et al. 2001	0.0609	0.0611	0.0477	0.0740		0.0049		0.0146	0.1972		0.0003	0.4166	0.0295											0.0064
1619	LAWA62	RPP-WTP LAW Formulation,	Muller et al. 2001	0.0609	0.0611	0.0477	0.0740		0.0049		0.0146	0.1972		0.0003	0.4166	0.0295											0.0064
1620	LAWA63	RPP-WTP LAW Formulation,	Muller et al. 2001	0.0609	0.0611	0.0477	0.0740		0.0049		0.0146	0.1972		0.0003	0.4166	0.0295											0.0064
1621	LAWA64	RPP-WTP LAW Formulation,	Muller et al. 2001	0.0618	0.0619		0.0751		0.0050		0.0148	0.2000		0.0003	0.4225	0.0299	0.0000										0.0065
1622	LAWA65	RPP-WTP LAW Formulation,	Muller et al. 2001	0.0609	0.0611	0.0326	0.0740		0.0049		0.0597	0.1972		0.0003	0.4166	0.0295											0.0064
1623	LAWA66	RPP-WTP LAW Formulation,	Muller et al. 2001	0.0609	0.0611	0.0477	0.0740		0.0049		0.0146	0.1972		0.0303	0.4166	0.0295											0.0064
1624	LAWA67	RPP-WTP LAW Formulation,	Muller et al. 2001	0.0609	0.0611	0.0477	0.0740		0.0049		0.0146	0.1972		0.0003	0.4166	0.0295											0.0064
1625	LAWA68	RPP-WTP LAW Formulation,	Muller et al. 2001	0.0609	0.0611	0.0316	0.0740		0.0049		0.0146	0.1972		0.0003	0.4327	0.0295											0.0064
1626	LAWA69	RPP-WTP LAW Formulation,	Muller et al. 2001	0.0609	0.1088		0.0740		0.0049		0.0146	0.1972		0.0303	0.4166	0.0295											0.0064
1627	LAWA70	RPP-WTP LAW Formulation,	Muller et al. 2001	0.0609	0.0611	0.0577	0.0740		0.0049		0.0146	0.1972		0.0003	0.4166	0.0295											0.0064
1628	LAWA71	RPP-WTP LAW Formulation,	Muller et al. 2001	0.0609	0.1085	0.0777	0.0740		0.0049		0.0146	0.1499		0.0003	0.4166	0.0295											0.0064
1629	LAWA72	RPP-WTP LAW Formulation,	Muller et al. 2001	0.0609	0.1085		0.0740		0.0049		0.0146	0.1499		0.0003	0.4166	0.0295											0.0064
1630	LAWA73	RPP-WTP LAW Formulation,	Muller et al. 2001	0.0609	0.0611	0.0777	0.0740		0.0049		0.0146	0.1972		0.0003	0.4166	0.0295											0.0064
1631	LAWA74	RPP-WTP LAW Formulation,	Muller et al. 2001	0.0609	0.0688	0.0777	0.0813		0.0049		0.0219	0.1972		0.0003	0.4166	0.0295											0.0064
1632	LAWA75	RPP-WTP LAW Formulation,	Muller et al. 2001	0.0609	0.1580	0.0777	0.0740		0.0049		0.0146	0.1003		0.0003	0.4166	0.0295											0.0064
1633	LAWA76	RPP-WTP LAW Formulation,	Muller et al. 2001	0.0609	0.1085	0.0777	0.0740		0.0049	0.0495	0.0146	0.1003		0.0003	0.4166	0.0295											0.0064
1634	LAWA77	RPP-WTP LAW Formulation,	Muller et al. 2001	0.1105	0.1085	0.0777	0.0740		0.0049		0.0146	0.1003		0.0003	0.4166	0.0295											0.0064
1635	LAWA78	RPP-WTP LAW Formulation,	Muller et al. 2001	0.0609	0.1085	0.1273	0.0740		0.0049		0.0146	0.1003		0.0003	0.4166	0.0295											0.0064
1636	LAWA79	RPP-WTP LAW Formulation,	Muller et al. 2001	0.1105	0.0611	0.0777	0.0740		0.0049		0.0146	0.1972		0.0003	0.3670	0.0295											0.0064
1637	LAWA80	RPP-WTP LAW Formulation,	Muller et al. 2001	0.1105	0.0611	0.0777	0.0245		0.0049		0.0146	0.1972		0.0003	0.4166	0.0295											0.0064
1638	LAWA81	RPP-WTP LAW Formulation,	Muller et al. 2001	0.0620	0.0890	0.0399	0.0698		0.0050		0.0199	0.2000		0.0003	0.4455	0.0299	0.0000										0.0065
1639	LAWA82	RPP-WTP LAW Formulation,	Muller et al. 2001	0.0620	0.0890		0.0698		0.0050		0.0199	0.2000		0.0003	0.4455	0.0299	0.0000										0.0065
1640	LAWA83	RPP-WTP LAW Formulation,	Muller et al. 2001	0.0620	0.0890	0.0199	0.0499		0.0050		0.0199	0.2000		0.0203	0.4455	0.0299	0.0000										0.0065

#	Glass ID	CoO-t	Co2O3-t	Cr2O3-t	Cs2O-t	CuO-t	Dy2O3-t	Eu2O3-t	F-t	Ga2O3-t	Gd2O3-t	HfO2-t	HgO-t	I-t	La2O3-t	MnO2-t	MnO-t	MoO-t	MoO2-t	MoO3-t	Nb2O5-t	Nd2O3-t	NpO2-t	PbO-t	PdO2-t	PdO-t	Pr2O3-t	Pr6O11-t	Rb2O-t	ReO-t
1559	HLW99-62	0.0020		0.0000	0.0020	0.0020			0.0020						0.0020	0.0020								0.0061		0.0004				
1560	HLW99-63	0.0020		0.0021	0.0020	0.0020			0.0020						0.0020	0.0020								0.0031		0.0004				
1561	HLW99-64	0.0020		0.0050	0.0020	0.0020			0.0020						0.0020	0.0020								0.0100		0.0004				
1562	HLW99-65	0.0020		0.0050	0.0020	0.0020			0.0020						0.0020	0.0020								0.0000		0.0004				
1563	HLW99-66	0.0063		0.0021	0.0021	0.0021			0.0021						0.0021	0.0373								0.0000		0.0004				
1564	HLW99-67	0.0063		0.0021	0.0021	0.0021			0.0021						0.0021	0.0912								0.0000		0.0004				
1565	HLW99-68	0.0063		0.0021	0.0021	0.0021			0.0021						0.0021	0.0373								0.0066		0.0004				
1566	HLW99-69	0.0063		0.0021	0.0021	0.0021			0.0021						0.0021	0.0878								0.0066		0.0004				
1567	HLW99-70	0.0063		0.0021	0.0021	0.0021			0.0021						0.0021	0.0912								0.0000		0.0004				
1568	HLW99-71	0.0063		0.0021	0.0021	0.0021			0.0021						0.0021	0.0373								0.0000		0.0004				
1569	HLW99-72	0.0063		0.0021	0.0021	0.0021			0.0021						0.0021	0.0373								0.0066		0.0004				
1570	HLW99-73	0.0063		0.0021	0.0021	0.0021			0.0021						0.0021	0.0373								0.0000		0.0004				
1571	HLW99-74	0.0063		0.0021	0.0021	0.0021			0.0021						0.0021	0.0651								0.0033		0.0004				
1572	HLW99-75	0.0063		0.0021	0.0021	0.0021			0.0021						0.0021	0.0373								0.0044		0.0004				
1573	HLW99-76	0.0063		0.0021	0.0021	0.0021			0.0021						0.0021	0.0672								0.0066		0.0004				
1574	HLW99-77	0.0063		0.0021	0.0021	0.0021			0.0021						0.0021	0.0651								0.0000		0.0004				
1575	HLW99-78	0.0063		0.0021	0.0021	0.0021			0.0021						0.0021	0.0912								0.0022		0.0004				
1576	HLW99-79	0.0063		0.0021	0.0021	0.0021			0.0021						0.0021	0.0912								0.0000		0.0004				
1577	HLW99-80	0.0020		0.0020	0.0020	0.0020			0.0020						0.0020	0.0629								0.0063		0.0004				
1578	HLW99-81	0.0063		0.0021	0.0021	0.0021			0.0021						0.0021	0.0643								0.0000		0.0004				
1579	HLW99-82	0.0020		0.0020	0.0020	0.0020			0.0020						0.0020	0.0355								0.0063		0.0004				
1580	HLW99-83	0.0020		0.0020	0.0020	0.0020			0.0020						0.0020	0.0653								0.0000		0.0004				
1581	HLW99-84	0.0020		0.0020	0.0020	0.0020			0.0020						0.0020	0.0657								0.0037		0.0004				
1582	HLW99-85	0.0020		0.0020	0.0020	0.0020			0.0020						0.0020	0.0355								0.0031		0.0004				
1583	HLW99-86	0.0020		0.0020	0.0020	0.0020			0.0020						0.0020	0.0355								0.0000		0.0004				
1584	HLW99-87	0.0020		0.0020	0.0020	0.0020			0.0020						0.0020	0.0868								0.0021		0.0004				
1585	HLW99-88	0.0020		0.0020	0.0020	0.0020			0.0020						0.0020	0.0355								0.0063		0.0004				
1586	HLW99-89	0.0020		0.0020	0.0020	0.0020			0.0020						0.0020	0.0355								0.0000		0.0004				
1587	HLW99-90R	0.0020		0.0020	0.0020	0.0020			0.0020						0.0020	0.0620								0.0000		0.0004				
1588	HLW99-91	0.0020		0.0020	0.0020	0.0020			0.0020						0.0020	0.0868								0.0000		0.0004				
1589	HLW99-92	0.0020		0.0020	0.0020	0.0020			0.0020						0.0020	0.0837								0.0063		0.0004				
1590	HLW99-93R2	0.0020		0.0020	0.0020	0.0020			0.0020						0.0020	0.0868								0.0000		0.0004				
1591	HLW99-94	0.0020		0.0020	0.0020	0.0020			0.0020						0.0020	0.0355								0.0000		0.0004				
1592	HLW99-95	0.0020		0.0020	0.0020	0.0020			0.0020						0.0020	0.0355								0.0000		0.0004				
1593	HLW99-96	0.0020		0.0020	0.0020	0.0020			0.0020						0.0020	0.0620								0.0031		0.0004				
1594	HLW99-97	0.0020		0.0020	0.0020	0.0020			0.0020						0.0020	0.0355								0.0042		0.0004				
1595	HLW99-98R	0.0020		0.0020	0.0020	0.0020			0.0020						0.0020	0.0639								0.0063		0.0004				
1596	HLW99-99	0.0020		0.0020	0.0020	0.0020			0.0020						0.0020	0.0868								0.0000		0.0004				
1597	HLW99-100	0.0020		0.0020	0.0020	0.0020			0.0020						0.0020	0.0612								0.0000		0.0004				
1598	LAWA41			0.0002					0.0004															0.0000						
1599	LAWA42			0.0002	0.0000				0.0004							0.0000								0.0000						
1600	LAWA43-1			0.0002	0.0000				0.0004							0.0000								0.0000						
1601	LAWA44			0.0002	0.0000				0.0001															0.0000						
1602	LAWA45			0.0002	0.0000				0.0001															0.0000						
1603	LAWA46			0.0002	0.0000				0.0001	0.0300														0.0000						
1604	LAWA47			0.0002	0.0000				0.0001															0.0000						
1605	LAWA48			0.0002	0.0000				0.0001	0.0050														0.0000						
1606	LAWA49			0.0002	0.0000				0.0001	0.0050														0.0000						
1607	LAWA50			0.0002	0.0000				0.0001	0.0050														0.0000						
1608	LAWA51			0.0002	0.0000				0.0001	0.0045														0.0000						
1609	LAWA52			0.0002	0.0000				0.0001											0.0001				0.0000						
1610	LAWA53			0.0002					0.0001											0.0001										
1611	LAWA54			0.0002					0.0001											0.0001										
1612	LAWA55			0.0002					0.0001											0.0001										
1613	LAWA56			0.0002					0.0001											0.0001										
1614	LAWA57			0.0002					0.0001											0.0001										
1615	LAWA58			0.0002					0.0001											0.0001										
1616	LAWA59			0.0002					0.0001											0.0001										
1617	LAWA60			0.0002	0.0000				0.0001																					
1618	LAWA61			0.0002					0.0001							0.0300				0.0001										
1619	LAWA62	0.0300		0.0002					0.0001											0.0001										
1620	LAWA63			0.0002		0.0300			0.0001											0.0001										
1621	LAWA64			0.0002	0.0000				0.0001																					
1622	LAWA65			0.0002					0.0001											0.0001										
1623	LAWA66			0.0002					0.0001											0.0001										
1624	LAWA67			0.0002					0.0001											0.0001										
1625	LAWA68			0.0002					0.0301											0.0001										
1626	LAWA69			0.0002					0.0001											0.0001										
1627	LAWA70			0.0002					0.0201											0.0001										
1628	LAWA71			0.0002					0.0001											0.0001										
1629	LAWA72			0.0002					0.0001											0.0001										
1630	LAWA73			0.0002					0.0001											0.0001										
1631	LAWA74			0.0002					0.0001											0.0001										
1632	LAWA75			0.0002					0.0001											0.0001										
1633	LAWA76			0.0002					0.0001											0.0001										
1634	LAWA77			0.0002					0.0001											0.0001										
1635	LAWA78			0.0002					0.0001											0.0001										
1636	LAWA79			0.0002					0.0001											0.0001										
1637	LAWA80			0.0002					0.0001											0.0001										
1638	LAWA81			0.0002	0.0000				0.0001																					
1639	LAWA82			0.0002	0.0000				0.0001																					
1640	LAWA83			0.0002	0.0000				0.0001																					

#	Glass ID	ReO2-t	Re2O7-t	Rh2O3-t	RhO2-t	RuO2-t	Ru2O3-t	Sb2O3-t	Sb2O5-t	SeO2-t	Sm2O3-t	SnO-t	SnO2-t	SO3-t	SrO-t	Tc2O7-t	TeO2-t	ThO2-t	TiO2-t	Tl2O-t	Tl2O3-t	U3O8-t	UO2-t	UO3-t	V2O5-t	WO3-t	Y2O3-t	ZnO-t	Sum-t	Al2O3-a
1559	HLW99-62			0.0008		0.0013			0.0020	0.0020				0.0000	0.0020		0.0020	0.0000	0.0061		0.0020		0.0000			0.0020		0.0200	0.9999	0.0062
1560	HLW99-63			0.0008		0.0013			0.0020	0.0020				0.0021	0.0020		0.0020	0.0008	0.0031		0.0020		0.0332			0.0020		0.0200	1.0000	0.0499
1561	HLW99-64			0.0008		0.0013			0.0020	0.0020				0.0050	0.0020		0.0020	0.0020	0.0100		0.0020		0.0800			0.0020		0.0200	1.0000	0.0541
1562	HLW99-65			0.0008		0.0013			0.0020	0.0020				0.0050	0.0020		0.0020	0.0020	0.0000		0.0020		0.0800			0.0020		0.0200	1.0000	0.1006
1563	HLW99-66			0.0008		0.0014			0.0021	0.0021				0.0026	0.0572		0.0021	0.0000	0.0000		0.0021		0.0000			0.0021		0.0210	0.9997	0.0703
1564	HLW99-67			0.0008		0.0014			0.0021	0.0021				0.0026	0.1398		0.0021	0.0000	0.0000		0.0021		0.0000			0.0021		0.0210	0.9999	0.0728
1565	HLW99-68			0.0008		0.0014			0.0021	0.0021				0.0026	0.0572		0.0021	0.0000	0.0066		0.0021		0.0000			0.0021		0.0210	1.0000	0.0742
1566	HLW99-69			0.0008		0.0014			0.0021	0.0021				0.0026	0.1348		0.0021	0.0000	0.0066		0.0021		0.0000			0.0021		0.0210	1.0000	0.0746
1567	HLW99-70			0.0008		0.0014			0.0021	0.0021				0.0026	0.1399		0.0021	0.0000	0.0000		0.0021		0.0000			0.0021		0.0210	0.9997	0.0813
1568	HLW99-71			0.0008		0.0014			0.0021	0.0021				0.0026	0.0572		0.0021	0.0000	0.0000		0.0021		0.0000			0.0021		0.0210	0.9998	0.0758
1569	HLW99-72			0.0008		0.0014			0.0021	0.0021				0.0026	0.0572		0.0021	0.0000	0.0066		0.0021		0.0000			0.0021		0.0210	0.9998	0.0741
1570	HLW99-73			0.0008		0.0014			0.0021	0.0021				0.0026	0.0573		0.0021	0.0000	0.0000		0.0021		0.0000			0.0021		0.0210	0.9997	0.0599
1571	HLW99-74			0.0008		0.0014			0.0021	0.0021				0.0026	0.0998		0.0021	0.0000	0.0033		0.0021		0.0000			0.0021		0.0210	1.0000	0.0661
1572	HLW99-75			0.0008		0.0014			0.0021	0.0021				0.0026	0.0572		0.0021	0.0000	0.0044		0.0021		0.0000			0.0021		0.0210	0.9997	0.0599
1573	HLW99-76			0.0008		0.0014			0.0021	0.0021				0.0026	0.1030		0.0021	0.0000	0.0066		0.0021		0.0000			0.0021		0.0210	0.9998	0.0692
1574	HLW99-77			0.0008		0.0014			0.0021	0.0021				0.0026	0.0999		0.0021	0.0000	0.0000		0.0021		0.0000			0.0021		0.0210	0.9998	0.0679
1575	HLW99-78			0.0008		0.0014			0.0021	0.0021				0.0026	0.1399		0.0021	0.0000	0.0022		0.0021		0.0000			0.0021		0.0210	0.9999	0.0718
1576	HLW99-79			0.0008		0.0014			0.0021	0.0021				0.0026	0.1399		0.0021	0.0000	0.0000		0.0021		0.0000			0.0021		0.0210	0.9998	0.0726
1577	HLW99-80			0.0008		0.0013			0.0020	0.0020				0.0025	0.0966		0.0020	0.0000	0.0063		0.0020		0.0000			0.0020		0.0200	1.0002	0.0756
1578	HLW99-81			0.0008		0.0014			0.0021	0.0021				0.0026	0.0986		0.0021	0.0000	0.0000		0.0021		0.0000			0.0021		0.0210	0.9998	0.0712
1579	HLW99-82			0.0008		0.0013			0.0020	0.0020				0.0025	0.0545		0.0020	0.0000	0.0063		0.0020		0.0000			0.0020		0.0200	1.0002	0.0681
1580	HLW99-83			0.0008		0.0013			0.0020	0.0020				0.0025	0.1001		0.0020	0.0000	0.0000		0.0020		0.0000			0.0020		0.0200	1.0000	0.0707
1581	HLW99-84			0.0008		0.0013			0.0020	0.0020				0.0025	0.1007		0.0020	0.0000	0.0037		0.0020		0.0000			0.0020		0.0200	1.0002	0.0654
1582	HLW99-85			0.0008		0.0013			0.0020	0.0020				0.0025	0.0545		0.0020	0.0000	0.0031		0.0020		0.0000			0.0020		0.0200	1.0001	0.0737
1583	HLW99-86			0.0008		0.0013			0.0020	0.0020				0.0025	0.0545		0.0020	0.0000	0.0000		0.0020		0.0000			0.0020		0.0200	1.0000	0.0635
1584	HLW99-87			0.0008		0.0013			0.0020	0.0020				0.0025	0.1332		0.0020	0.0000	0.0021		0.0020		0.0000			0.0020		0.0200	1.0001	0.0784
1585	HLW99-88			0.0008		0.0013			0.0020	0.0020				0.0025	0.0545		0.0020	0.0000	0.0063		0.0020		0.0000			0.0020		0.0200	1.0002	0.0674
1586	HLW99-89			0.0008		0.0013			0.0020	0.0020				0.0025	0.0545		0.0020	0.0000	0.0000		0.0020		0.0000			0.0020		0.0200	1.0000	0.0717
1587	HLW99-90R			0.0008		0.0013			0.0020	0.0020				0.0025	0.0950		0.0020	0.0000	0.0000		0.0020		0.0000			0.0020		0.0200	1.0000	0.0680
1588	HLW99-91			0.0008		0.0013			0.0020	0.0020				0.0025	0.1332		0.0020	0.0000	0.0000		0.0020		0.0000			0.0020		0.0200	1.0000	0.0712
1589	HLW99-92			0.0008		0.0013			0.0020	0.0020				0.0025	0.1283		0.0020	0.0000	0.0063		0.0020		0.0000			0.0020		0.0200	1.0002	0.0742
1590	HLW99-93R2			0.0008		0.0013			0.0020	0.0020				0.0025	0.1332		0.0020	0.0000	0.0000		0.0020		0.0000			0.0020		0.0200	1.0000	0.0795
1591	HLW99-94			0.0008		0.0013			0.0020	0.0020				0.0025	0.0545		0.0020	0.0000	0.0000		0.0020		0.0000			0.0020		0.0200	1.0000	0.0687
1592	HLW99-95			0.0008		0.0013			0.0020	0.0020				0.0025	0.0545		0.0020	0.0000	0.0000		0.0020		0.0000			0.0020		0.0200	1.0000	0.0680
1593	HLW99-96			0.0008		0.0013			0.0020	0.0020				0.0025	0.0950		0.0020	0.0000	0.0031		0.0020		0.0000			0.0020		0.0200	1.0001	0.0751
1594	HLW99-97			0.0008		0.0013			0.0020	0.0020				0.0025	0.0545		0.0020	0.0000	0.0042		0.0020		0.0000			0.0020		0.0200	1.0002	0.0714
1595	HLW99-98R			0.0008		0.0013			0.0020	0.0020				0.0025	0.0981		0.0020	0.0000	0.0063		0.0020		0.0000			0.0020		0.0200	1.0002	0.0702
1596	HLW99-99			0.0008		0.0013			0.0020	0.0020				0.0025	0.1332		0.0020	0.0000	0.0000		0.0020		0.0000			0.0020		0.0200	1.0000	0.0731
1597	HLW99-100			0.0008		0.0013			0.0020	0.0020				0.0025	0.0938		0.0020	0.0000	0.0000		0.0020		0.0000			0.0020		0.0200	1.0000	0.0675
1598	LAWA41									0.0001				0.0010					0.0200								0.0299	0.9999	0.0592
1599	LAWA42									0.0001				0.0010					0.0240								0.0360	1.0000	0.0582
1600	LAWA43-1									0.0001				0.0010					0.0197								0.0295	1.0000	0.1118
1601	LAWA44	0.0010												0.0010					0.0199								0.0297	0.9999	0.0586
1602	LAWA45	0.0010												0.0010					0.0199								0.0248	0.9999	0.0578
1603	LAWA46	0.0010												0.0010					0.0199								0.0248	0.9999	0.0590
1604	LAWA47	0.0010												0.0010					0.0199							0.0300	0.0248	0.9999	0.0557
1605	LAWA48	0.0010												0.0010					0.0199								0.0248	0.9999	0.0621
1606	LAWA49	0.0010												0.0010					0.0199								0.0248	0.9999	0.0537
1607	LAWA50	0.0010												0.0010					0.0199								0.0248	0.9999	0.0588
1608	LAWA51	0.0010												0.0009					0.0200								0.0249	0.9999	0.0592
1609	LAWA52	0.0010												0.0010					0.0111								0.0299	1.0000	0.0595
1610	LAWA53		0.0010											0.0148					0.0109								0.0295	0.9998	
1611	LAWA54													0.0148	0.0777				0.0109								0.0295	0.9988	
1612	LAWA55													0.0148					0.0109								0.0295	0.9988	
1613	LAWA56		0.0010											0.0148					0.0109								0.0295	0.9998	
1614	LAWA57												0.0493	0.0148					0.0109								0.0295	0.9988	
1615	LAWA58													0.0148					0.0109								0.0295	0.9988	
1616	LAWA59							0.0295						0.0148					0.0109								0.0295	0.9988	
1617	LAWA60	0.0010												0.0010					0.0199								0.0297	0.9999	0.0824
1618	LAWA61													0.0148					0.0109								0.0295	0.9988	
1619	LAWA62													0.0148					0.0109								0.0295	0.9988	
1620	LAWA63													0.0148					0.0109								0.0295	0.9988	
1621	LAWA64	0.0010												0.0010	0.0788				0.0111								0.0299	0.9999	0.0576
1622	LAWA65		0.0010											0.0148					0.0109								0.0295	0.9998	
1623	LAWA66													0.0148					0.0109								0.0295	0.9988	
1624	LAWA67													0.0148					0.0109					0.0300			0.0295	0.9988	
1625	LAWA68													0.0148					0.0109								0.0295	0.9988	
1626	LAWA69													0.0148					0.0109								0.0295	0.9988	
1627	LAWA70													0.0148					0.0109								0.0295	0.9988	
1628	LAWA71													0.0148					0.0109								0.0295	0.9989	
1629	LAWA72													0.0148	0.0777				0.0109								0.0295	0.9989	
1630	LAWA73													0.0148					0.0404									0.9988	
1631	LAWA74													0.0148					0.0182									0.9989	
1632	LAWA75													0.0148					0.0109								0.0295	0.9988	
1633	LAWA76		0.0010											0.0148					0.0109								0.0295	0.9998	
1634	LAWA77													0.0148					0.0109								0.0295	0.9989	
1635	LAWA78													0.0148					0.0109								0.0295	0.9989	
1636	LAWA79													0.0148					0.0109								0.0295	0.9988	
1637	LAWA80													0.0148					0.0109								0.0295	0.9989	
1638	LAWA81	0.0010												0.0010													0.0297	0.9999	0.0619
1639	LAWA82	0.0010												0.0010					0.0399								0.0297	0.9999	0.0614
1640	LAWA83	0.0010												0.0010					0.0199								0.0297	0.9999	0.0633

#	Glass ID	B2O3-a	CaO-a	Fe2O3-a	FeO-a	K2O-a	Li2O-a	MgO-a	Na2O-a	NiO-a	P2O5-a	SiO2-a	ZrO2-a	Ag2O-a	As2O3-a	As2O5-a	BaO-a	BeO-a	Bi2O3-a	Br-a	CdO-a	Ce2O3-a	CeO2-a	Cl-a	CoO-a	Co2O3-a	Cr2O3-a	Cs2O-a	CuO-a	F-a
1559	HLW99-62	0.0521	0.0014	0.0207		0.0116	0.0318	0.0128	0.1112	0.0183	0.0013	0.4978	0.0779	0.0026	0.0020		0.0243		0.0124		0.0176				0.0021		0.0000		0.0023	
1560	HLW99-63	0.1151	0.0279	0.0583		0.0105	0.0281	0.0068	0.0875	0.0089	0.0151	0.3686	0.0293	0.0027	0.0025		0.0113		0.0068		0.0095				0.0022		0.0018		0.0023	
1561	HLW99-64	0.0890	0.0017	0.0211		0.0111	0.0605	0.0186	0.0721	0.0273	0.0333	0.3541	0.0007	0.0026	0.0017		0.0330		0.0196		0.0275				0.0022		0.0035		0.0021	
1562	HLW99-65	0.1821	0.0006	0.0194		0.0120	0.0020	0.0006	0.1653	0.0008	0.0365	0.2851	0.0002	0.0025	0.0020		0.0010		0.0007		0.0006				0.0026		0.0046		0.0019	
1563	HLW99-66	0.0541	0.0215	0.0205		0.0107	0.0303	0.0002	0.0874	0.0001	0.0021	0.4843	0.0256	0.0022	0.0019		0.0012		0.0001		0.0000				0.0065		0.0020		0.0021	
1564	HLW99-67	0.0542	0.0225	0.1062		0.0104	0.0293	0.0003	0.0541	0.0001	0.0028	0.3144	0.0283	0.0026	0.0016		0.0024		0.0000						0.0060		0.0019		0.0024	
1565	HLW99-68	0.0553	0.0209	0.1172		0.0107	0.0285	0.0128	0.0634	0.0177	0.0027	0.3254	0.0297	0.0028	0.0018		0.0225		0.0135		0.0190				0.0058		0.0017		0.0022	
1566	HLW99-69	0.0568	0.0217	0.0209		0.0101	0.0293	0.0133	0.0491	0.0188	0.0032	0.3218	0.0276	0.0027	0.0015		0.0268		0.0139		0.0190				0.0061		0.0018		0.0020	
1567	HLW99-70	0.0533	0.0219	0.0264		0.0100	0.0312	0.0003	0.0988	0.0008	0.0008	0.3586	0.0238	0.0026	0.0022		0.0026		0.0000		0.0002				0.0058		0.0031		0.0025	
1568	HLW99-71	0.0547	0.0226	0.1180		0.0105	0.0307	0.0002	0.0754	0.0001	0.0025	0.4012	0.0313	0.0028	0.0022		0.0011		0.0007		0.0000				0.0060		0.0018		0.0023	
1569	HLW99-72	0.0567	0.0240	0.0232		0.0111	0.0335	0.0133	0.0772	0.0205	0.0020	0.4250	0.0298	0.0030	0.0020		0.0270		0.0143		0.0199				0.0065		0.0018		0.0023	
1570	HLW99-73	0.0575	0.0235	0.0233		0.0112	0.0383	0.0003	0.1209	0.0002	0.0024	0.4465	0.0345	0.0029	0.0020		0.0012		0.0003		0.0001				0.0062		0.0019		0.0023	
1571	HLW99-74	0.0543	0.0228	0.1191		0.0106	0.0364	0.0068	0.0521	0.0094	0.0020	0.3167	0.0332	0.0029	0.0021		0.0151		0.0074		0.0099				0.0059		0.0019		0.0024	
1572	HLW99-75	0.0548	0.0291	0.1220		0.0115	0.0398	0.0094	0.0909	0.0131	0.0038	0.3214	0.0277	0.0026	0.0021		0.0189		0.0096		0.0131				0.0064		0.0019		0.0023	
1573	HLW99-76	0.0541	0.0222	0.0212		0.0115	0.0366	0.0140	0.0898	0.0194	0.0024	0.3295	0.0271	0.0029	0.0019		0.0273		0.0138		0.0197				0.0064		0.0020		0.0022	
1574	HLW99-77	0.0558	0.0235	0.1161		0.0109	0.0381	0.0003	0.0849	0.0001	0.0027	0.3115	0.0300	0.0029	0.0021		0.0019		0.0007		0.0001				0.0061		0.0019		0.0025	
1575	HLW99-78	0.0544	0.0223	0.0546		0.0115	0.0352	0.0048	0.0768	0.0069	0.0029	0.3260	0.0279	0.0029	0.0021		0.0115		0.0053		0.0066				0.0064		0.0019		0.0021	
1576	HLW99-79	0.0553	0.0224	0.0194		0.0113	0.0299	0.0003	0.0697	0.0001	0.0024	0.3910	0.0227	0.0029	0.0023		0.0026		0.0015		0.0000				0.0064		0.0019		0.0024	
1577	HLW99-80	0.1035	0.0216	0.0677		0.0102	0.0281	0.0121	0.0483	0.0179	0.0030	0.3021	0.0256	0.0025	0.0015		0.0247		0.0131		0.0191				0.0020		0.0018		0.0022	
1578	HLW99-81	0.0543	0.0212	0.0213		0.0116	0.0305	0.0002	0.1116	0.0001	0.0028	0.4005	0.0274	0.0027	0.0022		0.0001		0.0014		0.0000				0.0064		0.0020		0.0031	
1579	HLW99-82	0.1034	0.0207	0.0553		0.0107	0.0290	0.0128	0.0926	0.0178	0.0043	0.3303	0.0274	0.0026	0.0021		0.0246		0.0131		0.0190				0.0021		0.0019		0.0021	
1580	HLW99-83	0.1054	0.0210	0.0777		0.0109	0.0289	0.0003	0.0637	0.0001	0.0037	0.3673	0.0244	0.0025	0.0023		0.0001		0.0012		0.0000				0.0022		0.0018		0.0022	
1581	HLW99-84	0.1007	0.0198	0.0189		0.0108	0.0273	0.0077	0.0591	0.0110	0.0034	0.3612	0.0249	0.0026	0.0018		0.0144		0.0073		0.0115				0.0021		0.0017		0.0026	
1582	HLW99-85	0.1125	0.0219	0.0655		0.0104	0.0292	0.0062	0.0715	0.0090	0.0041	0.3868	0.0278	0.0027	0.0016		0.0135		0.0067		0.0092				0.0020		0.0018		0.0036	
1583	HLW99-86	0.1000	0.0195	0.0190		0.0111	0.0270	0.0002	0.0808	0.0001	0.0035	0.4739	0.0285	0.0026	0.0021		0.0001		0.0003		0.0000				0.0022		0.0018		0.0019	
1584	HLW99-87	0.1047	0.0225	0.0504		0.0100	0.0301	0.0041	0.0752	0.0060	0.0034	0.3013	0.0277	0.0025	0.0017		0.0085		0.0045		0.0062				0.0020		0.0017		0.0022	
1585	HLW99-88	0.1038	0.0199	0.1124		0.0110	0.0280	0.0121	0.0600	0.0171	0.0028	0.3030	0.0261	0.0024	0.0020		0.0238		0.0127		0.0197				0.0020		0.0017		0.0022	
1586	HLW99-89	0.1036	0.0213	0.1090		0.0107	0.0289	0.0001	0.0714	0.0001	0.0040	0.3889	0.0252	0.0025	0.0020		0.0001		0.0004		0.0000				0.0021		0.0016		0.0023	
1587	HLW99-90R	0.0985	0.0193	0.1129		0.0109	0.0269	0.0002	0.0838	0.0001	0.0031	0.2948	0.0246	0.0027	0.0019		0.0001		0.0002		0.0000				0.0020		0.0018		0.0021	
1588	HLW99-91	0.0991	0.0206	0.1022		0.0100	0.0295	0.0002	0.0435	0.0001	0.0037	0.3069	0.0229	0.0025	0.0016		0.0001		0.0006		0.0000				0.0020		0.0017		0.0022	
1589	HLW99-92	0.1000	0.0195	0.0201		0.0105	0.0290	0.0117	0.0459	0.0171	0.0037	0.3067	0.0278	0.0023	0.0021		0.0246		0.0123		0.0179				0.0021		0.0019		0.0020	
1590	HLW99-93R2	0.1032	0.0215	0.0201		0.0112	0.0290	0.0004	0.0926	0.0001	0.0032	0.3465	0.0280	0.0026	0.0022		0.0024		0.0001		0.0000				0.0020		0.0018		0.0021	
1591	HLW99-94	0.1022	0.0197	0.0198		0.0114	0.0300	0.0002	0.1173	0.0001	0.0033	0.4262	0.0240	0.0020	0.0017		0.0001		0.0002		0.0001				0.0021		0.0021		0.0022	
1592	HLW99-95	0.0996	0.0198	0.0199		0.0116	0.0289	0.0002	0.1166	0.0001	0.0044	0.4293	0.0236	0.0021	0.0019		0.0010		0.0002		0.0001				0.0023		0.0020		0.0021	
1593	HLW99-96	0.1030	0.0209	0.1169		0.0109	0.0284	0.0064	0.0479	0.0094	0.0033	0.3099	0.0298	0.0027	0.0021		0.0142		0.0067		0.0102				0.0022		0.0018		0.0024	
1594	HLW99-97	0.1026	0.0214	0.1151		0.0109	0.0287	0.0082	0.0851	0.0124	0.0031	0.3048	0.0271	0.0024	0.0022		0.0177		0.0086		0.0134				0.0021		0.0018		0.0022	
1595	HLW99-98R	0.0992	0.0209	0.0202		0.0104	0.0274	0.0111	0.0858	0.0172	0.0033	0.3359	0.0257	0.0025	0.0023		0.0258		0.0126		0.0181				0.0020		0.0019		0.0023	
1596	HLW99-99	0.1032	0.0219	0.0208		0.0106	0.0321	0.0003	0.0654	0.0001	0.0013	0.3880	0.0240	0.0026	0.0022		0.0024		0.0003		0.0001				0.0019		0.0016		0.0026	
1597	HLW99-100	0.1002	0.0195	0.0193		0.0112	0.0286	0.0002	0.1063	0.0002	0.0042	0.3935	0.0217	0.0021	0.0021		0.0016		0.0002		0.0000				0.0021		0.0020		0.0021	
1598	LAWA41	0.0735	0.0218	0.0650		0.0283	0.0003	0.0195	0.1698	0.0001	0.0025	0.4160	0.0258	0.0001			0.0000										0.0002			
1599	LAWA42	0.0849	0.0248	0.0783		0.0279	0.0003	0.0227	0.1694	0.0001	0.0025	0.3584	0.0324	0.0001			0.0000										0.0002			
1600	LAWA43-1	0.0733	0.0208	0.0642		0.0291	0.0003	0.0190	0.1778	0.0001	0.0020	0.3576	0.0260	0.0001			0.0000				0.0002						0.0002			
1601	LAWA44	0.0881	0.0203	0.0659		0.0061	0.0003	0.0185	0.1792	0.0001	0.0017	0.4202	0.0254	0.0001			0.0000				0.0000						0.0003			
1602	LAWA45	0.1183	0.0006	0.0661		0.0060	0.0002	0.0151	0.1803	0.0001	0.0020	0.4274	0.0266	0.0001			0.0000				0.0000						0.0002			
1603	LAWA46	0.0914	0.0009	0.0664		0.0061	0.0002	0.0157	0.1878	0.0000	0.0016	0.4183	0.0262	0.0001			0.0000				0.0000						0.0001			
1604	LAWA47	0.0944	0.0006	0.0653		0.0060	0.0003	0.0145	0.1799	0.0001	0.0017	0.4256	0.0261	0.0001			0.0000				0.0000						0.0002			
1605	LAWA48	0.0935	0.0007	0.0663		0.0036	0.0002	0.0160	0.1858	0.0001	0.0017	0.4280	0.0256	0.0001			0.0001				0.0000						0.0002			
1606	LAWA49	0.0854	0.0006	0.0868			0.0002	0.0145	0.1772	0.0001	0.0014	0.4124	0.0251	0.0001			0.0000				0.0000						0.0001			
1607	LAWA50	0.0886	0.0006	0.1091			0.0002	0.0151	0.1832	0.0001	0.0019	0.4161	0.0254	0.0001			0.0001				0.0000						0.0001			
1608	LAWA51	0.1179	0.0006	0.0660			0.0002	0.0149	0.1675	0.0001	0.0015	0.4315	0.0272	0.0001			0.0000				0.0000						0.0002			
1609	LAWA52	0.0640	0.0769	0.0774		0.0053	0.0006	0.0144	0.1900	0.0004	0.0007	0.4188	0.0284				0.0000										0.0014			
1610	LAWA53																													
1611	LAWA54																													
1612	LAWA55																													
1613	LAWA56																													
1614	LAWA57																													
1615	LAWA58																													
1616	LAWA59																													
1617	LAWA60	0.1172	0.0432	0.0011		0.0054	0.0005	0.0193	0.1823	0.0000	0.0017	0.4322	0.0283				0.0001										0.0001			
1618	LAWA61																													
1619	LAWA62																													
1620	LAWA63																													
1621	LAWA64	0.0593	0.0009	0.0751		0.0049	0.0008	0.0138	0.1747	0.0002	0.0007	0.4080	0.0306				0.0006										0.0003			
1622	LAWA65																													
1623	LAWA66																													
1624	LAWA67																													
1625	LAWA68																													
1626	LAWA69																													
1627	LAWA70																													
1628	LAWA71																													
1629	LAWA72																													
1630	LAWA73																													
1631	LAWA74																													
1632	LAWA75																													
1633	LAWA76																													
1634	LAWA77																													
1635	LAWA78																													
1636	LAWA79																													
1637	LAWA80																													
1638	LAWA81	0.0883	0.0409	0.0704		0.0059	0.0011	0.0190	0.1982	0.0000	0.0004	0.4507	0.0272				0.0001										0.0002			
1639	LAWA82	0.0878	0.0013	0.0663		0.0059	0.0002	0.0188	0.1925	0.0000	0.0015	0.4563	0.0271				0.0000										0.0002			
1640	LAWA83	0.0911	0.0209	0.0502		0.0058	0.0002	0.0189	0.1897	0.0001	0.0210	0.4450	0.0298				0.0000										0.0002			

#	Glass ID	Ga2O3-a	Gd2O3-a	I-a	La2O3-a	MnO2-a	MnO-a	MoO-a	MoO3-a	Nb2O5-a	Nd2O3-a	NpO2-a	PbO-a	PdO2-a	PdO-a	Pr2O3-a	Pr6O11-a	PuO2-a	Rb2O-a	ReO-a	ReO2-a	Re2O7-a	Rh2O3-a	RhO2-a	RuO2-a	Sb2O3-a	Sb2O5-a	SeO2-a
1559	HLW99-62					0.0023							0.0006														0.0021	0.0009
1560	HLW99-63					0.0024							0.0040		0.0002								0.0003		0.0002		0.0023	0.0008
1561	HLW99-64					0.0023							0.0105		0.0003								0.0002		0.0002		0.0021	0.0011
1562	HLW99-65					0.0024							0.0007		0.0002								0.0001		0.0004		0.0022	0.0012
1563	HLW99-66					0.0376							0.0005		0.0003								0.0002		0.0001		0.0048	0.0009
1564	HLW99-67					0.0861							0.0009		0.0005								0.0009		0.0004		0.0042	0.0005
1565	HLW99-68					0.0364							0.0071		0.0005								0.0009		0.0002		0.0049	0.0011
1566	HLW99-69					0.0859							0.0078		0.0005								0.0008		0.0002		0.0044	0.0005
1567	HLW99-70					0.0908							0.0008		0.0004								0.0002		0.0002		0.0025	0.0012
1568	HLW99-71					0.0392							0.0005		0.0003								0.0008		0.0002		0.0028	0.0011
1569	HLW99-72					0.0400							0.0076		0.0003								0.0002		0.0002		0.0027	0.0006
1570	HLW99-73					0.0401							0.0005		0.0003								0.0003		0.0002		0.0030	0.0015
1571	HLW99-74					0.0653							0.0042		0.0004								0.0009		0.0002		0.0029	0.0003
1572	HLW99-75					0.0389							0.0053		0.0004								0.0009		0.0004		0.0023	0.0007
1573	HLW99-76					0.0669							0.0078		0.0005								0.0007		0.0001		0.0025	0.0009
1574	HLW99-77					0.0675							0.0007		0.0004								0.0009		0.0002		0.0029	0.0003
1575	HLW99-78					0.0900							0.0032		0.0004								0.0008		0.0002		0.0024	0.0007
1576	HLW99-79					0.0913							0.0008		0.0003								0.0002		0.0001		0.0025	0.0006
1577	HLW99-80					0.0633							0.0075		0.0003								0.0008		0.0002		0.0019	0.0003
1578	HLW99-81					0.0645							0.0007		0.0003								0.0003		0.0002		0.0025	0.0011
1579	HLW99-82					0.0362							0.0074		0.0004								0.0004		0.0002		0.0022	0.0010
1580	HLW99-83					0.0669							0.0007		0.0005								0.0002		0.0001		0.0024	0.0005
1581	HLW99-84					0.0624							0.0043		0.0003								0.0002		0.0001		0.0021	0.0007
1582	HLW99-85					0.0380							0.0039		0.0004								0.0003		0.0002		0.0019	0.0008
1583	HLW99-86					0.0352							0.0004		0.0003								0.0003		0.0001		0.0022	0.0005
1584	HLW99-87					0.0889							0.0030		0.0003								0.0006		0.0002		0.0020	0.0010
1585	HLW99-88					0.0364							0.0072		0.0004								0.0010		0.0003		0.0025	0.0008
1586	HLW99-89					0.0375							0.0004		0.0003								0.0005		0.0002		0.0024	0.0006
1587	HLW99-90R					0.0589							0.0007		0.0003								0.0009		0.0002		0.0022	0.0002
1588	HLW99-91					0.0829							0.0008		0.0004								0.0006		0.0002		0.0026	0.0001
1589	HLW99-92					0.0816							0.0082		0.0004								0.0004		0.0002		0.0022	0.0000
1590	HLW99-93R2					0.0853							0.0008		0.0004								0.0003		0.0001		0.0022	0.0004
1591	HLW99-94					0.0363							0.0008		0.0003								0.0004		0.0002		0.0021	0.0003
1592	HLW99-95					0.0359							0.0008		0.0004								0.0004		0.0002		0.0020	0.0008
1593	HLW99-96					0.0619							0.0038		0.0004								0.0009		0.0003		0.0023	0.0005
1594	HLW99-97					0.0368							0.0046		0.0008								0.0008		0.0003		0.0023	0.0008
1595	HLW99-98R					0.0613							0.0072		0.0005								0.0002		0.0001		0.0021	0.0010
1596	HLW99-99					0.0864							0.0008		0.0003								0.0003		0.0001		0.0024	0.0003
1597	HLW99-100					0.0599							0.0013		0.0003								0.0004		0.0001		0.0021	0.0007
1598	LAWA41					0.0001							0.0007															0.0001
1599	LAWA42					0.0001							0.0002															0.0003
1600	LAWA43-1					0.0001							0.0003															0.0002
1601	LAWA44					0.0001							0.0002															0.0002
1602	LAWA45					0.0000							0.0002															0.0002
1603	LAWA46	0.0321				0.0000							0.0002															
1604	LAWA47					0.0001							0.0002															0.0002
1605	LAWA48	0.0062				0.0000							0.0002															
1606	LAWA49	0.0056				0.0000							0.0003															0.0001
1607	LAWA50	0.0059				0.0001							0.0002															
1608	LAWA51	0.0052				0.0001							0.0002															
1609	LAWA52					0.0001																						
1610	LAWA53																											
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1615	LAWA58																											
1616	LAWA59																											
1617	LAWA60					0.0001																						
1618	LAWA61																											
1619	LAWA62																											
1620	LAWA63																											
1621	LAWA64					0.0003																						
1622	LAWA65																											
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1634	LAWA77																											
1635	LAWA78																											
1636	LAWA79																											
1637	LAWA80																											
1638	LAWA81					0.0010																						
1639	LAWA82					0.0001																						
1640	LAWA83					0.0001																						

#	Glass ID	Sm2O3-a	SnO-a	SnO2-a	SO3-a	SrO-a	Tc2O7-a	TeO2-a	ThO2-a	TiO2-a	Tl2O-a	Tl2O3-a	U3O8-a	UO2-a	UO3-a	V2O5-a	WO3-a	Y2O3-a	ZnO-a	Sum-a	T_M (°C)	$T_{L,G}$ (°C)	$T_{L,U}$ (°C)	$T_{1\%}$ (°C)	Primary Phase	$C_{650°C}$	$C_{700°C}$	$C_{750°C}$
1559	HLW99-62					0.0025		0.0019		0.0071		0.0018		0.0003			0.0023		0.0204	0.9486	1150		1075					
1560	HLW99-63					0.0024		0.0025		0.0035		0.0012		0.0304			0.0025		0.0184	0.9162								
1561	HLW99-64					0.0024		0.0042		0.0102		0.0010		0.0687			0.0029		0.0188	0.9607								
1562	HLW99-65					0.0023		0.0020		0.0005		0.0009		0.0670			0.0026		0.0192	0.9228								
1563	HLW99-66					0.0534		0.0022		0.0002		0.0013		0.0014			0.0025		0.0211	0.9496			>1150					
1564	HLW99-67					0.1239		0.0006		0.0006		0.0013		0.0030			0.0025		0.0204	0.9581			>1150					
1565	HLW99-68					0.0522		0.0029		0.0069		0.0014		0.0015			0.0027		0.0201	0.9666								
1566	HLW99-69					0.1229		0.0030		0.0068		0.0013		0.0029			0.0031		0.0207	0.9818			1150					
1567	HLW99-70					0.1217		0.0017		0.0006		0.0007		0.0042			0.0033		0.0212	0.9757			1050					
1568	HLW99-71					0.0562		0.0023		0.0003		0.0011		0.0023			0.0027		0.0218	0.9715			>1150					
1569	HLW99-72					0.0561		0.0028		0.0071		0.0010		0.0015			0.0037		0.0222	1.0132			1150					
1570	HLW99-73					0.0584		0.0023		0.0004		0.0010		0.0023			0.0028		0.0216	0.9701			1050					
1571	HLW99-74					0.0824		0.0022		0.0037		0.0009		0.0030			0.0032		0.0213	0.9680			>1150					
1572	HLW99-75					0.0556		0.0025		0.0052		0.0007		0.0018			0.0032		0.0216	0.9798			>1150					
1573	HLW99-76					0.0889		0.0026		0.0075		0.0007		0.0028			0.0036		0.0210	0.9797			1125					
1574	HLW99-77					0.0831		0.0024		0.0006		0.0007		0.0033			0.0029		0.0215	0.9474			1125					
1575	HLW99-78					0.1177		0.0025		0.0032		0.0007		0.0035			0.0033		0.0209	0.9834			1125					
1576	HLW99-79					0.1218		0.0024		0.0002		0.0009		0.0036			0.0031		0.0214	0.9663			1050					
1577	HLW99-80					0.0833		0.0021		0.0066		0.0007		0.0031			0.0035		0.0202	0.9764			1160					
1578	HLW99-81					0.0898		0.0025		0.0004		0.0008		0.0029			0.0028		0.0217	0.9611			1050					
1579	HLW99-82					0.0529		0.0026		0.0069		0.0009		0.0019			0.0032		0.0201	0.9762			>1160					
1580	HLW99-83					0.0895		0.0022		0.0004		0.0010		0.0028			0.0028		0.0206	0.9770			1100					
1581	HLW99-84					0.0942		0.0025		0.0040		0.0008		0.0013			0.0028		0.0201	0.9500			1050					
1582	HLW99-85					0.0559		0.0022		0.0035		0.0010		0.0022			0.0030		0.0210	0.9940			1175					
1583	HLW99-86					0.0509		0.0017		0.0003		0.0010		0.0009			0.0024		0.0202	0.9545			1050					
1584	HLW99-87					0.1189		0.0021		0.0024		0.0007		0.0040			0.0032		0.0199	0.9903			1050					
1585	HLW99-88					0.0522		0.0021		0.0068		0.0010		0.0023			0.0036		0.0200	0.9667			>1160					
1586	HLW99-89					0.0554		0.0017		0.0003		0.0009		0.0023			0.0027		0.0200	0.9711			1150					
1587	HLW99-90R					0.0869		0.0018		0.0005		0.0007		0.0014			0.0026		0.0198	0.9310			1125					
1588	HLW99-91					0.1237		0.0021		0.0006		0.0006		0.0014			0.0030		0.0196	0.9592								
1589	HLW99-92					0.1237		0.0032		0.0067		0.0007		0.0069			0.0027		0.0181	0.9864								
1590	HLW99-93R2					0.1168		0.0020		0.0009		0.0007		0.0049			0.0029		0.0204	0.9866								
1591	HLW99-94					0.0553		0.0025		0.0003		0.0009		0.0039			0.0025		0.0182	0.9574								
1592	HLW99-95					0.0535		0.0028		0.0002		0.0009		0.0040			0.0025		0.0187	0.9568								
1593	HLW99-96					0.0827		0.0020		0.0039		0.0009		0.0041			0.0033		0.0203	0.9915								
1594	HLW99-97					0.0525		0.0021		0.0046		0.0007		0.0028			0.0031		0.0205	0.9739								
1595	HLW99-98R					0.0858		0.0023		0.0063		0.0007		0.0044			0.0036		0.0200	0.9903								
1596	HLW99-99					0.1216		0.0022		0.0004		0.0007		0.0045			0.0029		0.0204	0.9978								
1597	HLW99-100					0.0917		0.0025		0.0002		0.0008		0.0058			0.0025		0.0186	0.9715								
1598	LAWA41					0.0001				0.0209									0.0283	0.9320								
1599	LAWA42					0.0001				0.0242									0.0338	0.9189								
1600	LAWA43-1					0.0001				0.0202									0.0275	0.9310								
1601	LAWA44				0.0010					0.0199									0.0293	0.9352								
1602	LAWA45									0.0197									0.0243	0.9452								
1603	LAWA46									0.0211									0.0247	0.9518								
1604	LAWA47									0.0192								0.0012	0.0240	0.9153								
1605	LAWA48									0.0211									0.0247	0.9361								
1606	LAWA49									0.0198									0.0229	0.9061								
1607	LAWA50									0.0207									0.0242	0.9504								
1608	LAWA51									0.0205									0.0243	0.9371								
1609	LAWA52					0.0001				0.0116									0.0291	0.9788								
1610	LAWA53				0.0062															0.0062								
1611	LAWA54																			0.0000								
1612	LAWA55																			0.0000								
1613	LAWA56				0.0052															0.0052								
1614	LAWA57																			0.0000								
1615	LAWA58																			0.0000								
1616	LAWA59																			0.0000								
1617	LAWA60					0.0000				0.0199									0.0289	0.9629								
1618	LAWA61																			0.0000								
1619	LAWA62																			0.0000								
1620	LAWA63																			0.0000								
1621	LAWA64					0.0727				0.0110									0.0303	0.9417								
1622	LAWA65				0.0048															0.0048								
1623	LAWA66																			0.0000								
1624	LAWA67																			0.0000								
1625	LAWA68																			0.0000								
1626	LAWA69																			0.0000								
1627	LAWA70																			0.0000								
1628	LAWA71																			0.0000								
1629	LAWA72																			0.0000								
1630	LAWA73																			0.0000								
1631	LAWA74																			0.0000								
1632	LAWA75																			0.0000								
1633	LAWA76				0.0086															0.0086								
1634	LAWA77																			0.0000								
1635	LAWA78																			0.0000								
1636	LAWA79																			0.0000								
1637	LAWA80																			0.0000								
1638	LAWA81					0.0013				0.0003									0.0286	0.9952								
1639	LAWA82					0.0001				0.0401									0.0283	0.9881								
1640	LAWA83					0.0001				0.0207									0.0284	0.9852								

#	Glass ID	$C_{800°C}$	$C_{850°C}$	$C_{900°C}$	$C_{950°C}$	$C_{1000°C}$	$C_{1050°C}$	$C_{1100°C}$	$C_{1150°C}$	$C_{1200°C}$	Quenched Visual/OM	Quenched XRD	CCC XRD	ρ (g/cm³)	Fulc Visc A	Fulc Visc B	Fulc Visc To	Arrh Visc E	Arrh Visc F	T1 (°C)	V1 (Pa·s)
1559	HLW99-62										Mostly homogeneous greenish blue glass										
1560	HLW99-63																				
1561	HLW99-64																				
1562	HLW99-65																				
1563	HLW99-66																				
1564	HLW99-67																				
1565	HLW99-68																				
1566	HLW99-69																				
1567	HLW99-70																				
1568	HLW99-71																				
1569	HLW99-72																				
1570	HLW99-73																				
1571	HLW99-74																				
1572	HLW99-75																				
1573	HLW99-76																				
1574	HLW99-77																				
1575	HLW99-78																				
1576	HLW99-79																				
1577	HLW99-80																				
1578	HLW99-81																				
1579	HLW99-82																				
1580	HLW99-83																				
1581	HLW99-84																				
1582	HLW99-85																				
1583	HLW99-86																				
1584	HLW99-87																				
1585	HLW99-88																				
1586	HLW99-89																				
1587	HLW99-90R																				
1588	HLW99-91																				
1589	HLW99-92																				
1590	HLW99-93R2																				
1591	HLW99-94																				
1592	HLW99-95																				
1593	HLW99-96																				
1594	HLW99-97																				
1595	HLW99-98R																				
1596	HLW99-99																				
1597	HLW99-100																				
1598	LAWA41													2.680				-12.546	20602.7	900.0	159.500
1599	LAWA42																	-12.723	19749.5	900.0	66.900
1600	LAWA43-1																	-13.231	21937.8	900.0	260.400
1601	LAWA44													2.670				-12.592	20696.1	900.0	168.700
1602	LAWA45																	-12.440	20387.4	900.0	154.300
1603	LAWA46																	-12.402	20780.7	900.0	218.900
1604	LAWA47																	-13.309	22023.0	900.0	265.300
1605	LAWA48																	-12.563	20880.7	900.0	205.000
1606	LAWA49													2.640				-12.532	20937.5	900.0	220.400
1607	LAWA50																	-12.477	20604.5	900.0	175.800
1608	LAWA51																	-12.672	21443.3	900.0	304.800
1609	LAWA52																	-13.542	21659.8	900.0	155.400
1610	LAWA53																			1250.0	2.316
1611	LAWA54																				
1612	LAWA55																				
1613	LAWA56																			1254.0	2.226
1614	LAWA57																				
1615	LAWA58																				
1616	LAWA59																				
1617	LAWA60													2.640				-11.417	18952.1	(900)	(245.6)
1618	LAWA61																				
1619	LAWA62																				
1620	LAWA63																				
1621	LAWA64																	-12.688	20668.1	900.0	149.600
1622	LAWA65																				
1623	LAWA66																				
1624	LAWA67																				
1625	LAWA68																				
1626	LAWA69																				
1627	LAWA70																				
1628	LAWA71																				
1629	LAWA72																				
1630	LAWA73																				
1631	LAWA74																				
1632	LAWA75																				
1633	LAWA76																				
1634	LAWA77																				
1635	LAWA78																				
1636	LAWA79																				
1637	LAWA80																				
1638	LAWA81																	-13.382	21825.3	900.0	197.800
1639	LAWA82																	-12.527	21089.4	900.0	250.300
1640	LAWA83																	-12.882	21519.6	900.0	254.800

#	Glass ID	T2 (°C)	V2 (Pa·s)	T3 (°C)	V3 (Pa·s)	T4 (°C)	V4 (Pa·s)	T5 (°C)	V5 (Pa·s)	T6 (°C)	V6 (Pa·s)	T7 (°C)	V7 (Pa·s)	T8 (°C)	V8 (Pa·s)	T9 (°C)	V9 (Pa·s)	T10 (°C)	V10 (Pa·s)	TCLP Ag	TCLP As	TCLP Ba	TCLP Cd	TCLP Cr	TCLP Ni	TCLP Pb
1559	HLW99-62																			0.054	0.056	0.699	0.451	<0.0055	0.352	0.148
1560	HLW99-63																			0.129	0.049	1.238	0.524	0.017	0.381	0.143
1561	HLW99-64																			0.448	0.201	10.856	11.492	0.123	9.62	1.352
1562	HLW99-65																			0.368	0.054	0.833	0.151	0.318	0.255	0.166
1563	HLW99-66																			0.064	0.065	0.48	<0.0027	<0.0055	<0.0079	<0.0243
1564	HLW99-67																			0.15	0.049	0.575	<0.0027	0.01	0.01	0.078
1565	HLW99-68																			0.137	0.049	1.571	0.956	<0.0055	0.147	0.311
1566	HLW99-69																			0.309	0.049	3.725	2.592	0.037	1.738	0.828
1567	HLW99-70																			0.519	0.099	1.097	0.006	0.102	0.026	0.416
1568	HLW99-71																			0.069	0.061	0.46	<0.0027	<0.0055	0.008	<0.0243
1569	HLW99-72																			0.105	0.11	1.511	0.848	0.015	0.584	0.268
1570	HLW99-73																			0.187	0.063	0.883	<0.0027	0.041	0.016	0.042
1571	HLW99-74																			0.148	0.063	1.64	0.562	0.028	0.134	0.203
1572	HLW99-75																			0.208	0.212	2.195	1.102	0.032	0.374	0.29
1573	HLW99-76																			1.097	0.149	11.832	10.328	0.127	7.274	1.554
1574	HLW99-77																			0.213	0.164	1.022	0.029	0.018	0.022	0.039
1575	HLW99-78																			0.326	<0.049	2.29	0.918	0.024	0.579	0.246
1576	HLW99-79																			0.203	0.214	1.2	0.006	0.034	<0.0079	0.124
1577	HLW99-80																			0.249	0.128	3.673	2.343	0.027	1.287	0.641
1578	HLW99-81																			0.254	0.049	1.169	0.101	0.019	0.039	0.124
1579	HLW99-82																			0.334	0.049	4.458	2.875	0.02	2.089	0.688
1580	HLW99-83																			0.111	0.105	1.019	0.016	<0.0055	<0.0079	0.044
1581	HLW99-84																			0.231	0.172	2.512	1.2	<0.0055	0.937	0.388
1582	HLW99-85																			0.081	0.238	1.373	0.337	0.036	0.27	0.115
1583	HLW99-86																			0.07	0.049	0.816	0.011	0.035	0.039	<0.0243
1584	HLW99-87																			0.559	0.122	2.737	1.64	0.073	1.171	0.583
1585	HLW99-88																			0.233	0.055	2.659	1.508	<0.0055	0.399	0.416
1586	HLW99-89																			0.105	0.049	0.807	0.017	0.015	<0.0079	<0.0243
1587	HLW99-90R																			0.201	0.049	0.767	<0.0027	0.02	0.015	0.085
1588	HLW99-91																			0.18	<0.049	0.819	0.011	<0.0055	<0.0079	0.066
1589	HLW99-92																			0.527	0.063	6.268	4.021	0.04	3.913	1.016
1590	HLW99-93R2																			0.739	0.224	1.415	<0.0027	0.081	0.019	0.233
1591	HLW99-94																			0.253	0.083	1.206	0.072	0.019	0.061	0.055
1592	HLW99-95																			0.195	0.083	0.974	<0.0027	0.018	<0.0079	<0.0243
1593	HLW99-96																			0.164	<0.0490	1.605	0.616	<0.0055	0.212	0.147
1594	HLW99-97																			0.225	0.0182	2.453	1.151	<0.0055	0.523	0.275
1595	HLW99-98R																			0.605	0.072	10.716	8.643	0.081	7.903	1.292
1596	HLW99-99																			0.267	<0.0490	1.262	0.018	0.024	0.009	0.077
1597	HLW99-100																			0.795	0.186	1.627	0.02	0.072	0.022	0.227
1598	LAWA41	950	73.700	1000	36.9	1050.0	19.9	1100.0	11.3	1150.0	6.8	1200.0	4.3	1250.0	2.8												
1599	LAWA42	950	30.700	1000	15.5	1050.0	8.5	1100.0	5.0	1150.0	3.1	1200.0	2.0	1250.0	1.4												
1600	LAWA43-1	950	110.400	1000	52.0	1050.0	26.7	1100.0	14.8	1150.0	8.7	1200.0	5.4	1250.0	3.5												
1601	LAWA44	950	75.900	1000	37.5	1050.0	20.0	1100.0	11.4	1150.0	6.9	1200.0	4.4	1250.0	2.9					<0.0031	<0.0490	0.005	<0.0027	<0.0055	<0.0079	<0.0243
1602	LAWA45	950	68.500	1000	33.8	1050.0	18.2	1100.0	10.5	1150.0	6.4	1200.0	4.2	1250.0	2.8												
1603	LAWA46	950	98.200	1000	48.4	1050.0	25.8	1100.0	14.7	1150.0	8.9	1200.0	5.6	1250.0	3.7												
1604	LAWA47	950	109.200	1000	50.7	1050.0	25.9	1100.0	14.4	1150.0	8.5	1200.0	5.3	1250.0	3.5												
1605	LAWA48	950	90.600	1000	44.3	1050.0	23.6	1100.0	13.4	1150.0	8.1	1200.0	5.1	1250.0	3.4												
1606	LAWA49	950	98.000	1000	48.0	1050.0	25.5	1100.0	14.5	1150.0	8.7	1200.0	5.5	1250.0	3.6												
1607	LAWA50	950	78.900	1000	39.0	1050.0	20.9	1100.0	12.0	1150.0	7.2	1200.0	4.6	1250.0	3.1												
1608	LAWA51	950	128.800	1000	61.0	1050.0	31.8	1100.0	17.8	1150.0	10.7	1200.0	6.8	1250.0	4.5												
1609	LAWA52	950	64.400	1000	30.1	1050.0	15.5	1100.0	8.7	1150.0	5.2	1200.0	3.3	1250.0	2.2												
1610	LAWA53	1153	5.410	1057	15.8	961.0	64.5																				
1611	LAWA54																										
1612	LAWA55																										
1613	LAWA56	1156	4.829	1058	13.4	961.0	48.9																				
1614	LAWA57																										
1615	LAWA58																										
1616	LAWA59																										
1617	LAWA60	(950)	(82.3)	1000	35.1	1050.0	17.7	1100.0	10.1	1150.0	6.3	1200.0	4.3	1250.0	3.0												
1618	LAWA61																										
1619	LAWA62																										
1620	LAWA63																										
1621	LAWA64	950	67.300	1000	33.3	1050.0	17.8	1100.0	10.2	1150.0	6.1	1200.0	3.9	1250.0	2.6												
1622	LAWA65																										
1623	LAWA66																										
1624	LAWA67																										
1625	LAWA68																										
1626	LAWA69																										
1627	LAWA70																										
1628	LAWA71																										
1629	LAWA72																										
1630	LAWA73																										
1631	LAWA74																										
1632	LAWA75																										
1633	LAWA76																										
1634	LAWA77																										
1635	LAWA78																										
1636	LAWA79																										
1637	LAWA80																										
1638	LAWA81	950	86.500	1000	41.5	1050.0	21.5	1100.0	11.9	1150.0	7.0	1200.0	4.3	1250.0	2.7												
1639	LAWA82	950	111.700	1000	54.7	1050.0	28.9	1100.0	16.3	1150.0	9.7	1200.0	6.1	1250.0	4.0												
1640	LAWA83	950	111.200	1000	53.5	1050.0	27.9	1100.0	15.6	1150.0	9.2	1200.0	5.8	1250.0	3.7												

#	Glass ID	TCLP Se	TCLP Zn	TCLP Al	TCLP B	TCLP Sb	TCLP Tl	TCLP V	Q PCT B (g/m²)	Q PCT Li (g/m²)	Q PCT Na (g/m²)	Q PCT Si (g/m²)	Q PCT pH	CCC PCT B (g/m²)	CCC PCT Li (g/m²)	CCC PCT Na (g/m²)	CCC PCT Si (g/m²)	CCC PCT pH	T1 (°C)
1559	HLW99-62	0.0532	0.459																
1560	HLW99-63	0.17	1.109	0.594	4.97	0.0373	0.0332												
1561	HLW99-64	0.338	6.956																
1562	HLW99-65	0.27	8.745																
1563	HLW99-66	0.105	0.614																
1564	HLW99-67	0.111	1.145																
1565	HLW99-68	0.0532	1.01																
1566	HLW99-69	0.094	2.521																
1567	HLW99-70	0.124	5.859																
1568	HLW99-71	0.065	0.591																
1569	HLW99-72	0.0532	0.871																
1570	HLW99-73	0.0532	1.622																
1571	HLW99-74	0.062	1.105																
1572	HLW99-75	0.057	1.606																
1573	HLW99-76	0.248	11.355																
1574	HLW99-77	0.105	1.473																
1575	HLW99-78	<0.0532	2.427																
1576	HLW99-79	0.144	1.774																
1577	HLW99-80	0.172	2.127	1.49	4.6	0.046	0.025												
1578	HLW99-81	0.072	2.155																
1579	HLW99-82	0.0532	2.823	1.32	5.62	0.045	0.0371												
1580	HLW99-83	0.0532	1.097																
1581	HLW99-84	0.055	2.171																
1582	HLW99-85	0.0532	0.0779																
1583	HLW99-86	0.121	0.73																
1584	HLW99-87	0.0532	4.627																
1585	HLW99-88	0.0532	1.376																
1586	HLW99-89	0.0532	0.649																
1587	HLW99-90R	0.0532	1.714																
1588	HLW99-91	<0.0532	1.627																
1589	HLW99-92	<0.0532	4.434																
1590	HLW99-93R2	0.081	8.326																
1591	HLW99-94	<0.0532	2.307																
1592	HLW99-95	0.064	1.812																
1593	HLW99-96	0.075	1.151																
1594	HLW99-97	0.0188	1.781	1.33	3.54														
1595	HLW99-98R	0.081	9.125																
1596	HLW99-99	0.125	2.486																
1597	HLW99-100	0.12	8.829																
1598	LAWA41								0.470		0.520	0.200	11.110						1243
1599	LAWA42								0.780		0.700	0.220	11.270						1240
1600	LAWA43-1								0.380		0.430	0.160	11.210						1250
1601	LAWA44	<0.0532	1.121						0.370		0.360	0.160	10.270						
1602	LAWA45								0.770		0.510	0.150	10.170						1249
1603	LAWA46								0.430		0.350	0.160	10.330						
1604	LAWA47								0.380		0.330	0.150	10.550						
1605	LAWA48								0.390		0.330	0.150	10.550						
1606	LAWA49								0.310		0.290	0.150	10.510						1248
1607	LAWA50								0.310		0.300	0.150	10.620						1248
1608	LAWA51								0.350		0.260	0.120	10.030						1248
1609	LAWA52								0.430		0.550	0.170	10.820						1240
1610	LAWA53								0.402		0.529	0.174							1240
1611	LAWA54																		
1612	LAWA55																		
1613	LAWA56								0.860		0.583	0.163							1239
1614	LAWA57																		
1615	LAWA58																		
1616	LAWA59																		
1617	LAWA60								0.290		0.310	0.110	10.210						1257
1618	LAWA61																		
1619	LAWA62																		
1620	LAWA63																		
1621	LAWA64								0.380		0.500	0.180	10.940						
1622	LAWA65								0.705		0.659	0.238							
1623	LAWA66																		
1624	LAWA67																		
1625	LAWA68																		
1626	LAWA69																		
1627	LAWA70																		
1628	LAWA71																		
1629	LAWA72																		
1630	LAWA73																		
1631	LAWA74																		
1632	LAWA75																		
1633	LAWA76								0.710		0.660	0.200	10.820						
1634	LAWA77																		
1635	LAWA78																		
1636	LAWA79																		
1637	LAWA80																		
1638	LAWA81								0.390		0.420	0.150	10.880						1250
1639	LAWA82								0.340		0.330	0.170	10.510						1250
1640	LAWA83								0.310		0.340	0.160	10.570						1249

#	Glass ID	EC1 (S/cm)	T2 (°C)	EC2 (S/cm)	T3 (°C)	EC3 (S/cm)	T4 (°C)	EC4 (S/cm)	T5 (°C)	EC5 (S/cm)	T6 (°C)	EC6 (S/cm)	A	B	To
1559	HLW99-62														
1560	HLW99-63														
1561	HLW99-64														
1562	HLW99-65														
1563	HLW99-66														
1564	HLW99-67														
1565	HLW99-68														
1566	HLW99-69														
1567	HLW99-70														
1568	HLW99-71														
1569	HLW99-72														
1570	HLW99-73														
1571	HLW99-74														
1572	HLW99-75														
1573	HLW99-76														
1574	HLW99-77														
1575	HLW99-78														
1576	HLW99-79														
1577	HLW99-80														
1578	HLW99-81														
1579	HLW99-82														
1580	HLW99-83														
1581	HLW99-84														
1582	HLW99-85														
1583	HLW99-86														
1584	HLW99-87														
1585	HLW99-88														
1586	HLW99-89														
1587	HLW99-90R														
1588	HLW99-91														
1589	HLW99-92														
1590	HLW99-93R2														
1591	HLW99-94														
1592	HLW99-95														
1593	HLW99-96														
1594	HLW99-97														
1595	HLW99-98R														
1596	HLW99-99														
1597	HLW99-100														
1598	LAWA41	0.713	1154	0.529	1052	0.369	951	0.238							
1599	LAWA42	0.71	1152	0.561	1054	0.393	956	0.248							
1600	LAWA43-1	0.704	1153	0.537	1054	0.364	957	0.254							
1601	LAWA44														
1602	LAWA45	0.643	1149	0.527	1050	0.366	948	0.242							
1603	LAWA46														
1604	LAWA47														
1605	LAWA48														
1606	LAWA49	0.683	1150	0.521	1050	0.369	951	0.242							
1607	LAWA50	0.657	1151	0.514	1051	0.38	953	0.248							
1608	LAWA51	0.55	1150	0.408	1049	0.29	951	0.186							
1609	LAWA52	0.568	1142	0.426	1045	0.262	946	0.163							
1610	LAWA53	0.568	1142	0.426	1045	0.262	946	0.163							
1611	LAWA54														
1612	LAWA55														
1613	LAWA56	0.567	1142	0.426	1044	0.285	946	0.178							
1614	LAWA57														
1615	LAWA58														
1616	LAWA59														
1617	LAWA60	0.543	1148	0.415	1050	0.293	950	0.197							
1618	LAWA61														
1619	LAWA62														
1620	LAWA63														
1621	LAWA64														
1622	LAWA65														
1623	LAWA66														
1624	LAWA67														
1625	LAWA68														
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1627	LAWA70														
1628	LAWA71														
1629	LAWA72														
1630	LAWA73														
1631	LAWA74														
1632	LAWA75														
1633	LAWA76														
1634	LAWA77														
1635	LAWA78														
1636	LAWA79														
1637	LAWA80														
1638	LAWA81	0.637	1138	0.538	1039	0.32	942	0.211							
1639	LAWA82	0.705	1139	0.499	1044	0.358	944	0.244							
1640	LAWA83	0.613	1142	0.45	1043	0.315	944	0.201							

#	Glass ID	Study	Reference	Al2O3-t	B2O3-t	CaO-t	Fe2O3-t	FeO-t	K2O-t	Li2O-t	MgO-t	Na2O-t	NiO-t	P2O5-t	SiO2-t	ZrO2-t	Ag2O-t	As2O3-t	As2O5-t	BaO-t	BeO-t	Bi2O3-t	Br-t	CdO-t	Ce2O3-t	CeO2-t	Cl-t
1641	LAWA84	RPP-WTP LAW Formulation,	Muller et al. 2001	0.0620	0.0890	0.0199	0.0299		0.0050		0.0199	0.2000		0.0402	0.4455	0.0299	0.0000										0.0065
1642	LAWA85	RPP-WTP LAW Formulation	Muller et al. 2001	0.0620	0.0890		0.0499		0.0050		0.0199	0.2000		0.0203	0.4455	0.0299	0.0000										0.0065
1643	LAWA86	RPP-WTP LAW Formulation,	Muller et al. 2001	0.0620	0.0890		0.0299		0.0050		0.0199	0.2000		0.0402	0.4455	0.0299	0.0000										0.0065
1644	LAWA87	RPP-WTP LAW Formulation,	Muller et al. 2001	0.0448	0.0887	0.0199	0.0697		0.0258		0.0199	0.2000		0.0007	0.4446	0.0299											0.0033
1645	LAWA88	RPP-WTP LAW Formulation,	Muller et al. 2001	0.0608	0.0970	0.0199	0.0553		0.0258		0.0148	0.2000		0.0007	0.4399	0.0299											0.0033
1646	LAWA89	RPP-WTP LAW Formulation,	Muller et al. 2001	0.0608	0.0970		0.0553		0.0258		0.0148	0.2000		0.0007	0.4399	0.0299											0.0033
1647	LAWA90	RPP-WTP LAW Formulation,	Muller et al. 2001	0.0608	0.0970	0.0398	0.0553		0.0258		0.0148	0.2000		0.0007	0.4399	0.0299											0.0033
1648	LAWA91	RPP-WTP LAW Formulation,	Muller et al. 2001	0.0609	0.0611		0.0740		0.0049		0.0146	0.1972		0.0003	0.4166	0.0295											0.0064
1649	LAWA92	RPP-WTP LAW Formulation,	Muller et al. 2001	0.0609	0.0611		0.0740		0.0049		0.0146	0.1972		0.0003	0.4166	0.0295											0.0064
1650	LAWA93	RPP-WTP LAW Formulation,	Muller et al. 2001	0.0618	0.1110	0.0788	0.0751		0.0050	0.0507	0.0148	0.1003		0.0003	0.4225	0.0299	0.0000										0.0065
1651	LAWA94	RPP-WTP LAW Formulation,	Muller et al. 2001	0.0609	0.0611	0.0632	0.0740		0.0049		0.0146	0.1972		0.0003	0.4166	0.0441											0.0064
1652	LAWA95	RPP-WTP LAW Formulation,	Muller et al. 2001	0.0609	0.0611	0.0559	0.0376		0.0049		0.0146	0.1972		0.0295	0.4166	0.0295											0.0064
1653	LAWA96	RPP-WTP LAW Formulation,	Muller et al. 2001	0.0620	0.0791	0.0399	0.0299		0.0050		0.0199	0.2000		0.0402	0.4356	0.0299	0.0000										0.0065
1654	LAWA97S	RPP-WTP LAW Formulation	Muller et al. 2001	0.0612	0.0878	0.0197	0.0397		0.0049		0.0197	0.1972		0.0003	0.4394	0.0292											0.0064
1655	LAWA98S	RPP-WTP LAW Formulation	Muller et al. 2001	0.0603	0.1074	0.0508	0.0750		0.0037	0.0306	0.0149	0.1480		0.0003	0.4300	0.0302	0.0000										0.0048
1656	LAWA99S	RPP-WTP LAW Formulation	Muller et al. 2001	0.0603	0.1074	0.0613	0.0452		0.0037	0.0202	0.0149	0.1480		0.0003	0.4300	0.0302	0.0000										0.0048
1657	LAWA100S	RPP-WTP LAW Formulation	Muller et al. 2001	0.0603	0.1074	0.0613	0.0750		0.0037	0.0202	0.0149	0.1480		0.0003	0.4300	0.0302	0.0000										0.0048
1658	LAWA101S	RPP-WTP LAW Formulation	Muller et al. 2001	0.0603	0.1074	0.0710	0.0750		0.0037	0.0105	0.0149	0.1480		0.0003	0.4300	0.0302	0.0000										0.0048
1659	LAWA102S	RPP-WTP LAW Formulation	Muller et al. 2001	0.0606	0.1000	0.0507	0.0541		0.0026	0.0250	0.0150	0.1449		0.0013	0.4660	0.0302											0.0033
1660	LAWA103S	RPP-WTP LAW Formulation	Muller et al. 2001	0.0606	0.1000	0.0507	0.0500		0.0026	0.0250	0.0150	0.1449		0.0013	0.4551	0.0302				0.0000							0.0033
1661	LAWA104	RPP-WTP LAW Formulation,	Muller et al. 2001	0.0661	0.0859	0.0192	0.0674		0.0055		0.0192	0.2200		0.0004	0.4299	0.0289	0.0000										0.0072
1662	LAWA105	RPP-WTP LAW Formulation,	Muller et al. 2001	0.0703	0.0828	0.0185	0.0649		0.0060		0.0185	0.2400		0.0004	0.4142	0.0278	0.0000										0.0078
1663	LAWB29*	RPP-WTP LAW Formulation	Muller et al. 2001	0.0803	0.0807	0.0701	0.0802		0.0038	0.0408	0.0298	0.1000		0.0008	0.4383	0.0303											0.0001
1664	LAWB30	RPP-WTP LAW Formulation,	Muller et al. 2001	0.0860	0.1004	0.0723	0.0827		0.0032	0.0407	0.0307	0.0790		0.0004	0.4272	0.0312											0.0001
1665	LAWB31	RPP-WTP LAW Formulation,	Muller et al. 2001	0.0616	0.1209	0.0403	0.0717		0.0032	0.0296	0.0224	0.0790		0.0272	0.4691	0.0309											0.0001
1666	LAWB32	RPP-WTP LAW Formulation,	Muller et al. 2001	0.0616	0.1509	0.0403	0.0417		0.0032	0.0296	0.0224	0.0790		0.0272	0.4691	0.0309											0.0001
1667	LAWB33	RPP-WTP LAW Formulation,	Muller et al. 2001	0.0616	0.1209	0.0403	0.0515		0.0032	0.0296	0.0224	0.0790		0.0474	0.4691	0.0309											0.0001
1668	LAWB34	RPP-WTP LAW Formulation,	Muller et al. 2001	0.0616	0.1209	0.0605	0.0515		0.0032	0.0296	0.0224	0.0790		0.0272	0.4691	0.0309											0.0001
1669	LAWB35	RPP-WTP LAW Formulation,	Muller et al. 2001	0.0616	0.1209	0.0403	0.0515		0.0032	0.0296	0.0426	0.0790		0.0272	0.4691	0.0309											0.0001
1670	LAWB36S	RPP-WTP LAW Formulation	Muller et al. 2001	0.0616	0.1209	0.0403	0.0515		0.0032	0.0385	0.0224	0.0790		0.0474	0.4333	0.0309											0.0001
1671	LAWB37	RPP-WTP LAW Formulation,	Muller et al. 2001	0.0616	0.1209	0.0470	0.0515		0.0032	0.0296	0.0291	0.0790		0.0340	0.4691	0.0309											0.0001
1672	LAWB38	RPP-WTP LAW Formulation,	Muller et al. 2001	0.0616	0.1209	0.0475	0.0515		0.0032	0.0381	0.0224	0.0790		0.0317	0.4691	0.0309											0.0001
1673	LAWB39	RPP-WTP LAW Formulation,	Muller et al. 2001	0.0616	0.1209	0.0470	0.0515		0.0032	0.0296	0.0291	0.0790		0.0004	0.4691	0.0309											0.0001
1674	LAWB40	RPP-WTP LAW Formulation,	Muller et al. 2001	0.0616	0.1209	0.0470	0.0515		0.0032	0.0632	0.0291	0.0790		0.0004	0.4691	0.0309											0.0001
1675	LAWB41	RPP-WTP LAW Formulation,	Muller et al. 2001	0.0616	0.1209	0.0650	0.0515		0.0032	0.0452	0.0291	0.0790		0.0004	0.4692	0.0309											0.0001
1676	LAWB42S	RPP-WTP LAW Formulation	Muller et al. 2001	0.0607	0.1192	0.0463	0.0605		0.0031		0.0287	0.0779		0.0004	0.4623	0.0305											0.0001
1677	LAWB43S	RPP-WTP LAW Formulation	Muller et al. 2001	0.0607	0.1192	0.0463	0.1033		0.0031		0.0287	0.0779		0.0004	0.4623	0.0305											0.0001
1678	LAWB44S	RPP-WTP LAW Formulation	Muller et al. 2001	0.0607	0.1192	0.0463	0.1320		0.0031			0.0779		0.0004	0.4623	0.0305											0.0001
1679	LAWB45	RPP-WTP LAW Formulation	Muller et al. 2001	0.0613	0.1234	0.0663	0.0526		0.0026	0.0462	0.0297	0.0650		0.0003	0.4786	0.0315											0.0001
1680	LAWB47	RPP-WTP LAW Formulation	Muller et al. 2001	0.0613	0.1234	0.0601	0.0526		0.0026	0.0409	0.0297	0.0650		0.0003	0.4786	0.0315											0.0001
1681	LAWB48	RPP-WTP LAW Formulation	Muller et al. 2001	0.0613	0.1234	0.0540	0.0526		0.0026	0.0356	0.0297	0.0650		0.0003	0.4786	0.0315											0.0001
1682	LAWB49	RPP-WTP LAW Formulation	Muller et al. 2001	0.0613	0.1234	0.0480	0.0526		0.0026	0.0302	0.0297	0.0650		0.0003	0.4786	0.0315											0.0001
1683	LAWB50	RPP-WTP LAW Formulation	Muller et al. 2001	0.0616	0.1209	0.0649	0.0515		0.0032	0.0452	0.0291	0.0790		0.0004	0.4691	0.0309											0.0050
1684	LAWB51S	RPP-WTP LAW Formulation	Muller et al. 2001	0.0609	0.1254	0.0674	0.0534		0.0023	0.0473	0.0300	0.0500		0.0001	0.4888	0.0318											0.0001
1685	LAWB52S	RPP-WTP LAW Formulation	Muller et al. 2001	0.0609	0.1002	0.0674	0.0674		0.0023	0.0585	0.0300	0.0500		0.0001	0.4888	0.0318											0.0001
1686	LAWB53S	RPP-WTP LAW Formulation	Muller et al. 2001	0.0609	0.1002	0.0674	0.0534		0.0023	0.0585	0.0300	0.0500		0.0001	0.4888	0.0318											0.0001
1687	LAWC11 for AN107	RPP-WTP LAW Formulation	Muller et al. 2001	0.1197	0.0862	0.0160	0.0571		0.0016		0.0139	0.2200	0.0005	0.0003	0.3830	0.0247	0.0000			0.0000				0.0001			0.0013
1688	LAWC12 for AN107	RPP-WTP LAW Formulation,	Muller et al. 2001	0.1197	0.0913	0.0159	0.0571		0.0014		0.0139	0.2000	0.0004	0.0003	0.3933	0.0246	0.0000			0.0000				0.0001			0.0012
1689	LAWC13	RPP-WTP LAW Formulation	Muller et al. 2001	0.0612	0.0616	0.0550	0.0347		0.0025		0.0154	0.2000	0.0003	0.0296	0.4234	0.0308											0.0020
1690	LAWC14	RPP-WTP LAW Formulation	Muller et al. 2001	0.0612	0.0616	0.0550	0.0347		0.0025		0.0154	0.2000	0.0003	0.0019	0.4234	0.0308											0.0020
1691	LAWC15	RPP-WTP LAW Formulation,	Muller et al. 2001	0.0623	0.0895	0.0201	0.0702		0.0014		0.0201	0.2000	0.0004	0.0002	0.4480	0.0301							0.0008	0.0000			0.0008
1692	LAWC16S	RPP-WTP LAW Formulation	Muller et al. 2001	0.0613	0.1010	0.0637	0.0752		0.0015	0.0397	0.0151	0.1180		0.0012	0.4454	0.0302											0.0012
1693	LAWC17S	RPP-WTP LAW Formulation	Muller et al. 2001	0.0613	0.1010	0.0736	0.0450		0.0015	0.0298	0.0151	0.1180		0.0012	0.4454	0.0302											0.0012
1694	LAWC18S	RPP-WTP LAW Formulation	Muller et al. 2001	0.0613	0.1010	0.0736	0.0752		0.0015	0.0298	0.0151	0.1180		0.0012	0.4454	0.0302											0.0012
1695	LAWC19S	RPP-WTP LAW Formulation	Muller et al. 2001	0.0613	0.1010	0.0836	0.0752		0.0015	0.0199	0.0151	0.1180		0.0012	0.4454	0.0302											0.0012
1696	LAWC20S	RPP-WTP LAW Formulation	Muller et al. 2001	0.0613	0.1010	0.0736	0.0748		0.0015		0.0151	0.1180		0.0012	0.4454	0.0302											0.0012
1697	LAWC21S	RPP-WTP LAW Formulation	Muller et al. 2001	0.0613	0.1010	0.0641	0.0648		0.0015	0.0274	0.0151	0.1188		0.0012	0.4677	0.0302											0.0012
1698	LAWC22**	RPP-WTP LAW Formulation	Muller et al. 2001	0.0607	0.1005	0.0511	0.0542		0.0008	0.0251	0.0151	0.1440	0.0003	0.0007	0.4662	0.0303							0.0005	0.0000			0.0005
1699	LAWC23	RPP-WTP LAW Formulation,	Muller et al. 2001	0.0612	0.1008	0.0640	0.0647		0.0288		0.0151	0.1186		0.0012	0.4677	0.0302											0.0012
1700	LAWC24	RPP-WTP LAW Formulation,	Muller et al. 2001	0.0595	0.0980	0.0623	0.0629		0.0555		0.0147	0.1153		0.0012	0.4539	0.0294											0.0012
1701	LAWC25	RPP-WTP LAW Formulation,	Muller et al. 2001	0.0579	0.0954	0.0606	0.0612		0.0809		0.0143	0.1122		0.0011	0.4418	0.0286											0.0012
1702	LAWABP1	RPP-WTP LAW Formulation	Muller et al. 2001	0.1000	0.0925		0.0250		0.0220		0.0100	0.2000		0.0008	0.4189	0.0525											0.0058
1703	PNLREF (LD6-5412)	RPP-WTP LAW Formulation	Muller et al. 2001	0.1200	0.0500	0.0400	0.0000		0.0146		0.0000	0.2000		0.0019	0.5591												0.0035
1704	DP-1	DP Glasses for INEEL HLW	Pittman et al. 2001	0.1250	0.0600	0.1500	0.0000			0.0700		0.0800		0.0000	0.3650	0.0800											
1705	DP-2	DP Glasses for INEEL HLW	Pittman et al. 2001	0.1250	0.0600	0.1500	0.0100			0.0450		0.1300		0.0000	0.3600	0.0400											
1706	DP-3	DP Glasses for INEEL HLW	Pittman et al. 2001	0.1250	0.0600	0.0950	0.0500			0.0700		0.0800		0.0000	0.3750	0.0400											
1707	DP-4	DP Glasses for INEEL HLW	Pittman et al. 2001	0.1250	0.0600	0.0950	0.0000			0.0450		0.0800		0.0250	0.3600	0.0800											
1708	DP-5	DP Glasses for INEEL HLW	Pittman et al. 2001	0.1250	0.0600	0.0950	0.0500			0.0450		0.0800		0.0250	0.3600	0.0800											
1709	DP-6	DP Glasses for INEEL HLW	Pittman et al. 2001	0.1250	0.0600	0.0950	0.0000			0.0700		0.1300		0.0250	0.3600	0.0400											
1710	DP-7	DP Glasses for INEEL HLW	Pittman et al. 2001	0.1250	0.1350	0.0950	0.0000			0.0700		0.0800		0.0000	0.3600	0.0400											
1711	DP-8	DP Glasses for INEEL HLW	Pittman et al. 2001	0.0700	0.1500	0.0950	0.0000			0.0450		0.0800		0.0250	0.3600	0.0800											
1712	DP-9	DP Glasses for INEEL HLW	Pittman et al. 2001	0.0700	0.1500	0.0950	0.0000			0.0450		0.1300		0.0250	0.3650	0.0400											
1713	DP-10	DP Glasses for INEEL HLW	Pittman et al. 2001	0.0700	0.1500	0.1000	0.0000			0.0700		0.0800		0.0000	0.3600	0.0400											
1714	DP-11	DP Glasses for INEEL HLW	Pittman et al. 2001	0.0700	0.1500	0.1000	0.0500			0.0700		0.0800		0.0000	0.3600	0.0400											
1715	DP-12	DP Glasses for INEEL HLW	Pittman et al. 2001	0.0700	0.0600	0.1500	0.0500			0.0450		0.0800		0.0250	0.3600	0.0400											
1716	DP-13	DP Glasses for INEEL HLW	Pittman et al. 2001	0.0700	0.0600	0.1500	0.0000			0.0700		0.0800		0.0250	0.3600	0.0800											
1717	DP-14	DP Glasses for INEEL HLW	Pittman et al. 2001	0.0700	0.0600	0.1500	0.0500			0.0700		0.0800		0.0250	0.3600	0.0400											
1718	DP-15	DP Glasses for INEEL HLW	Pittman et al. 2001	0.0700	0.0600	0.1500	0.0000			0.0450		0.0800		0.0000	0.4500	0.0400											
1719	DP-16	DP Glasses for INEEL HLW	Pittman et al. 2001	0.0700	0.0600	0.0950	0.0500			0.0450		0.0800		0.0000	0.4650	0.0400											
1720	DP-17	DP Glasses for INEEL HLW	Pittman et al. 2001	0.0700	0.0600	0.0950	0.0000			0.0700		0.1300		0.0250	0.4150	0.0400											
1721	DP-18	DP Glasses for INEEL HLW	Pittman et al. 2001	0.0700	0.0600	0.0950	0.0500			0.0450		0.1300		0.0000	0.3650	0.0800											
1722	DP-19	DP Glasses for INEEL HLW	Pittman et al. 2001	0.0700	0.0600	0.0950	0.0500			0.0700		0.1300		0.0000	0.3750	0.0800											

#	Glass ID	CoO-t	Co2O3-t	Cr2O3-t	Cs2O-t	CuO-t	Dy2O3-t	Eu2O3-t	F-t	Ga2O3-t	Gd2O3-t	HfO2-t	HgO-t	I-t	La2O3-t	MnO2-t	MnO-t	MoO-t	MoO2-t	MoO3-t	Nb2O5-t	Nd2O3-t	NpO2-t	PbO-t	PdO2-t	PdO-t	Pr2O3-t	Pr6O11-t	Rb2O-t	ReO-t
1641	LAWA84			0.0002	0.0000				0.0001																				
1642	LAWA85			0.0002	0.0000				0.0001																				
1643	LAWA86			0.0002	0.0000				0.0001																				
1644	LAWA87			0.0001	0.0000																								
1645	LAWA88			0.0001	0.0000																								
1646	LAWA89			0.0001	0.0000																								
1647	LAWA90			0.0001	0.0000																								
1648	LAWA91			0.0002					0.0001						0.0777					0.0001									
1649	LAWA92			0.0002					0.0001		0.0777									0.0001									
1650	LAWA93			0.0002	0.0000				0.0001																				
1651	LAWA94			0.0002					0.0001											0.0001									
1652	LAWA95			0.0002					0.0001											0.0001									
1653	LAWA96			0.0002	0.0000				0.0001																				
1654	LAWA97S			0.0002					0.0001											0.0001									
1655	LAWA98S			0.0002	0.0000				0.0001																				
1656	LAWA99S			0.0002	0.0000				0.0001														0.0000						
1657	LAWA100S			0.0002	0.0000				0.0001														0.0000						
1658	LAWA101S			0.0002	0.0000				0.0001														0.0000						
1659	LAWA102S			0.0002	0.0000				0.0003																				
1660	LAWA103S			0.0002	0.0000				0.0003																				
1661	LAWA104			0.0002	0.0000				0.0001											0.0001			0.0000						
1662	LAWA105			0.0002	0.0000				0.0001											0.0001			0.0000						
1663	LAWB29*			0.0007	0.0000				0.0012																				
1664	LAWB30			0.0009	0.0000				0.0010																				
1665	LAWB31			0.0009	0.0000				0.0010																				
1666	LAWB32			0.0009	0.0000				0.0010																				
1667	LAWB33			0.0009	0.0000				0.0010																				
1668	LAWB34			0.0009	0.0000				0.0010																				
1669	LAWB35			0.0009	0.0000				0.0010																				
1670	LAWB36S			0.0009	0.0000				0.0010																				
1671	LAWB37			0.0009	0.0000				0.0010																				
1672	LAWB38			0.0009	0.0000				0.0010																				
1673	LAWB39			0.0009	0.0000				0.0010																				
1674	LAWB40			0.0009	0.0000				0.0010																				
1675	LAWB41			0.0009	0.0000				0.0010																				
1676	LAWB42S			0.0009	0.0000				0.0010																				
1677	LAWB43S			0.0009	0.0000				0.0010																				
1678	LAWB44S			0.0009	0.0000				0.0010																				
1679	LAWB45			0.0007	0.0000				0.0008																				
1680	LAWB47			0.0007	0.0000				0.0008																				
1681	LAWB48			0.0007	0.0000				0.0008																				
1682	LAWB49			0.0007	0.0000				0.0008																				
1683	LAWB50			0.0009	0.0000				0.0010																				
1684	LAWB51S			0.0011					0.0006																				
1685	LAWB52S			0.0011					0.0006																				
1686	LAWB53S			0.0011					0.0006																				
1687	LAWC11 for AN107			0.0002					0.0001							0.0006								0.0003						
1688	LAWC12 for AN107			0.0002					0.0001							0.0006								0.0003						
1689	LAWC13			0.0002	0.0000				0.0010							0.0000														
1690	LAWC14			0.0002	0.0000				0.0010							0.0000														
1691	LAWC15			0.0000	0.0000				0.0047											0.0000				0.0000						
1692	LAWC16S			0.0002					0.0006							0.0000														
1693	LAWC17S			0.0002					0.0006							0.0000														
1694	LAWC18S			0.0002					0.0006							0.0000														
1695	LAWC19S			0.0002					0.0006							0.0000														
1696	LAWC20S			0.0002					0.0006							0.0000														
1697	LAWC21S			0.0002					0.0006							0.0000														
1698	LAWC22**			0.0001					0.0034											0.0000				0.0001						
1699	LAWC23			0.0002					0.0006							0.0000														
1700	LAWC24			0.0002					0.0006							0.0000														
1701	LAWC25			0.0002					0.0006							0.0000														
1702	LAWABP1			0.0002					0.0004						0.0200															
1703	PNLREF (LD6-5412)			0.0004	0.0015				0.0029					0.0013			0.0000			0.0015										
1704	DP-1								0.0400						0.0250															
1705	DP-2								0.0400						0.0250															
1706	DP-3								0.0650						0.0250															
1707	DP-4								0.0650						0.0500															
1708	DP-5								0.0400						0.0250															
1709	DP-6								0.0400						0.0500															
1710	DP-7								0.0400						0.0500															
1711	DP-8								0.0650						0.0250															
1712	DP-9								0.0400						0.0250															
1713	DP-10								0.0650						0.0500															
1714	DP-11								0.0400						0.0250															
1715	DP-12								0.0650						0.0500															
1716	DP-13								0.0650						0.0250															
1717	DP-14								0.0400						0.0500															
1718	DP-15								0.0400						0.0500															
1719	DP-16								0.0650						0.0250															
1720	DP-17								0.0650						0.0250															
1721	DP-18								0.0400						0.0500															
1722	DP-19								0.0400						0.0250															

#	Glass ID	ReO2-t	Re2O7-t	Rh2O3-t	RhO2-t	RuO2-t	Ru2O3-t	Sb2O3-t	Sb2O5-t	SeO2-t	Sm2O3-t	SnO-t	SnO2-t	SO3-t	SrO-t	Tc2O7-t	TeO2-t	ThO2-t	TiO2-t	Tl2O-t	Tl2O3-t	U3O8-t	UO2-t	UO3-t	V2O5-t	WO3-t	Y2O3-t	ZnO-t	Sum-t	Al2O3-a
1641	LAWA84	0.0010												0.0010					0.0199									0.0297	0.9999	0.0613
1642	LAWA85	0.0010												0.0010	0.0199				0.0199									0.0297	0.9999	0.0553
1643	LAWA86	0.0010												0.0010	0.0199				0.0199									0.0297	0.9999	0.0571
1644	LAWA87	0.0010												0.0021					0.0199									0.0296	1.0000	0.0424
1645	LAWA88	0.0010												0.0021					0.0199									0.0295	1.0000	0.0611
1646	LAWA89	0.0010												0.0021					0.0398									0.0295	1.0000	0.0593
1647	LAWA90	0.0010												0.0021														0.0295	1.0000	0.0578
1648	LAWA91													0.0148					0.0109									0.0295	0.9988	
1649	LAWA92													0.0148					0.0109									0.0295	0.9988	
1650	LAWA93	0.0010												0.0010					0.0111									0.0299	0.9999	0.0578
1651	LAWA94													0.0148					0.0109									0.0295	0.9989	
1652	LAWA95													0.0148					0.0109					0.0291				0.0295	0.9990	
1653	LAWA96	0.0010												0.0010					0.0199									0.0297	0.9999	0.0610
1654	LAWA97S													0.0148					0.0197					0.0294				0.0292	0.9990	
1655	LAWA98S	0.0010												0.0071					0.0113									0.0307	1.0063	0.0574
1656	LAWA99S	0.0010												0.0084					0.0113					0.0298				0.0307	1.0076	
1657	LAWA100S	0.0010												0.0061					0.0113									0.0307	1.0053	
1658	LAWA101S	0.0010												0.0062					0.0113									0.0307	1.0054	
1659	LAWA102S	0.0010												0.0068					0.0114									0.0306	1.0041	
1660	LAWA103S	0.0010												0.0055					0.0114					0.0150				0.0306	1.0028	
1661	LAWA104	0.0010												0.0011					0.0192									0.0286	1.0000	
1662	LAWA105	0.0010												0.0011					0.0185									0.0276	1.0000	
1663	LAWB29*	0.0010												0.0020														0.0399	1.0000	0.0648
1664	LAWB30	0.0010												0.0020														0.0411	1.0000	0.0840
1665	LAWB31	0.0010												0.0103														0.0309	1.0000	0.0569
1666	LAWB32	0.0010												0.0103														0.0309	1.0000	0.0599
1667	LAWB33	0.0010												0.0103														0.0309	1.0000	0.0558
1668	LAWB34	0.0010												0.0103														0.0309	1.0000	0.0553
1669	LAWB35	0.0010												0.0103														0.0309	1.0000	0.0584
1670	LAWB36S	0.0010												0.0087										0.0269				0.0309	0.9984	
1671	LAWB37	0.0010												0.0103														0.0309	1.0000	0.0625
1672	LAWB38	0.0010												0.0103														0.0309	1.0000	
1673	LAWB39	0.0010												0.0103										0.0336				0.0309	1.0000	0.0601
1674	LAWB40	0.0010												0.0103														0.0309	1.0000	
1675	LAWB41	0.0010												0.0102														0.0309	1.0000	
1676	LAWB42S													0.0061										0.0428				0.0402	0.9805	
1677	LAWB43S													0.0062														0.0402	0.9806	
1678	LAWB44S													0.0052														0.0402	0.9796	
1679	LAWB45	0.0010												0.0084														0.0315	1.0000	0.0586
1680	LAWB47	0.0010												0.0084										0.0114				0.0315	1.0000	
1681	LAWB48	0.0010												0.0084										0.0229				0.0315	1.0000	
1682	LAWB49	0.0010												0.0084										0.0343				0.0315	1.0000	
1683	LAWB50	0.0010																										0.0309	0.9947	
1684	LAWB51S	0.0010												0.0106														0.0318	1.0025	
1685	LAWB52S	0.0010												0.0106														0.0318	1.0025	
1686	LAWB53S	0.0010												0.0110					0.0140									0.0318	1.0029	
1687	LAWC11 for AN107													0.0020					0.0292									0.0423	0.9990	0.1139
1688	LAWC12 for AN107													0.0020					0.0341									0.0427	0.9991	0.0846
1689	LAWC13	0.0010												0.0060					0.0154					0.0293				0.0308	1.0000	0.0602
1690	LAWC14	0.0010												0.0060					0.0154					0.0570				0.0308	1.0000	0.0648
1691	LAWC15	0.0010												0.0013	0.0000				0.0200						0.0001			0.0300	1.0010	0.0568
1692	LAWC16S	0.0010												0.0071					0.0112									0.0302	1.0039	
1693	LAWC17S	0.0010												0.0066					0.0112					0.0302				0.0302	1.0033	
1694	LAWC18S	0.0010												0.0075					0.0112									0.0302	1.0042	
1695	LAWC19S	0.0010												0.0073					0.0112									0.0302	1.0041	
1696	LAWC20S	0.0010												0.0055					0.0112					0.0302				0.0302	1.0022	
1697	LAWC21S	0.0010												0.0070					0.0112									0.0302	1.0046	
1698	LAWC22**	0.0010												0.0032	0.0002				0.0114						0.0001			0.0307	1.0000	
1699	LAWC23	0.0010												0.0044					0.0112									0.0301	1.0009	
1700	LAWC24	0.0010												0.0042					0.0109									0.0293	1.0000	
1701	LAWC25	0.0009												0.0041					0.0106									0.0285	1.0000	
1702	LAWABP1													0.0010					0.0249									0.0260	1.0000	
1703	PNLREF (LD6-5412)													0.0021	0.0011														1.0000	
1704	DP-1													0.0050															1.0000	0.1270
1705	DP-2													0.0150															1.0000	0.1149
1706	DP-3													0.0150															1.0000	0.1304
1707	DP-4													0.0150															1.0000	0.1272
1708	DP-5													0.0150															1.0000	0.1312
1709	DP-6													0.0050															1.0000	0.1266
1710	DP-7													0.0050															1.0000	0.1240
1711	DP-8													0.0050															1.0000	0.0709
1712	DP-9													0.0150															1.0000	0.0709
1713	DP-10													0.0150															1.0000	0.0811
1714	DP-11													0.0150															1.0000	0.0726
1715	DP-12													0.0050															1.0000	0.0720
1716	DP-13													0.0150															1.0000	0.0716
1717	DP-14													0.0050															1.0000	0.0718
1718	DP-15													0.0150															1.0000	0.0722
1719	DP-16													0.0050															1.0000	0.0716
1720	DP-17													0.0050															1.0000	0.0720
1721	DP-18													0.0150															1.0000	0.0737
1722	DP-19													0.0050															1.0000	0.0748

#	Glass ID	B2O3-a	CaO-a	Fe2O3-a	FeO-a	K2O-a	Li2O-a	MgO-a	Na2O-a	NiO-a	P2O5-a	SiO2-a	ZrO2-a	Ag2O-a	As2O3-a	As2O5-a	BaO-a	BeO-a	Bi2O3-a	Br-a	CdO-a	Ce2O3-a	CeO2-a	Cl-a	CoO-a	Co2O3-a	Cr2O3-a	Cs2O-a	CuO-a	F-a
1641	LAWA84	0.0901	0.0210	0.0299		0.0059	0.0002	0.0189	0.1860	0.0000	0.0373	0.4403	0.0271				0.0000										0.0002			
1642	LAWA85	0.0862	0.0015	0.0467		0.0054	0.0002	0.0176	0.1728	0.0001	0.0209	0.4364	0.0258				0.0002										0.0002			
1643	LAWA86	0.0862	0.0008	0.0286		0.0053	0.0002	0.0178	0.1711	0.0001	0.0400	0.4287	0.0230				0.0002										0.0002			
1644	LAWA87	0.0870	0.0203	0.0653		0.0225	0.0003	0.0180	0.1840	0.0001	0.0022	0.4385	0.0253				0.0000										0.0002			
1645	LAWA88	0.0966	0.0205	0.0546		0.0246	0.0004	0.0153	0.1693	0.0001	0.0023	0.4272	0.0279				0.0000										0.0002			
1646	LAWA89	0.0940	0.0007	0.0487		0.0235	0.0004	0.0143	0.1735	0.0002	0.0026	0.4164	0.0275				0.0000										0.0002			
1647	LAWA90	0.0948	0.0380	0.0516		0.0230	0.0004	0.0150	0.1691	0.0001	0.0016	0.4217	0.0261				0.0000										0.0001			
1648	LAWA91																													
1649	LAWA92																													
1650	LAWA93	0.1087	0.0757	0.0710		0.0061	0.0465	0.0153	0.0864	0.0001	0.0017	0.4022	0.0278				0.0000										0.0003			
1651	LAWA94																													
1652	LAWA95																													
1653	LAWA96	0.0773	0.0394	0.0288		0.0055	0.0006	0.0182	0.1921	0.0001	0.0403	0.4038	0.0280				0.0000										0.0002			
1654	LAWA97S																													
1655	LAWA98S	0.1080	0.0482	0.0790		0.0039	0.0282	0.0157	0.1094	0.0013	0.0023	0.4194	0.0298				0.0001										0.0027			
1656	LAWA99S																													
1657	LAWA100S																													
1658	LAWA101S																													
1659	LAWA102S																													
1660	LAWA103S																													
1661	LAWA104																													
1662	LAWA105																													
1663	LAWB29*	0.0778	0.0700	0.0813		0.0050	0.0391	0.0275	0.0869		0.0021	0.4540	0.0276														0.0035			
1664	LAWB30	0.0986	0.0700	0.0793		0.0033		0.0283	0.0750		0.0019	0.4092	0.0309														0.0007			
1665	LAWB31	0.1113	0.0380	0.0657		0.0035	0.0262	0.0191	0.0724		0.0270	0.4322	0.0275														0.0010			
1666	LAWB32	0.1500	0.0395	0.0399		0.0036	0.0294	0.0202	0.0727		0.0282	0.4584	0.0250														0.0009			
1667	LAWB33	0.1174	0.0371	0.0469		0.0035	0.0263	0.0195	0.0696		0.0438	0.4383	0.0246														0.0008			
1668	LAWB34	0.1143	0.0550	0.0476		0.0035	0.0274	0.0195	0.0704		0.0269	0.4552	0.0247														0.0008			
1669	LAWB35	0.1196	0.0387	0.0493		0.0039	0.0270	0.0369	0.0732		0.0270	0.4540	0.0281														0.0009			
1670	LAWB36S																													
1671	LAWB37	0.1145	0.0451	0.0470		0.0035	0.0285	0.0253	0.0764		0.0340	0.4728	0.0265														0.0008			
1672	LAWB38																													
1673	LAWB39	0.1163	0.0446	0.0487		0.0035	0.0287	0.0255	0.0752		0.0014	0.4670	0.0276														0.0008			
1674	LAWB40																													
1675	LAWB41																													
1676	LAWB42S																													
1677	LAWB43S																													
1678	LAWB44S																													
1679	LAWB45	0.1296	0.0620	0.0500		0.0023	0.0426	0.0263	0.0541		0.0009	0.4624	0.0304														0.0005			
1680	LAWB47																													
1681	LAWB48																													
1682	LAWB49																													
1683	LAWB50																													
1684	LAWB51S																													
1685	LAWB52S																													
1686	LAWB53S																													
1687	LAWC11 for AN107	0.0882	0.0185	0.0525		0.0023		0.0131	0.1954	0.0005	0.0019	0.3756	0.0196	0.0001			0.0000				0.0002						0.0004			
1688	LAWC12 for AN107	0.0972	0.0192	0.0546		0.0022		0.0133	0.1863	0.0004	0.0022	0.3885	0.0219	0.0001			0.0000				0.0001						0.0002			
1689	LAWC13	0.0626	0.0529	0.0340		0.0027	0.0008	0.0154	0.1679	0.0006	0.0297	0.4124	0.0303				0.0001										0.0002			
1690	LAWC14	0.0583	0.0530	0.0354		0.0026	0.0005	0.0160	0.1814	0.0012	0.0021	0.4032	0.0289				0.0001										0.0010			
1691	LAWC15	0.0917	0.0201	0.0725		0.0018	0.0004	0.0187	0.1789	0.0012	0.0024	0.4382	0.0281				0.0000								0.0003		0.0018			
1692	LAWC16S																													
1693	LAWC17S																													
1694	LAWC18S																													
1695	LAWC19S																													
1696	LAWC20S																													
1697	LAWC21S																													
1698	LAWC22**																													
1699	LAWC23																													
1700	LAWC24																													
1701	LAWC25																													
1702	LAWABP1																													
1703	PNLREF (LD6-5412)																													
1704	DP-1	0.0583	0.1440	0.0002			0.0703		0.0857			0.3890	0.0797																	0.0366
1705	DP-2	0.0554	0.1345	0.0176			0.0507		0.1291		0.0039	0.3980	0.0427																	0.0385
1706	DP-3	0.0602	0.1015	0.0523			0.0714		0.0815			0.4109	0.0412																	0.0599
1707	DP-4	0.0576	0.0970	0.0001			0.0445		0.0770		0.0234	0.3831	0.0774																	0.0597
1708	DP-5	0.0596	0.1000	0.0513			0.0460		0.0805		0.0170	0.3938	0.0707																	0.0362
1709	DP-6	0.0586	0.0990	0.0001			0.0710		0.1316		0.0259	0.3852	0.0401																	0.0375
1710	DP-7	0.1301	0.0966	0.0005			0.0688		0.0857			0.3788	0.0408																	0.0369
1711	DP-8	0.1462	0.0980	0.0003			0.0454		0.0698		0.0243	0.3724	0.0791																	0.0613
1712	DP-9	0.1465	0.0988	0.0000			0.0449		0.1238		0.0252	0.3831	0.0401																	0.0368
1713	DP-10	0.1658	0.1078	0.0003			0.0011		0.0868			0.4259	0.0446																	0.0649
1714	DP-11	0.1517	0.1046	0.0509			0.0718		0.0844			0.3766	0.0401																	0.0368
1715	DP-12	0.0663	0.1442	0.0499			0.0447		0.0744		0.0245	0.3702	0.0401																	0.0564
1716	DP-13	0.0605	0.1442	0.0001			0.0710		0.0853		0.0259	0.3681	0.0791																	0.0587
1717	DP-14	0.0592	0.1456	0.0513			0.0707		0.0840		0.0252	0.3638	0.0408																	0.0380
1718	DP-15	0.0583	0.1442	0.0000			0.0449		0.0726			0.4622	0.0409																	0.0350
1719	DP-16	0.0583	0.0998	0.0511			0.0456		0.0830			0.4858	0.0405																	0.0612
1720	DP-17	0.0592	0.1009	0.0004			0.0718		0.1314		0.0254	0.4066	0.0402																	0.0602
1721	DP-18	0.0615	0.0998	0.0521			0.0458		0.1288			0.3980	0.0776																	0.0362
1722	DP-19	0.0586	0.1019	0.0518			0.0716		0.1246			0.4002	0.0798																	0.0338

#	Glass ID	Ga2O3-a	Gd2O3-a	I-a	La2O3-a	MnO2-a	MnO-a	MoO-a	MoO3-a	Nb2O5-a	Nd2O3-a	NpO2-a	PbO-a	PdO2-a	PdO-a	Pr2O3-a	Pr6O11-a	PuO2-a	Rb2O-a	ReO-a	ReO2-a	Re2O7-a	Rh2O3-a	RhO2-a	RuO2-a	Sb2O3-a	Sb2O5-a	SeO2-a
1641	LAWA84					0.0001																						
1642	LAWA85					0.0001																						
1643	LAWA86					0.0001																						
1644	LAWA87					0.0001																						
1645	LAWA88					0.0002																						
1646	LAWA89					0.0003																						
1647	LAWA90					0.0001																						
1648	LAWA91																											
1649	LAWA92																											
1650	LAWA93					0.0001																						
1651	LAWA94																											
1652	LAWA95																											
1653	LAWA96					0.0001																						
1654	LAWA97S																											
1655	LAWA98S					0.0003																						
1656	LAWA99S																											
1657	LAWA100S																											
1658	LAWA101S																											
1659	LAWA102S																											
1660	LAWA103S																											
1661	LAWA104																											
1662	LAWA105																											
1663	LAWB29*																											
1664	LAWB30																											
1665	LAWB31																											
1666	LAWB32																											
1667	LAWB33																											
1668	LAWB34																											
1669	LAWB35																											
1670	LAWB36S																											
1671	LAWB37																											
1672	LAWB38																											
1673	LAWB39																											
1674	LAWB40																											
1675	LAWB41																											
1676	LAWB42S																											
1677	LAWB43S																											
1678	LAWB44S																											
1679	LAWB45																											
1680	LAWB47																											
1681	LAWB48																											
1682	LAWB49																											
1683	LAWB50																											
1684	LAWB51S																											
1685	LAWB52S																											
1686	LAWB53S																											
1687	LAWC11 for AN107					0.0008							0.0005															
1688	LAWC12 for AN107					0.0005							0.0005															
1689	LAWC13					0.0000																						
1690	LAWC14					0.0002																						
1691	LAWC15																											
1692	LAWC16S																											
1693	LAWC17S																											
1694	LAWC18S																											
1695	LAWC19S																											
1696	LAWC20S																											
1697	LAWC21S																											
1698	LAWC22**																											
1699	LAWC23																											
1700	LAWC24																											
1701	LAWC25																											
1702	LAWABP1																											
1703	PNLREF (LD6-5412)																											
1704	DP-1				0.0250																							
1705	DP-2				0.0166																							
1706	DP-3				0.0257																							
1707	DP-4				0.0490																							
1708	DP-5				0.0256																							
1709	DP-6				0.0500																							
1710	DP-7				0.0489																							
1711	DP-8				0.0249																							
1712	DP-9				0.0250																							
1713	DP-10				0.0536																							
1714	DP-11				0.0256																							
1715	DP-12				0.0498																							
1716	DP-13				0.0252																							
1717	DP-14				0.0491																							
1718	DP-15				0.0500																							
1719	DP-16				0.0250																							
1720	DP-17				0.0255																							
1721	DP-18				0.0488																							
1722	DP-19				0.0254																							

#	Glass ID	Sm2O3-a	SnO-a	SnO2-a	SO3-a	SrO-a	Tc2O7-a	TeO2-a	ThO2-a	TiO2-a	Tl2O-a	Tl2O3-a	U3O8-a	UO2-a	UO3-a	V2O5-a	WO3-a	Y2O3-a	ZnO-a	Sum-a	T_M (°C)	$T_{L,G}$ (°C)	$T_{L,U}$ (°C)	$T_{1\%}$ (°C)	Primary Phase	$C_{650°C}$	$C_{700°C}$	$C_{750°C}$
1641	LAWA84					0.0000				0.0199									0.0281	0.9663								
1642	LAWA85					0.0166				0.0189									0.0293	0.9342								
1643	LAWA86					0.0178				0.0190									0.0255	0.9217								
1644	LAWA87					0.0001				0.0182									0.0291	0.9535								
1645	LAWA88					0.0001				0.0192									0.0279	0.9476								
1646	LAWA89					0.0002				0.0365									0.0270	0.9252								
1647	LAWA90					0.0001				0.0005									0.0287	0.9286								
1648	LAWA91																			0.0000								
1649	LAWA92																			0.0000								
1650	LAWA93					0.0001				0.0121									0.0294	0.9414								
1651	LAWA94																			0.0000								
1652	LAWA95																			0.0000								
1653	LAWA96				0.0004	0.0000				0.0193									0.0294	0.9444								
1654	LAWA97S																			0.0000								
1655	LAWA98S				0.0089	0.0001				0.0120									0.0285	0.9552								
1656	LAWA99S																			0.0000								
1657	LAWA100S																			0.0000								
1658	LAWA101S																			0.0000								
1659	LAWA102S																			0.0000								
1660	LAWA103S																			0.0000								
1661	LAWA104				0.0010															0.0010								
1662	LAWA105				0.0009															0.0009								
1663	LAWB29*									0.0005									0.0370	0.9770								
1664	LAWB30									0.0004									0.0402	0.9217								
1665	LAWB31				0.0062					0.0002									0.0290	0.9163								
1666	LAWB32				0.0067					0.0002									0.0285	0.9630								
1667	LAWB33				0.0075					0.0002									0.0285	0.9198								
1668	LAWB34				0.0068					0.0002									0.0295	0.9370								
1669	LAWB35				0.0073					0.0002									0.0308	0.9551								
1670	LAWB36S																			0.0000								
1671	LAWB37				0.0067					0.0003									0.0312	0.9751								
1672	LAWB38																			0.0000								
1673	LAWB39				0.0077					0.0002						0.0339			0.0310	0.9719								
1674	LAWB40				0.0136															0.0136								
1675	LAWB41				0.0123															0.0123								
1676	LAWB42S																			0.0000								
1677	LAWB43S																			0.0000								
1678	LAWB44S																			0.0000								
1679	LAWB45				0.0058					0.0003									0.0305	0.9563								
1680	LAWB47																			0.0000								
1681	LAWB48																			0.0000								
1682	LAWB49																			0.0000								
1683	LAWB50																			0.0000								
1684	LAWB51S																			0.0000								
1685	LAWB52S																			0.0000								
1686	LAWB53S																			0.0000								
1687	LAWC11 for AN107				0.0018					0.0290									0.0405	0.9546								
1688	LAWC12 for AN107				0.0018					0.0336									0.0425	0.9497								
1689	LAWC13				0.0018					0.0165						0.0298			0.0322	0.9500								
1690	LAWC14				0.0033					0.0157						0.0550			0.0309	0.9535								
1691	LAWC15				0.0011	0.0001				0.0190									0.0295	0.9624								
1692	LAWC16S																			0.0000								
1693	LAWC17S																			0.0000								
1694	LAWC18S																			0.0000								
1695	LAWC19S																			0.0000								
1696	LAWC20S																			0.0000								
1697	LAWC21S																			0.0000								
1698	LAWC22**																			0.0000								
1699	LAWC23																			0.0000								
1700	LAWC24																			0.0000								
1701	LAWC25				0.0053															0.0053								
1702	LAWABP1																			0.0000								
1703	PNLREF (LD6-5412)																			0.0000								
1704	DP-1																			1.0158								
1705	DP-2																			1.0019								
1706	DP-3																			1.0350								
1707	DP-4																			0.9960								
1708	DP-5																			1.0119								
1709	DP-6																			1.0256								
1710	DP-7																			1.0111								
1711	DP-8																			0.9926								
1712	DP-9																			0.9951								
1713	DP-10																			1.0319								
1714	DP-11																			1.0151								
1715	DP-12																			0.9925								
1716	DP-13																			0.9897								
1717	DP-14																			0.9995								
1718	DP-15																			0.9803								
1719	DP-16																			1.0219								
1720	DP-17																			0.9936								
1721	DP-18																			1.0223								
1722	DP-19																			1.0225								

#	Glass ID	$C_{800°C}$	$C_{850°C}$	$C_{900°C}$	$C_{950°C}$	$C_{1000°C}$	$C_{1050°C}$	$C_{1100°C}$	$C_{1150°C}$	$C_{1200°C}$	Quenched Visual/OM	Quenched XRD	CCC XRD	ρ (g/cm³)	Fulc Visc A	Fulc Visc B	Fulc Visc To	Arrh Visc E	Arrh Visc F	T1 (°C)	V1 (Pa·s)
1641	LAWA84																	-12.603	21112.7	900.0	238.400
1642	LAWA85																	-12.525	20923.7	900.0	225.500
1643	LAWA86																				
1644	LAWA87																	-11.869	19176.9	900.0	94.500
1645	LAWA88													2.670				-11.891	19487.1	900.0	119.900
1646	LAWA89																	-12.550	20570.0	900.0	163.900
1647	LAWA90																	-12.201	20053.1	900.0	143.900
1648	LAWA91																				
1649	LAWA92																				
1650	LAWA93																	-11.341	16831.1	900.0	21.600
1651	LAWA94																				
1652	LAWA95																				
1653	LAWA96													2.670				-12.791	21146.3	900.0	210.400
1654	LAWA97S																	-12.661	20939.9	900.0	203.600
1655	LAWA98S																	-10.909	17329.9	900.0	51.000
1656	LAWA99S																	-12.393	19647.8	900.0	84.100
1657	LAWA100S																	-12.265	19509.2	900.0	83.100
1658	LAWA101S																	-12.888	20915.2	900.0	151.800
1659	LAWA102S													2.610				-12.037	19589.0	900.0	117.000
1660	LAWA103S																				
1661	LAWA104																	-12.240	19811.5	900.0	112.300
1662	LAWA105																	-11.682	18560.1	900.0	67.300
1663	LAWB29*																				
1664	LAWB30																	-12.879	19959.4	900.0	71.500
1665	LAWB31																				
1666	LAWB32																				
1667	LAWB33																				
1668	LAWB34													2.630				-13.262	21953.9	900.0	253.300
1669	LAWB35													2.640							
1670	LAWB36S																				
1671	LAWB37													2.610				-12.737	21299.0	900.0	243.400
1672	LAWB38																	-12.102	19910.6	900.0	139.800
1673	LAWB39																	-12.495	20494.0	900.0	156.100
1674	LAWB40																	-11.338	17384.8	900.0	36.600
1675	LAWB41																	-12.255	19259.7	900.0	69.200
1676	LAWB42S																	-15.794	27581.7	900.0	2490.200
1677	LAWB43S																				
1678	LAWB44S																				
1679	LAWB45													2.650				-12.549	19966.7	900.0	96.400
1680	LAWB47																	-12.234	20101.0	900.0	145.100
1681	LAWB48																	-13.247	21931.3	900.0	260.400
1682	LAWB49																	-12.819	21371.8	900.0	239.000
1683	LAWB50																				
1684	LAWB51S																	-13.034	21298.8	900.0	191.500
1685	LAWB52S																	-12.114	19560.8	900.0	102.900
1686	LAWB53S													2.670				-12.528	20045.7	900.0	102.800
1687	LAWC11 for AN107																	-12.483	20316.5	900.0	135.500
1688	LAWC12 for AN107													2.690				-12.560	20343.6	900.0	131.900
1689	LAWC13													2.690				-13.823	22785.2	900.0	321.200
1690	LAWC14													2.670				-13.517	21544.8	900.0	143.200
1691	LAWC15													2.680				-12.432	20561.6	900.0	176.100
1692	LAWC16S																	-11.926	18581.6	900.0	53.700
1693	LAWC17S																				
1694	LAWC18S																	-12.437	19884.8	900.0	98.400
1695	LAWC19S																	-12.822	20494.0	900.0	111.100
1696	LAWC20S																				
1697	LAWC21S													2.660				-12.398	20130.8	900.0	129.300
1698	LAWC22**													2.670				-11.375	18136.1	900.0	63.600
1699	LAWC23																	-13.499	23080.7	900.0	523.100
1700	LAWC24																	-13.494	22857.8	900.0	434.600
1701	LAWC25																	-13.437	22364.5	900.0	301.200
1702	LAWABP1																	-14.107	23857.5	900.0	554.300
1703	PNLREF (LD6-5412)																				
1704	DP-1											Baddeleyitea	Zirconium Oxidea, Nephelineb, Lithium Silicatec								
1705	DP-2											Amorphous	Sodium Aluminum Silicated, 1 unidentifiable								
1706	DP-3											Griceiteb, Calcium Fluoridec	Lazuritee, Calcium Fluoridef, Lithium Sodium Sulfateg								
1707	DP-4											Fluorellestadited, Calcium Fluoric	Baddeleyiteh, Calcium Fluoride, Brotholite-(Ce)i								
1708	DP-5											Fluorellestadite, Calcium Fluoride	Hydroxylapatitej, Britholite-(Ce), Fluoritek								
1709	DP-6											Amorphous	Britholite-(Ce), Zirconium Oxide								
1710	DP-7											Amorphous	Amorphous								
1711	DP-8											Calcium Fluoride, Fluorapatite	Fluorite, Fluorellestaditel								
1712	DP-9											Fluorapatite	Hydroxylapatite								
1713	DP-10											Calcium Fluoride	Fluorite, Fluorellestadite								
1714	DP-11											Amorphous	Amorphous								
1715	DP-12											Calcium Fluoride	Calcium Fluoride, Britholite-(Y)m, Britholite-(Ce)								
1716	DP-13											Calcium Fluoride, Zircone	Calcium Fluoride, Zirconn, Noseano								
1717	DP-14											Amorphous	Britholite-(Ce)								
1718	DP-15											Amorphous	1 unidentifiable								
1719	DP-16											Calcium Fluoride	Fluorite								
1720	DP-17											Amorphous	Hydroxylapatite								
1721	DP-18											Baddeleyite, Fluorellestadite	Baddeleyite								
1722	DP-19											Baddeleyite	Baddeleyite								

#	Glass ID	T2 (°C)	V2 (Pa·s)	T3 (°C)	V3 (Pa·s)	T4 (°C)	V4 (Pa·s)	T5 (°C)	V5 (Pa·s)	T6 (°C)	V6 (Pa·s)	T7 (°C)	V7 (Pa·s)	T8 (°C)	V8 (Pa·s)	T9 (°C)	V9 (Pa·s)	T10 (°C)	V10 (Pa·s)	TCLP Ag	TCLP As	TCLP Ba	TCLP Cd	TCLP Cr	TCLP Ni	TCLP Pb
1641	LAWA84	950	105.500	1000	51.4	1050.0	27.1	1100.0	15.3	1150.0	9.2	1200.0	5.7	1250.0	3.8											
1642	LAWA85	950	97.500	1000	47.1	1050.0	24.9	1100.0	14.2	1150.0	8.6	1200.0	5.5	1250.0	3.7											
1643	LAWA86																									
1644	LAWA87	950	45.100	1000	23.5	1050.0	13.2	1100.0	7.8	1150.0	4.9	1200.0	3.2	1250.0	2.2											
1645	LAWA88	950	56.900	1000	29.4	1050.0	16.3	1100.0	9.6	1150.0	6.0	1200.0	3.9	1250.0	2.6											
1646	LAWA89	950	71.200	1000	34.7	1050.0	18.5	1100.0	10.7	1150.0	6.5	1200.0	4.2	1250.0	2.9											
1647	LAWA90	950	66.300	1000	33.4	1050.0	18.2	1100.0	10.6	1150.0	6.5	1200.0	4.2	1250.0	2.8											
1648	LAWA91																									
1649	LAWA92																									
1650	LAWA93	950	11.300	1000	6.3	1050.0	3.8	1100.0	2.4	1150.0	1.6	1200.0	1.1	1250.0	0.8											
1651	LAWA94																									
1652	LAWA95																									
1653	LAWA96	950	89.500	1000	42.8	1050.0	22.5	1100.0	12.8	1150.0	7.7	1200.0	4.9	1250.0	3.3											
1654	LAWA97S	950	86.100	1000	41.2	1050.0	21.7	1100.0	12.4	1150.0	7.6	1200.0	4.9	1250.0	3.3											
1655	LAWA98S	950	26.100	1000	14.4	1050.0	8.5	1100.0	5.3	1150.0	3.5	1200.0	2.4	1250.0	1.7											
1656	LAWA99S	950	39.300	1000	20.1	1050.0	11.1	1100.0	6.5	1150.0	4.0	1200.0	2.6	1250.0	1.8											
1657	LAWA100S	950	39.800	1000	20.7	1050.0	11.5	1100.0	6.8	1150.0	4.2	1200.0	2.7	1250.0	1.8											
1658	LAWA101S	950	67.600	1000	33.1	1050.0	17.5	1100.0	9.9	1150.0	6.0	1200.0	3.8	1250.0	2.5											
1659	LAWA102S	950	53.300	1000	27.0	1050.0	14.9	1100.0	8.8	1150.0	5.5	1200.0	3.6	1250.0	2.5					<0.0031	<0.0490	0.003	<0.0027	0.016	0.017	<0.0243
1660	LAWA103S																									
1661	LAWA104	950	52.300	1000	26.7	1050.0	14.6	1100.0	8.6	1150.0	5.3	1200.0	3.4	1250.0	2.3											
1662	LAWA105	950	32.900	1000	17.5	1050.0	10.0	1100.0	6.0	1150.0	3.8	1200.0	2.5	1250.0	1.8											
1663	LAWB29*																									
1664	LAWB30	950	30.900	1000	15.2	1050.0	8.3	1100.0	4.9	1150.0	3.1	1200.0	2.0	1250.0	1.4											
1665	LAWB31																									
1666	LAWB32																									
1667	LAWB33																									
1668	LAWB34	950	108.500	1000	51.4	1050.0	26.4	1100.0	14.6	1150.0	8.5	1200.0	5.3	1250.0	3.4											
1669	LAWB35																									
1670	LAWB36S																									
1671	LAWB37	950	107.200	1000	52.0	1050.0	27.3	1100.0	15.4	1150.0	9.2	1200.0	5.7	1250.0	3.7											
1672	LAWB38	950	65.100	1000	33.1	1050.0	18.2	1100.0	10.6	1150.0	6.5	1200.0	4.2	1250.0	2.8											
1673	LAWB39	950	70.800	1000	35.3	1050.0	19.0	1100.0	10.9	1150.0	6.6	1200.0	4.2	1250.0	2.8											
1674	LAWB40	950	17.600	1000	9.5	1050.0	5.6	1100.0	3.5	1150.0	2.4	1200.0	1.6	1250.0	1.2											
1675	LAWB41	950	32.900	1000	17.1	1050.0	9.5	1100.0	5.6	1150.0	3.5	1200.0	2.3	1250.0	1.6											
1676	LAWB42S	950	859.300	1000	336.0	1050.0	145.9	1100.0	69.1	1150.0	35.3	1200.0	19.2	1250.0	11.1											
1677	LAWB43S																									
1678	LAWB44S																									
1679	LAWB45	950	43.400	1000	21.8	1050.0	11.9	1100.0	7.0	1150.0	4.3	1200.0	2.8	1250.0	1.9					<0.0031	0.051	0.004	<0.0027	0.015	0.016	<0.0243
1680	LAWB47	950	66.700	1000	33.6	1050.0	18.3	1100.0	10.6	1150.0	6.5	1200.0	4.2	1250.0	2.8											
1681	LAWB48	950	107.900	1000	50.3	1050.0	25.8	1100.0	14.3	1150.0	8.5	1200.0	5.3	1250.0	3.5											
1682	LAWB49	950	104.900	1000	50.7	1050.0	26.6	1100.0	14.9	1150.0	8.9	1200.0	5.5	1250.0	3.6											
1683	LAWB50																									
1684	LAWB51S	950	79.500	1000	37.5	1050.0	19.5	1100.0	11.1	1150.0	6.7	1200.0	4.3	1250.0	2.9											
1685	LAWB52S	950	48.400	1000	24.8	1050.0	13.7	1100.0	8.1	1150.0	5.0	1200.0	3.3	1250.0	2.2											
1686	LAWB53S	950	47.400	1000	24.0	1050.0	13.1	1100.0	7.6	1150.0	4.7	1200.0	3.0	1250.0	2.0											
1687	LAWC11 for AN107	950	62.000	1000	31.1	1050.0	16.8	1100.0	9.7	1150.0	5.9	1200.0	3.8	1250.0	2.5											
1688	LAWC12 for AN107	950	58.600	1000	28.9	1050.0	15.6	1100.0	9.0	1150.0	5.6	1200.0	3.6	1250.0	2.4											
1689	LAWC13	950	121.100	1000	53.4	1050.0	26.6	1100.0	14.6	1150.0	8.6	1200.0	5.4	1250.0	3.6											
1690	LAWC14	950	60.200	1000	28.4	1050.0	14.7	1100.0	8.2	1150.0	4.9	1200.0	3.1	1250.0	2.1											
1691	LAWC15	950	79.700	1000	39.6	1050.0	21.2	1100.0	12.2	1150.0	7.4	1200.0	4.7	1250.0	3.1											
1692	LAWC16S	950	26.200	1000	13.9	1050.0	7.9	1100.0	4.8	1150.0	3.1	1200.0	2.0	1250.0	1.4											
1693	LAWC17S																									
1694	LAWC18S	950	45.600	1000	23.1	1050.0	12.7	1100.0	7.4	1150.0	4.6	1200.0	2.9	1250.0	2.0											
1695	LAWC19S	950	51.100	1000	25.6	1050.0	13.8	1100.0	7.9	1150.0	4.8	1200.0	3.0	1250.0	2.0											
1696	LAWC20S																									
1697	LAWC21S	950	57.900	1000	28.8	1050.0	15.6	1100.0	9.1	1150.0	5.6	1200.0	3.6	1250.0	2.5					<0.0031	<0.0490	0.921	0.005	0.044	0.042	<0.0243
1698	LAWC22**	950	31.600	1000	17.0	1050.0	9.8	1100.0	6.0	1150.0	3.9	1200.0	2.6	1250.0	1.8											
1699	LAWC23	950	214.900	1000	98.0	1050.0	48.8	1100.0	26.1	1150.0	14.9	1200.0	9.0	1250.0	5.6											
1700	LAWC24	950	180.100	1000	82.7	1050.0	41.5	1100.0	22.3	1150.0	12.8	1200.0	7.7	1250.0	4.9											
1701	LAWC25	950	127.200	1000	59.5	1050.0	30.3	1100.0	16.5	1150.0	9.6	1200.0	5.9	1250.0	3.7											
1702	LAWABP1	950	220.900	1000	98.1	1050.0	47.7	1100.0	25.0	1150.0	14.0	1200.0	8.3	1250.0	5.1											
1703	PNLREF (LD6-5412)																									
1704	DP-1																									
1705	DP-2																									
1706	DP-3																									
1707	DP-4																									
1708	DP-5																									
1709	DP-6																									
1710	DP-7																									
1711	DP-8																									
1712	DP-9																									
1713	DP-10																									
1714	DP-11																									
1715	DP-12																									
1716	DP-13																									
1717	DP-14																									
1718	DP-15																									
1719	DP-16																									
1720	DP-17																									
1721	DP-18																									
1722	DP-19																									

#	Glass ID	TCLP Se	TCLP Zn	TCLP Al	TCLP B	TCLP Sb	TCLP Tl	TCLP V	Q PCT B (g/m²)	Q PCT Li (g/m²)	Q PCT Na (g/m²)	Q PCT Si (g/m²)	Q PCT pH	CCC PCT B (g/m²)	CCC PCT Li (g/m²)	CCC PCT Na (g/m²)	CCC PCT Si (g/m²)	CCC PCT pH	T1 (°C)
1641	LAWA84								0.300		0.330	0.160	10.410						
1642	LAWA85								0.340		0.350	0.170	10.350						
1643	LAWA86								0.390		0.390	0.180	10.310						
1644	LAWA87								0.600		0.550	0.250	10.970						
1645	LAWA88								0.430		0.430	0.170	10.910						1251
1646	LAWA89								0.580		0.470	0.180	10.810						1250
1647	LAWA90								0.490		0.490	0.180	10.980						1244
1648	LAWA91																		
1649	LAWA92																		
1650	LAWA93								0.530		0.540	0.170	10.860						1244
1651	LAWA94																		
1652	LAWA95																		
1653	LAWA96								0.310		0.380	0.170	10.630						1244
1654	LAWA97S																		
1655	LAWA98S								0.360		0.280	0.120	10.360						
1656	LAWA99S								0.740		0.540	0.190	10.960						
1657	LAWA100S								0.540		0.380	0.160	9.860						
1658	LAWA101S								0.430		0.320	0.140	9.870						
1659	LAWA102S	<0.0532	1.327						0.270		0.220	0.160	9.840						
1660	LAWA103S																		
1661	LAWA104								0.580		0.530	0.210	11.230						
1662	LAWA105								0.960		0.790	0.280	11.350						
1663	LAWB29*																		
1664	LAWB30								0.240		0.240	0.090	10.110						1244
1665	LAWB31								0.210		0.100	0.100	9.410						
1666	LAWB32								0.250		0.140	0.110	9.330						
1667	LAWB33								0.190		0.120	0.100	9.180						
1668	LAWB34								0.220		0.120	0.100	9.510						1237
1669	LAWB35								0.500		0.340	0.140	9.560						
1670	LAWB36S																		
1671	LAWB37								0.250		0.180	0.110	9.430						1247
1672	LAWB38								0.250		0.180	0.110	9.560						1245
1673	LAWB39								0.500		0.400	0.130	9.430						
1674	LAWB40								1.590		1.180	0.330	10.410						
1675	LAWB41								0.850		0.700	0.190	10.170						
1676	LAWB42S																		
1677	LAWB43S																		
1678	LAWB44S																		
1679	LAWB45	<0.0532	1.014						0.530		0.440	0.140	10.130						
1680	LAWB47																		
1681	LAWB48																		
1682	LAWB49																		
1683	LAWB50																		
1684	LAWB51S								0.480		0.330	0.140	9.610						
1685	LAWB52S								0.490		0.340	0.160	9.740						
1686	LAWB53S								0.420		0.270	0.140	10.080						
1687	LAWC11 for AN107																		
1688	LAWC12 for AN107								0.420		0.409	0.184	10.810						1252
1689	LAWC13								0.354		0.370	0.172	10.430						
1690	LAWC14								0.540		3.609	0.208	11.220						
1691	LAWC15								0.329		0.335	0.161	10.450						
1692	LAWC16S								0.584		0.408	0.178	10.120						
1693	LAWC17S								0.399		0.294	0.137	10.020						
1694	LAWC18S								0.413		0.295	0.136	10.220						
1695	LAWC19S								0.232		0.225	0.088	9.840						
1696	LAWC20S								0.244		0.189	0.094	9.530						
1697	LAWC21S	<0.0532	1.121						0.150		0.172	0.080	10.020						
1698	LAWC22**								0.518		0.469	0.181	10.530						
1699	LAWC23								0.239		0.273	0.096	9.740						
1700	LAWC24								0.221		0.282	0.092	9.620						
1701	LAWC25								0.320		0.385	0.109	9.760						
1702	LAWABP1								0.290		0.310	0.130	10.430						
1703	PNLREF (LD6-5412)								0.100		0.270	0.090	10.610						
1704	DP-1								0.089	0.216	0.178		10.980	7.382	5.573	0.908		11.530	
1705	DP-2								0.127	0.193	0.290		11.060	2.597	2.105	0.744		11.420	
1706	DP-3								0.102	0.209	0.154		10.560	0.355	0.656	0.270		10.740	
1707	DP-4								0.215	0.695	0.147		9.870	0.659	4.630	0.513		10.270	
1708	DP-5								0.116	0.253	0.116		10.210	0.308	0.364	0.151		10.420	
1709	DP-6								0.413	0.476	0.560		11.330	1.049	1.947	0.804		11.680	
1710	DP-7								0.217	0.281	0.217		10.580	0.214	0.246	0.199		10.610	
1711	DP-8								1.447	1.376	0.840		9.370	1.293	1.789	0.933		9.530	
1712	DP-9								2.033	1.986	1.795		10.370	1.923	1.991	1.766		10.320	
1713	DP-10								0.541	0.000	0.409		8.970	0.794	0.000	0.523		9.070	
1714	DP-11								1.011	1.094	0.904		10.550	0.992	1.023	0.856		10.680	
1715	DP-12								0.128	0.213	0.218		10.630	0.218	0.255	0.228		10.690	
1716	DP-13								0.240	0.365	0.296		10.980	0.473	2.719	0.661		11.510	
1717	DP-14								0.261	0.435	0.354		11.150	0.245	0.312	0.281		11.210	
1718	DP-15								0.104	0.184	0.198		10.740	NR		0.197	0.189	10.690	
1719	DP-16								0.164	0.281	0.141		10.230	0.181	0.271	0.141		10.370	
1720	DP-17								0.735	0.771	0.854		11.310	0.559	0.870	0.730		11.430	
1721	DP-18								0.232	0.308	0.387		11.100	0.206	0.278	0.346		11.090	
1722	DP-19								0.525	0.510	0.746		11.420	0.622	0.808	0.807		11.590	

#	Glass ID	EC1 (S/cm)	T2 (°C)	EC2 (S/cm)	T3 (°C)	EC3 (S/cm)	T4 (°C)	EC4 (S/cm)	T5 (°C)	EC5 (S/cm)	T6 (°C)	EC6 (S/cm)	A	B	To
1641	LAWA84														
1642	LAWA85														
1643	LAWA86														
1644	LAWA87														
1645	LAWA88	0.765	1143	0.554	1044	0.37	949	0.248							
1646	LAWA89	0.697	1147	0.542	1046	0.39	947	0.26							
1647	LAWA90	0.653	1150	0.511	1051	0.35	955	0.233							
1648	LAWA91														
1649	LAWA92														
1650	LAWA93	0.558	1139	0.432	1041	0.297	947	0.183							
1651	LAWA94														
1652	LAWA95														
1653	LAWA96	0.748	1162	0.533	1052	0.307	951	0.204							
1654	LAWA97S														
1655	LAWA98S														
1656	LAWA99S														
1657	LAWA100S														
1658	LAWA101S														
1659	LAWA102S														
1660	LAWA103S														
1661	LAWA104														
1662	LAWA105														
1663	LAWB29*														
1664	LAWB30	0.424	1137	0.276	1040	0.163	925	0.084							
1665	LAWB31														
1666	LAWB32														
1667	LAWB33														
1668	LAWB34	0.361	1143	0.218	1045	0.141	947	0.07							
1669	LAWB35														
1670	LAWB36S														
1671	LAWB37	0.297	1139	0.229	1042	0.144	947	0.083							
1672	LAWB38	0.386	1141	0.283	1043	0.163	944	0.101							
1673	LAWB39														
1674	LAWB40														
1675	LAWB41														
1676	LAWB42S														
1677	LAWB43S														
1678	LAWB44S														
1679	LAWB45														
1680	LAWB47														
1681	LAWB48														
1682	LAWB49														
1683	LAWB50														
1684	LAWB51S														
1685	LAWB52S														
1686	LAWB53S														
1687	LAWC11 for AN107														
1688	LAWC12 for AN107	0.793	1150	0.6	1050	0.409	950	0.266							
1689	LAWC13														
1690	LAWC14														
1691	LAWC15														
1692	LAWC16S														
1693	LAWC17S														
1694	LAWC18S														
1695	LAWC19S														
1696	LAWC20S														
1697	LAWC21S														
1698	LAWC22**														
1699	LAWC23														
1700	LAWC24														
1701	LAWC25														
1702	LAWABP1														
1703	PNLREF (LD6-5412)														
1704	DP-1														
1705	DP-2														
1706	DP-3														
1707	DP-4														
1708	DP-5														
1709	DP-6														
1710	DP-7														
1711	DP-8														
1712	DP-9														
1713	DP-10														
1714	DP-11														
1715	DP-12														
1716	DP-13														
1717	DP-14														
1718	DP-15														
1719	DP-16														
1720	DP-17														
1721	DP-18														
1722	DP-19														

#	Glass ID	Study	Reference	Al2O3-t	B2O3-t	CaO-t	Fe2O3-t	FeO-t	K2O-t	Li2O-t	MgO-t	Na2O-t	NiO-t	P2O5-t	SiO2-t	ZrO2-t	Ag2O-t	As2O3-t	As2O5-t	BaO-t	BeO-t	Bi2O3-t	Br-t	CdO-t	Ce2O3-t	CeO2-t	Cl-t
1723	DP-20	DP Glasses for INEEL HLW	Pittman et al. 2001	0.0700	0.0600	0.1000	0.0000			0.0450		0.0800		0.0000	0.4700	0.0800											
1724	DP-21	DP Glasses for INEEL HLW	Pittman et al. 2001	0.0700	0.1450	0.1500	0.0000			0.0450		0.0800		0.0000	0.3600	0.0800											
1725	DP-22	DP Glasses for INEEL HLW	Pittman et al. 2001	0.0700	0.0650	0.0950	0.0000			0.0700		0.1300		0.0000	0.3600	0.0800											
1726	DP-23	DP Glasses for INEEL HLW	Pittman et al. 2001	0.1200	0.0600	0.1500	0.0000			0.0450		0.1300		0.0000	0.3600	0.0400											
1727	DP-24	DP Glasses for INEEL HLW	Pittman et al. 2001	0.0800	0.0600	0.0950	0.0000			0.0700		0.0800		0.0250	0.4700	0.0400											
1728	DP-BL1	DP Glasses for INEEL HLW	Pittman et al. 2001	0.0900	0.0900	0.1200	0.0250			0.0500		0.1050		0.0150	0.3875	0.0500											
1729	DP-BL2	DP Glasses for INEEL HLW	Pittman et al. 2001	0.0859	0.0509	0.1132	0.0300			0.0600		0.1137		0.0117	0.4228	0.0471											
1730	DP-centroid	DP Glasses for INEEL HLW	Pittman et al. 2001	0.0890	0.0819	0.1140	0.0183			0.0558		0.0983		0.0108	0.3802	0.0555											
1731	DZr-CV-1	INEEL DZr-CV Glasses	Riley et al. 2001	0.0700	0.0518	0.1152	0.0305		0.0014	0.0610		0.1157	0.0003	0.0119	0.4302	0.0479											0.0003
1732	DZr-CV-2	INEEL DZr-CV Glasses	Riley et al. 2001	0.1250	0.0487	0.1084	0.0287		0.0014	0.0574		0.1089	0.0003	0.0112	0.4047	0.0450											0.0003
1733	DZr-CV-3	INEEL DZr-CV Glasses	Riley et al. 2001	0.0851	0.0600	0.1121	0.0297		0.0014	0.0594		0.1126	0.0003	0.0116	0.4187	0.0466											0.0003
1734	DZr-CV-4	INEEL DZr-CV Glasses	Riley et al. 2001	0.0770	0.1500	0.1014	0.0268		0.0013	0.0537		0.1018	0.0003	0.0105	0.3786	0.0421											0.0003
1735	DZr-CV-5	INEEL DZr-CV Glasses	Riley et al. 2001	0.0877	0.0519	0.0950	0.0306		0.0015	0.0612		0.1161	0.0003	0.0120	0.4315	0.0480											0.0003
1736	DZr-CV-6	INEEL DZr-CV Glasses	Riley et al. 2001	0.0824	0.0488	0.1500	0.0287		0.0014	0.0575		0.1090	0.0003	0.0112	0.4052	0.0451											0.0003
1737	DZr-CV-7	INEEL DZr-CV Glasses	Riley et al. 2001	0.0866	0.0513	0.1140	0.0302		0.0014	0.0604		0.1146	0.0003	0.0118	0.4259	0.0474											0.0003
1738	DZr-CV-8	INEEL DZr-CV Glasses	Riley et al. 2001	0.0843	0.0499	0.1111	0.0294		0.0014	0.0589		0.1116	0.0003	0.0115	0.4148	0.0462											0.0003
1739	DZr-CV-9	INEEL DZr-CV Glasses	Riley et al. 2001	0.0886	0.0525	0.1167	0.0000		0.0015	0.0619		0.1173	0.0003	0.0121	0.4359	0.0485											0.0003
1740	DZr-CV-10	INEEL DZr-CV Glasses	Riley et al. 2001	0.0842	0.0498	0.1109	0.0500		0.0014	0.0588		0.1114	0.0003	0.0115	0.4141	0.0461											0.0003
1741	DZr-CV-11	INEEL DZr-CV Glasses	Riley et al. 2001	0.0838	0.0496	0.1104	0.0292		0.0014	0.0585		0.1109	0.0003	0.0114	0.4122	0.0459											0.0003
1742	DZr-CV-12	INEEL DZr-CV Glasses	Riley et al. 2001	0.0816	0.0483	0.1075	0.0285		0.0014	0.0570		0.1080	0.0003	0.0111	0.4016	0.0447											0.0003
1743	DZr-CV-13	INEEL DZr-CV Glasses	Riley et al. 2001	0.0873	0.0517	0.1150	0.0304		0.0014	0.0450		0.1156	0.0003	0.0119	0.4296	0.0478											0.0003
1744	DZr-CV-14	INEEL DZr-CV Glasses	Riley et al. 2001	0.0850	0.0504	0.1120	0.0297		0.0014	0.0700		0.1125	0.0003	0.0116	0.4183	0.0466											0.0003
1745	DZr-CV-15	INEEL DZr-CV Glasses	Riley et al. 2001	0.0892	0.0528	0.1175	0.0311		0.0015	0.0623		0.0800	0.0003	0.0122	0.4389	0.0488											0.0003
1746	DZr-CV-16	INEEL DZr-CV Glasses	Riley et al. 2001	0.0844	0.0500	0.1111	0.0294		0.0014	0.0589		0.1300	0.0003	0.0115	0.4150	0.0462											0.0003
1747	DZr-CV-17	INEEL DZr-CV Glasses	Riley et al. 2001	0.0870	0.0515	0.1146	0.0303		0.0014	0.0607		0.1151	0.0003	0.0000	0.4278	0.0476											0.0003
1748	DZr-CV-18	INEEL DZr-CV Glasses	Riley et al. 2001	0.0848	0.0502	0.1117	0.0296		0.0014	0.0592		0.1122	0.0003	0.0250	0.4171	0.0464											0.0003
1749	DZr-CV-19	INEEL DZr-CV Glasses	Riley et al. 2001	0.0864	0.0512	0.1138	0.0301		0.0014	0.0603		0.1144	0.0003	0.0118	0.4251	0.0473											0.0003
1750	DZr-CV-20	INEEL DZr-CV Glasses	Riley et al. 2001	0.0856	0.0507	0.1127	0.0298		0.0014	0.0597		0.1132	0.0003	0.0117	0.4209	0.0468											0.0003
1751	DZr-CV-21	INEEL DZr-CV Glasses	Riley et al. 2001	0.0953	0.0564	0.1256	0.0332		0.0016	0.0665		0.1261	0.0003	0.0130	0.3600	0.0522											0.0003
1752	DZr-CV-22	INEEL DZr-CV Glasses	Riley et al. 2001	0.0789	0.0467	0.1039	0.0275		0.0013	0.0551		0.1044	0.0003	0.0108	0.4699	0.0432											0.0003
1753	DZr-CV-23	INEEL DZr-CV Glasses	Riley et al. 2001	0.0866	0.0513	0.1140	0.0302		0.0014	0.0604		0.1146	0.0003	0.0118	0.4259	0.0400											0.0003
1754	DZr-CV-24	INEEL DZr-CV Glasses	Riley et al. 2001	0.0830	0.0491	0.1093	0.0289		0.0014	0.0579		0.1098	0.0003	0.0113	0.4082	0.0800											0.0003
1755	HLP-01	HLP glasses	Vienna et al. 2001	0.0700	0.1000	0.0001	0.0550		0.0041	0.0000	0.0150	0.2000		0.0006	0.4907	0.0150											0.0028
1756	HLP-02	HLP glasses	Vienna et al. 2001	0.0879	0.1257	0.0002	0.0692		0.0052	0.0000	0.0188	0.2514		0.0007	0.3600	0.0188											0.0035
1757	HLP-03	HLP glasses	Vienna et al. 2001	0.0660	0.0943	0.0001	0.0519		0.0039	0.0000	0.0141	0.1885		0.0005	0.5200	0.0141											0.0026
1758	HLP-04	HLP glasses	Vienna et al. 2001	0.0824	0.1178	0.0001	0.0648		0.0049	0.0000	0.0177	0.2357		0.0007	0.4000	0.0177											0.0033
1759	HLP-05	HLP glasses	Vienna et al. 2001	0.0400	0.1032	0.0001	0.0568		0.0043	0.0000	0.0155	0.2065		0.0006	0.5065	0.0155											0.0029
1760	HLP-06	HLP glasses	Vienna et al. 2001	0.1194	0.0947	0.0001	0.0521		0.0039	0.0000	0.0142	0.1894		0.0005	0.4646	0.0142											0.0026
1761	HLP-07	HLP glasses	Vienna et al. 2001	0.0900	0.0979	0.0001	0.0538		0.0040	0.0000	0.0147	0.1957		0.0005	0.4801	0.0147											0.0027
1762	HLP-08	HLP glasses	Vienna et al. 2001	0.0731	0.0600	0.0001	0.0575		0.0043	0.0000	0.0157	0.2089		0.0006	0.5125	0.0157											0.0029
1763	HLP-09	HLP glasses	Vienna et al. 2001	0.0684	0.1200	0.0001	0.0538		0.0040	0.0000	0.0147	0.1956		0.0005	0.4798	0.0147											0.0027
1764	HLP-10	HLP glasses	Vienna et al. 2001	0.0715	0.0800	0.0001	0.0563		0.0042	0.0000	0.0153	0.2045		0.0006	0.5016	0.0153											0.0028
1765	HLP-11	HLP glasses	Vienna et al. 2001	0.0741	0.1058	0.0001	0.0000		0.0044	0.0000	0.0159	0.2117		0.0006	0.5193	0.0159											0.0029
1766	HLP-12	HLP glasses	Vienna et al. 2001	0.0674	0.0963	0.0001	0.0900		0.0040	0.0000	0.0144	0.1926		0.0005	0.4725	0.0144											0.0027
1767	HLP-13	HLP glasses	Vienna et al. 2001	0.0718	0.1027	0.0001	0.0300		0.0042	0.0000	0.0154	0.2053		0.0006	0.5037	0.0154											0.0028
1768	HLP-14	HLP glasses	Vienna et al. 2001	0.0721	0.1031	0.0001	0.0567		0.0043	0.0000	0.0155	0.2062		0.0006	0.5059	0.0155											0.0029
1769	HLP-15	HLP glasses	Vienna et al. 2001	0.0678	0.0969	0.0001	0.0533		0.0040	0.0000	0.0145	0.1939		0.0005	0.4755	0.0145											0.0027
1770	HLP-16	HLP glasses	Vienna et al. 2001	0.0710	0.1015	0.0001	0.0559		0.0042	0.0000	0.0152	0.2031		0.0006	0.4982	0.0152											0.0028
1771	HLP-17	HLP glasses	Vienna et al. 2001	0.0682	0.0975	0.0001	0.0536		0.0040	0.0000	0.0146	0.1950		0.0005	0.4782	0.0146											0.0027
1772	HLP-18	HLP glasses	Vienna et al. 2001	0.0710	0.1015	0.0001	0.0559		0.0042	0.0000	0.0152	0.2031		0.0006	0.4982	0.0000											0.0028
1773	HLP-19	HLP glasses	Vienna et al. 2001	0.0668	0.0955	0.0001	0.0525		0.0039	0.0000	0.0143	0.1909		0.0005	0.4683	0.0600											0.0026
1774	HLP-20	HLP glasses	Vienna et al. 2001	0.0710	0.1015	0.0001	0.0559		0.0042	0.0000	0.0000	0.2031		0.0006	0.4982	0.0152											0.0028
1775	HLP-21	HLP glasses	Vienna et al. 2001	0.0682	0.0975	0.0001	0.0536		0.0040	0.0000	0.0400	0.1950		0.0005	0.4782	0.0146											0.0027
1776	HLP-22	HLP glasses	Vienna et al. 2001	0.0737	0.1053	0.0001	0.0579		0.0033	0.0000	0.0158	0.1600		0.0004	0.5167	0.0158											0.0022
1777	HLP-23	HLP glasses	Vienna et al. 2001	0.0672	0.0961	0.0001	0.0529		0.0047	0.0000	0.0144	0.2300		0.0006	0.4713	0.0144											0.0032
1778	HLP-24	HLP glasses	Vienna et al. 2001	0.0718	0.1027	0.0001	0.0565		0.0037	0.0000	0.0154	0.1800		0.0005	0.5037	0.0154											0.0025
1779	HLP-25	HLP glasses	Vienna et al. 2001	0.0700	0.1000	0.0001	0.0550		0.0041	0.0000	0.0150	0.2000		0.0006	0.4907	0.0150											0.0028
1780	HLP-26	HLP glasses	Vienna et al. 2001	0.0700	0.1000	0.0001	0.0550		0.0041	0.0000	0.0150	0.2000		0.0006	0.4907	0.0150											0.0028
1781	HLP-27	HLP glasses	Vienna et al. 2001	0.1194	0.1200	0.0001	0.0000		0.0047	0.0000	0.0000	0.2300		0.0006	0.5200	0.0000											0.0032
1782	HLP-28	HLP glasses	Vienna et al. 2001	0.1194	0.1200	0.0001	0.0310		0.0033	0.0000	0.0084	0.1600		0.0004	0.5200	0.0084											0.0022
1783	HLP-29	HLP glasses	Vienna et al. 2001	0.1194	0.0600	0.0001	0.0254		0.0047	0.0000	0.0069	0.2300		0.0006	0.5200	0.0069											0.0032
1784	HLP-30	HLP glasses	Vienna et al. 2001	0.1194	0.0600	0.0001	0.0564		0.0033	0.0000	0.0154	0.1600		0.0004	0.5200	0.0154											0.0022
1785	HLP-31	HLP glasses	Vienna et al. 2001	0.0400	0.1200	0.0001	0.0336		0.0047	0.0000	0.0092	0.2300		0.0006	0.5200	0.0092											0.0032
1786	HLP-32	HLP glasses	Vienna et al. 2001	0.0400	0.1200	0.0001	0.0646		0.0033	0.0000	0.0176	0.1600		0.0004	0.5200	0.0176											0.0022
1787	HLP-33	HLP glasses	Vienna et al. 2001	0.0400	0.0600	0.0001	0.0590		0.0047	0.0000	0.0161	0.2300		0.0006	0.5200	0.0161											0.0032
1788	HLP-34	HLP glasses	Vienna et al. 2001	0.0400	0.0600	0.0001	0.0900		0.0033	0.0000	0.0245	0.1600		0.0004	0.5200	0.0245											0.0022
1789	HLP-35	HLP glasses	Vienna et al. 2001	0.1194	0.1200	0.0001	0.0677		0.0047	0.0000	0.0185	0.2300		0.0006	0.3600	0.0185											0.0032
1790	HLP-36	HLP glasses	Vienna et al. 2001	0.1194	0.1200	0.0001	0.0987		0.0033	0.0000	0.0269	0.1600		0.0004	0.3600	0.0269											0.0022
1791	HLP-37	HLP glasses	Vienna et al. 2001	0.1194	0.0600	0.0001	0.0931		0.0047	0.0000	0.0254	0.2300		0.0006	0.3600	0.0254											0.0032
1792	HLP-38	HLP glasses	Vienna et al. 2001	0.1194	0.0600	0.0001	0.1241		0.0033	0.0000	0.0338	0.1600		0.0004	0.3600	0.0338											0.0022
1793	HLP-39	HLP glasses	Vienna et al. 2001	0.0400	0.1200	0.0001	0.1013		0.0047	0.0000	0.0276	0.2300		0.0006	0.3600	0.0276											0.0032
1794	HLP-40	HLP glasses	Vienna et al. 2001	0.0400	0.1200	0.0001	0.1323		0.0033	0.0000	0.0361	0.1600		0.0004	0.3600	0.0361											0.0022
1795	HLP-40Q	HLP glasses	Vienna et al. 2001	0.0400	0.1200	0.0001	0.1323		0.0033	0.0000	0.0361	0.1600		0.0004	0.3600	0.0361											0.0022
1796	HLP-41	HLP glasses	Vienna et al. 2001	0.0400	0.0600	0.0001	0.1267		0.0047	0.0000	0.0345	0.2300		0.0006	0.3600	0.0345											0.0032
1797	HLP-42	HLP glasses	Vienna et al. 2001	0.0400	0.0600	0.0001	0.1577		0.0033	0.0000	0.0430	0.1600		0.0004	0.3600	0.0430											0.0022
1798	HLP-42Q	HLP glasses	Vienna et al. 2001	0.0400	0.0600	0.0001	0.1577		0.0033	0.0000	0.0430	0.1600		0.0004	0.3600	0.0430											0.0022
1799	HLP-43	HLP glasses	Vienna et al. 2001	0.0700	0.1000	0.0001	0.0550		0.0041	0.0000	0.0150	0.2000		0.0006	0.4907	0.0150											0.0028
1800	HLP-44	HLP glasses	Vienna et al. 2001	0.0700	0.1000	0.0001	0.0550		0.0041	0.0000	0.0150	0.2000		0.0006	0.4907	0.0150											0.0028
1801	HLP-45	HLP glasses	Vienna et al. 2001	0.0700	0.1000	0.0001	0.0550		0.0041	0.0000	0.0150	0.2000		0.0006	0.4907	0.0150											0.0028
1802	HLP-46	HLP glasses	Vienna et al. 2001	0.1200	0.0500	0.0400	0.0000		0.0146		0.0000	0.2000		0.0019	0.5591												0.0035
1803	HLP-47	HLP glasses	Vienna et al. 2001	0.1000	0.0800	0.0050	0.0100		0.0150	0.0010	0.0010	0.2000	0.0010	0.0050	0.5437	0.0100				0.0001				0.0020			0.0080
1804	HLP-48	HLP glasses	Vienna et al. 2001	0.1197	0.0885	0.0000	0.0577		0.0310	0.0000	0.0199	0.2000		0.0008	0.3825	0.0249											0.0058

#	Glass ID	CoO-t	Co2O3-t	Cr2O3-t	Cs2O-t	CuO-t	Dy2O3-t	Eu2O3-t	F-t	Ga2O3-t	Gd2O3-t	HfO2-t	HgO-t	I-t	La2O3-t	MnO2-t	MnO-t	MoO-t	MoO2-t	MoO3-t	Nb2O5-t	Nd2O3-t	NpO2-t	PbO-t	PdO2-t	PdO-t	Pr2O3-t	Pr6O11-t	Rb2O-t	ReO-t
1723	DP-20								0.0400						0.0500														
1724	DP-21								0.0400						0.0250														
1725	DP-22								0.0650						0.0500														
1726	DP-23								0.0650						0.0250														
1727	DP-24								0.0400						0.0250														
1728	DP-BL1								0.0500						0.0000														
1729	DP-BL2								0.0470						0.0000														
1730	DP-centroid								0.0508						0.0358														
1731	DZr-CV-1			0.0014					0.0478						0.0000		0.0013							0.0002						
1732	DZr-CV-2			0.0014					0.0450						0.0000		0.0012							0.0002						
1733	DZr-CV-3			0.0014					0.0466						0.0000		0.0012							0.0002						
1734	DZr-CV-4			0.0014					0.0421						0.0000		0.0011							0.0001						
1735	DZr-CV-5			0.0014					0.0480						0.0000		0.0013							0.0002						
1736	DZr-CV-6			0.0014					0.0451						0.0000		0.0012							0.0002						
1737	DZr-CV-7			0.0014					0.0400						0.0000		0.0013							0.0002						
1738	DZr-CV-8			0.0014					0.0650						0.0000		0.0012							0.0002						
1739	DZr-CV-9			0.0014					0.0485						0.0000		0.0013							0.0002						
1740	DZr-CV-10			0.0014					0.0460						0.0000		0.0012							0.0002						
1741	DZr-CV-11			0.0014					0.0458						0.0250		0.0012							0.0002						
1742	DZr-CV-12			0.0014					0.0447						0.0500		0.0012							0.0001						
1743	DZr-CV-13			0.0014					0.0478						0.0000		0.0013							0.0002						
1744	DZr-CV-14			0.0014					0.0465						0.0000		0.0012							0.0002						
1745	DZr-CV-15			0.0014					0.0488						0.0000		0.0013							0.0002						
1746	DZr-CV-16			0.0014					0.0461						0.0000		0.0012							0.0002						
1747	DZr-CV-17			0.0014					0.0476						0.0000		0.0013							0.0002						
1748	DZr-CV-18			0.0014					0.0464						0.0000		0.0012							0.0002						
1749	DZr-CV-19			0.0014					0.0473						0.0000		0.0013							0.0002						
1750	DZr-CV-20			0.0014					0.0468						0.0000		0.0012							0.0002						
1751	DZr-CV-21			0.0014					0.0521						0.0000		0.0014							0.0002						
1752	DZr-CV-22			0.0014					0.0432						0.0000		0.0011							0.0001						
1753	DZr-CV-23			0.0014					0.0474						0.0000		0.0013							0.0002						
1754	DZr-CV-24			0.0014					0.0454						0.0000		0.0012							0.0002						
1755	HLP-01			0.0008					0.0001						0.0000					0.0000										0.0001
1756	HLP-02			0.0009					0.0001						0.0000					0.0000										0.0001
1757	HLP-03			0.0007					0.0001						0.0000					0.0000										0.0001
1758	HLP-04			0.0009					0.0001						0.0000					0.0000										0.0001
1759	HLP-05			0.0008					0.0001						0.0000					0.0000										0.0001
1760	HLP-06			0.0007					0.0001						0.0000					0.0000										0.0001
1761	HLP-07			0.0007					0.0001						0.0000					0.0000										0.0001
1762	HLP-08			0.0008					0.0001						0.0000					0.0000										0.0001
1763	HLP-09			0.0007					0.0001						0.0000					0.0000										0.0001
1764	HLP-10			0.0008					0.0001						0.0000					0.0000										0.0001
1765	HLP-11			0.0008					0.0001						0.0000					0.0000										0.0001
1766	HLP-12			0.0007					0.0001						0.0000					0.0000										0.0001
1767	HLP-13			0.0008					0.0001						0.0000					0.0000										0.0001
1768	HLP-14			0.0008					0.0001						0.0000					0.0000										0.0001
1769	HLP-15			0.0007					0.0001						0.0000					0.0000										0.0001
1770	HLP-16			0.0008					0.0001						0.0000					0.0000										0.0001
1771	HLP-17			0.0007					0.0001						0.0000					0.0000										0.0001
1772	HLP-18			0.0008					0.0001						0.0000					0.0000										0.0001
1773	HLP-19			0.0007					0.0001						0.0000					0.0000										0.0001
1774	HLP-20			0.0008					0.0001						0.0000					0.0000										0.0001
1775	HLP-21			0.0007					0.0001						0.0000					0.0000										0.0001
1776	HLP-22			0.0006					0.0001						0.0000					0.0000										0.0001
1777	HLP-23			0.0009					0.0001						0.0000					0.0000										0.0001
1778	HLP-24			0.0007					0.0001						0.0000					0.0000										0.0001
1779	HLP-25			0.0008					0.0001						0.0000					0.0000										0.0001
1780	HLP-26			0.0008					0.0001						0.0000					0.0000										0.0001
1781	HLP-27			0.0009					0.0001						0.0000					0.0000										0.0001
1782	HLP-28			0.0006					0.0001						0.0000					0.0000										0.0001
1783	HLP-29			0.0009					0.0001						0.0000					0.0000										0.0001
1784	HLP-30			0.0006					0.0001						0.0000					0.0000										0.0001
1785	HLP-31			0.0009					0.0001						0.0000					0.0000										0.0001
1786	HLP-32			0.0006					0.0001						0.0000					0.0000										0.0001
1787	HLP-33			0.0009					0.0001						0.0000					0.0000										0.0001
1788	HLP-34			0.0006					0.0001						0.0000					0.0000										0.0001
1789	HLP-35			0.0009					0.0001						0.0000					0.0000										0.0001
1790	HLP-36			0.0006					0.0001						0.0000					0.0000										0.0001
1791	HLP-37			0.0009					0.0001						0.0000					0.0000										0.0001
1792	HLP-38			0.0006					0.0001						0.0000					0.0000										0.0001
1793	HLP-39			0.0009					0.0001						0.0000					0.0000										0.0001
1794	HLP-40			0.0006					0.0001						0.0000					0.0000										0.0001
1795	HLP-40Q			0.0006					0.0001						0.0000					0.0000										0.0001
1796	HLP-41			0.0009					0.0001						0.0000					0.0000										0.0001
1797	HLP-42			0.0006					0.0001						0.0000					0.0000										0.0001
1798	HLP-42Q			0.0006					0.0001						0.0000					0.0000										0.0001
1799	HLP-43			0.0008					0.0001						0.0000					0.0000										0.0001
1800	HLP-44			0.0008					0.0001						0.0000					0.0000										0.0001
1801	HLP-45			0.0008					0.0001						0.0000					0.0000										0.0001
1802	HLP-46			0.0004	0.0015				0.0029					0.0013			0.0000			0.0015										
1803	HLP-47			0.0020					0.0100					0.0000	0.0001		0.0010			0.0000				0.0010						0.0000
1804	HLP-48			0.0002					0.0004						0.0000					0.0000										0.0000

#	Glass ID	ReO2-t	Re2O7-t	Rh2O3-t	RhO2-t	RuO2-t	Ru2O3-t	Sb2O3-t	Sb2O5-t	SeO2-t	Sm2O3-t	SnO-t	SnO2-t	SO3-t	SrO-t	Tc2O7-t	TeO2-t	ThO2-t	TiO2-t	Tl2O-t	Tl2O3-t	U3O8-t	UO2-t	UO3-t	V2O5-t	WO3-t	Y2O3-t	ZnO-t	Sum-t	Al2O3-a
1723	DP-20													0.0050														1.0000	0.0743
1724	DP-21													0.0050														1.0000	0.0718
1725	DP-22													0.0150														1.0000	0.0726
1726	DP-23													0.0050														1.0000	0.1223
1727	DP-24													0.0150														1.0000	0.0818
1728	DP-BL1													0.0100														0.9925	0.0932
1729	DP-BL2													0.0105														0.9928	0.0886
1730	DP-centroid													0.0098														1.0002	0.0903
1731	DZr-CV-1													0.0106	0.0024													1.0000	
1732	DZr-CV-2													0.0100	0.0023													1.0000	
1733	DZr-CV-3													0.0104	0.0024													1.0000	
1734	DZr-CV-4													0.0094	0.0022													1.0000	
1735	DZr-CV-5													0.0107	0.0025													1.0000	
1736	DZr-CV-6													0.0100	0.0023													1.0000	
1737	DZr-CV-7													0.0105	0.0024													1.0000	
1738	DZr-CV-8													0.0103	0.0024													1.0000	
1739	DZr-CV-9													0.0108	0.0025													1.0000	
1740	DZr-CV-10													0.0102	0.0024													1.0000	
1741	DZr-CV-11													0.0102	0.0023													1.0000	
1742	DZr-CV-12													0.0099	0.0023													1.0000	
1743	DZr-CV-13													0.0106	0.0024													1.0000	
1744	DZr-CV-14													0.0104	0.0024													1.0000	
1745	DZr-CV-15													0.0109	0.0025													1.0000	
1746	DZr-CV-16													0.0103	0.0024													1.0000	
1747	DZr-CV-17													0.0106	0.0024													1.0000	
1748	DZr-CV-18													0.0103	0.0024													1.0000	
1749	DZr-CV-19													0.0050	0.0024													1.0000	
1750	DZr-CV-20													0.0150	0.0024													1.0000	
1751	DZr-CV-21													0.0116	0.0027													1.0000	
1752	DZr-CV-22													0.0096	0.0022													1.0000	
1753	DZr-CV-23													0.0105	0.0024													1.0000	
1754	DZr-CV-24													0.0101	0.0023													1.0000	
1755	HLP-01													0.0007				0.0300									0.0150	1.0000	0.0704
1756	HLP-02													0.0009				0.0377									0.0188	0.9999	0.0895
1757	HLP-03													0.0007				0.0282									0.0141	0.9999	0.0708
1758	HLP-04													0.0009				0.0353									0.0177	1.0001	0.0874
1759	HLP-05													0.0008				0.0309									0.0155	1.0001	0.0424
1760	HLP-06													0.0007				0.0284									0.0142	0.9999	0.1230
1761	HLP-07													0.0007				0.0293									0.0147	0.9998	0.0979
1762	HLP-08													0.0008				0.0313									0.0157	1.0001	0.0706
1763	HLP-09													0.0007				0.0293									0.0147	0.9999	0.0712
1764	HLP-10													0.0007				0.0306									0.0153	0.9998	0.0704
1765	HLP-11													0.0008				0.0317									0.0159	1.0001	0.0691
1766	HLP-12													0.0007				0.0289									0.0144	0.9998	0.0644
1767	HLP-13													0.0008				0.0308									0.0154	1.0000	0.0644
1768	HLP-14													0.0008				0.0000									0.0155	1.0002	0.0723
1769	HLP-15													0.0007				0.0600									0.0145	0.9998	0.0652
1770	HLP-16													0.0007				0.0304									0.0000	0.9999	0.0679
1771	HLP-17													0.0007				0.0292									0.0400	0.9998	0.0684
1772	HLP-18													0.0007				0.0304									0.0152	0.9999	0.0745
1773	HLP-19													0.0007				0.0286									0.0143	0.9999	0.0694
1774	HLP-20													0.0007				0.0304									0.0152	0.9999	0.0719
1775	HLP-21													0.0007				0.0292									0.0146	0.9998	0.0689
1776	HLP-22													0.0006				0.0316									0.0158	1.0000	0.0767
1777	HLP-23													0.0008				0.0288									0.0144	1.0000	0.0692
1778	HLP-24													0.0007				0.0308									0.0154	1.0001	0.0744
1779	HLP-25													0.0007				0.0300									0.0150	1.0000	0.0676
1780	HLP-26													0.0007				0.0300									0.0150	1.0000	0.0668
1781	HLP-27													0.0008				0.0000									0.0000	0.9999	0.1200
1782	HLP-28													0.0006				0.0169									0.0084	0.9999	0.1210
1783	HLP-29													0.0008				0.0138									0.0069	0.9998	0.1180
1784	HLP-30													0.0006				0.0307									0.0154	1.0001	0.1220
1785	HLP-31													0.0008				0.0183									0.0092	1.0000	0.0420
1786	HLP-32													0.0006				0.0352									0.0176	1.0000	0.0421
1787	HLP-33													0.0008				0.0321									0.0161	0.9999	0.0416
1788	HLP-34													0.0006				0.0490									0.0245	0.9999	0.0397
1789	HLP-35													0.0008				0.0369									0.0185	1.0000	0.1150
1790	HLP-36													0.0006				0.0538									0.0269	1.0000	0.1200
1791	HLP-37													0.0008				0.0507									0.0254	0.9999	0.1160
1792	HLP-38													0.0006				0.0676									0.0338	0.9999	0.1200
1793	HLP-39													0.0008				0.0552									0.0276	0.9998	0.0399
1794	HLP-40													0.0006				0.0721									0.0361	1.0001	0.0426
1795	HLP-40Q													0.0006				0.0721									0.0361	1.0001	0.0401
1796	HLP-41													0.0008				0.0690									0.0345	0.9997	0.0391
1797	HLP-42													0.0006				0.0859									0.0430	1.0000	0.0413
1798	HLP-42Q													0.0006				0.0859									0.0430	1.0000	0.0409
1799	HLP-43													0.0007				0.0300									0.0150	1.0000	0.0669
1800	HLP-44													0.0007				0.0300									0.0150	1.0000	0.0693
1801	HLP-45													0.0007				0.0300									0.0150	1.0000	0.0710
1802	HLP-46													0.0022	0.0011													1.0000	0.1170
1803	HLP-47													0.0020				0.0010									0.0000	0.9989	0.0942
1804	HLP-48													0.0010				0.0249									0.0427	1.0000	0.1150

#	Glass ID	B2O3-a	CaO-a	Fe2O3-a	FeO-a	K2O-a	Li2O-a	MgO-a	Na2O-a	NiO-a	P2O5-a	SiO2-a	ZrO2-a	Ag2O-a	As2O3-a	As2O5-a	BaO-a	BeO-a	Bi2O3-a	Br-a	CdO-a	Ce2O3-a	CeO2-a	Cl-a	CoO-a	Co2O3-a	Cr2O3-a	Cs2O-a	CuO-a	F-a
1723	DP-20	0.0599	0.1043	0.0017			0.0454		0.0803			0.4986	0.0784																	0.0363
1724	DP-21	0.1417	0.1442	0.0000			0.0452		0.0822			0.3831	0.0803																	0.0367
1725	DP-22	0.0657	0.1008	0.0004			0.0710		0.1418			0.3702	0.0805																	0.0638
1726	DP-23	0.0596	0.1414	0.0017			0.0464		0.1364			0.3766	0.0409																	0.0615
1727	DP-24	0.0592	0.1004	0.0003			0.0720		0.0929		0.0247	0.5008	0.0401																	0.0376
1728	DP-BL1	0.1001	0.1224	0.0256			0.0503		0.1040		0.0152	0.4066	0.0509																	0.0424
1729	DP-BL2	0.0538	0.1133	0.0330			0.0613		0.1131		0.0116	0.4558	0.0471																	0.0448
1730	DP-centroid	0.0802	0.1165	0.0192			0.0568		0.0967		0.0112	0.4002	0.0560																	0.0468
1731	DZr-CV-1																													
1732	DZr-CV-2																													
1733	DZr-CV-3																													
1734	DZr-CV-4																													
1735	DZr-CV-5																													
1736	DZr-CV-6																													
1737	DZr-CV-7																													
1738	DZr-CV-8																													
1739	DZr-CV-9																													
1740	DZr-CV-10																													
1741	DZr-CV-11																													
1742	DZr-CV-12																													
1743	DZr-CV-13																													
1744	DZr-CV-14																													
1745	DZr-CV-15																													
1746	DZr-CV-16																													
1747	DZr-CV-17																													
1748	DZr-CV-18																													
1749	DZr-CV-19																													
1750	DZr-CV-20																													
1751	DZr-CV-21																													
1752	DZr-CV-22																													
1753	DZr-CV-23																													
1754	DZr-CV-24																													
1755	HLP-01	0.0892	0.0001	0.0652		0.0040		0.0141	0.1840			0.4880	0.0154														0.0025			
1756	HLP-02	0.1140		0.0763		0.0059		0.0181	0.2580			0.3520	0.0188														0.0022			
1757	HLP-03	0.0909		0.0606		0.0041		0.0136	0.1790			0.5150	0.0136														0.0019			
1758	HLP-04	0.1240		0.0772		0.0052		0.0168	0.2220			0.4040	0.0174														0.0024			
1759	HLP-05	0.1030		0.0680		0.0050		0.0145	0.2030			0.4730	0.0145														0.0027			
1760	HLP-06	0.0889		0.0596		0.0042		0.0134	0.1910			0.4460	0.0135														0.0014			
1761	HLP-07	0.0945		0.0632		0.0043		0.0146	0.1930			0.5030	0.0155														0.0020			
1762	HLP-08	0.0594		0.0584		0.0056		0.0131	0.1950			0.4890	0.0144														0.0009			
1763	HLP-09	0.1180		0.0640		0.0041		0.0129	0.1860			0.4330	0.0122														0.0021			
1764	HLP-10	0.0892		0.0633		0.0048		0.0136	0.1840			0.4790	0.0155														0.0022			
1765	HLP-11	0.1060		0.0055		0.0040		0.0123	0.1820			0.5080	0.0138														0.0021			
1766	HLP-12	0.1020	0.0005	0.0920		0.0046		0.0123	0.1800			0.4480	0.0134														0.0023			
1767	HLP-13	0.1020	0.0006	0.0380		0.0041		0.0151	0.1850			0.4990	0.0134														0.0024			
1768	HLP-14	0.1010	0.0006	0.0631		0.0045		0.0153	0.1940			0.4730	0.0143														0.0024			
1769	HLP-15	0.0972	0.0007	0.0669		0.0038		0.0154	0.1860			0.4780	0.0106														0.0026			
1770	HLP-16	0.1000	0.0008	0.0684		0.0041		0.0161	0.1900			0.5340	0.0130														0.0026			
1771	HLP-17	0.0986		0.0636		0.0036		0.0153	0.1840			0.4830	0.0130														0.0023			
1772	HLP-18	0.1020		0.0622		0.0043		0.0154	0.1920			0.4620															0.0026			
1773	HLP-19	0.0963		0.0640		0.0043		0.0147	0.1780			0.4820	0.0564														0.0025			
1774	HLP-20	0.1010		0.0626		0.0040			0.1930			0.4930	0.0151														0.0026			
1775	HLP-21	0.1020		0.0671		0.0037		0.0393	0.1830			0.4590	0.0134														0.0025			
1776	HLP-22	0.1100		0.0702		0.0030		0.0166	0.1540			0.5330	0.0126														0.0027			
1777	HLP-23	0.0965		0.0591		0.0042		0.0147	0.2150			0.4410	0.0138														0.0027			
1778	HLP-24	0.1000		0.0659		0.0040		0.0163	0.1720			0.4890	0.0151														0.0024			
1779	HLP-25	0.1010	0.0001	0.0627		0.0041		0.0154	0.1850			0.4720	0.0148														0.0021			
1780	HLP-26	0.0943		0.0597		0.0043		0.0145	0.1820			0.4680	0.0150														0.0021			
1781	HLP-27	0.1230		0.0060		0.0044			0.2170			0.5040															0.0026			
1782	HLP-28	0.1300		0.0382				0.0080	0.1510			0.5180	0.0075														0.0022			
1783	HLP-29	0.0651		0.0312		0.0042		0.0069	0.2150			0.4950	0.0064														0.0025			
1784	HLP-30	0.0656		0.0638		0.0029		0.0150	0.1540			0.4730	0.0143														0.0023			
1785	HLP-31	0.1230		0.0430		0.0040		0.0084	0.2200			0.4890	0.0070														0.0024			
1786	HLP-32	0.1290		0.0705		0.0031		0.0166	0.1570			0.4600	0.0160														0.0025			
1787	HLP-33	0.0644		0.0692		0.0045		0.0157	0.2200			0.5230	0.0131														0.0030			
1788	HLP-34	0.0624		0.1020		0.0030		0.0210	0.1430			0.5100	0.0200														0.0020			
1789	HLP-35	0.1210		0.0747		0.0050		0.0168	0.2160			0.3600	0.0173														0.0022			
1790	HLP-36	0.1260		0.1030		0.0027		0.0241	0.1550			0.3560	0.0244														0.0017			
1791	HLP-37	0.0678		0.0971		0.0040		0.0219	0.2180			0.3560	0.0228														0.0019			
1792	HLP-38	0.0609		0.1260		0.0030		0.0315	0.1530			0.3540	0.0338														0.0017			
1793	HLP-39	0.1260		0.1040		0.0045		0.0259	0.2150			0.3440	0.0262														0.0023			
1794	HLP-40	0.1240		0.1340		0.0031		0.0365	0.1630			0.3510	0.0344														0.0018			
1795	HLP-40Q	0.1270		0.1340		0.0031		0.0346	0.1540			0.3410	0.0316														0.0020			
1796	HLP-41	0.0647		0.1300		0.0043		0.0320	0.2160			0.3500	0.0319														0.0022			
1797	HLP-42	0.0646		0.1580		0.0042		0.0409	0.1560			0.3420	0.0378														0.0017			
1798	HLP-42Q	0.0632		0.1680		0.0037		0.0405	0.1550			0.3510	0.0327														0.0019			
1799	HLP-43	0.0985	0.0001	0.0623		0.0047		0.0133	0.1850			0.4840	0.0150														0.0023			
1800	HLP-44	0.0997		0.0607		0.0035		0.0146	0.1860			0.4830	0.0122														0.0021			
1801	HLP-45	0.1010		0.0606		0.0034		0.0155	0.1850			0.4860	0.0134														0.0022			
1802	HLP-46	0.0550	0.0392	0.0049		0.0028			0.1800			0.5770															0.0016			
1803	HLP-47	0.0764	0.0052	0.0204		0.0140	0.0012	0.0011	0.1890			0.5510	0.0094														0.0032			
1804	HLP-48	0.0893		0.0637		0.0275		0.0183	0.1850			0.3640	0.0204														0.0014			

#	Glass ID	Ga2O3-a	Gd2O3-a	I-a	La2O3-a	MnO2-a	MnO-a	MoO-a	MoO3-a	Nb2O5-a	Nd2O3-a	NpO2-a	PbO-a	PdO2-a	PdO-a	Pr2O3-a	Pr6O11-a	PuO2-a	Rb2O-a	ReO-a	ReO2-a	Re2O7-a	Rh2O3-a	RhO2-a	RuO2-a	Sb2O3-a	Sb2O5-a	SeO2-a
1723	DP-20				0.0515																							
1724	DP-21				0.0252																							
1725	DP-22				0.0500																							
1726	DP-23				0.0256																							
1727	DP-24				0.0255																							
1728	DP-BL1																											
1729	DP-BL2				0.0012																							
1730	DP-centroid				0.0360																							
1731	DZr-CV-1																											
1732	DZr-CV-2																											
1733	DZr-CV-3																											
1734	DZr-CV-4																											
1735	DZr-CV-5																											
1736	DZr-CV-6																											
1737	DZr-CV-7																											
1738	DZr-CV-8																											
1739	DZr-CV-9																											
1740	DZr-CV-10																											
1741	DZr-CV-11																											
1742	DZr-CV-12																											
1743	DZr-CV-13																											
1744	DZr-CV-14																											
1745	DZr-CV-15																											
1746	DZr-CV-16																											
1747	DZr-CV-17																											
1748	DZr-CV-18																											
1749	DZr-CV-19																											
1750	DZr-CV-20																											
1751	DZr-CV-21																											
1752	DZr-CV-22																											
1753	DZr-CV-23																											
1754	DZr-CV-24																											
1755	HLP-01				0.0002																							
1756	HLP-02																											
1757	HLP-03																											
1758	HLP-04																											
1759	HLP-05																											
1760	HLP-06																											
1761	HLP-07																											
1762	HLP-08																											
1763	HLP-09																											
1764	HLP-10				0.0001																							
1765	HLP-11																											
1766	HLP-12																											
1767	HLP-13																											
1768	HLP-14																											
1769	HLP-15																											
1770	HLP-16																											
1771	HLP-17				0.0005																							
1772	HLP-18																											
1773	HLP-19																											
1774	HLP-20																											
1775	HLP-21																											
1776	HLP-22																											
1777	HLP-23																											
1778	HLP-24																											
1779	HLP-25				0.0002																							
1780	HLP-26																											
1781	HLP-27																											
1782	HLP-28																											
1783	HLP-29																											
1784	HLP-30																											
1785	HLP-31																											
1786	HLP-32																											
1787	HLP-33																											
1788	HLP-34																											
1789	HLP-35																											
1790	HLP-36																											
1791	HLP-37																											
1792	HLP-38																											
1793	HLP-39																											
1794	HLP-40																											
1795	HLP-40Q																											
1796	HLP-41																											
1797	HLP-42																											
1798	HLP-42Q				0.0010																							
1799	HLP-43																											
1800	HLP-44																											
1801	HLP-45																											
1802	HLP-46																											
1803	HLP-47																											
1804	HLP-48																											

#	Glass ID	Sm2O3-a	SnO-a	SnO2-a	SO3-a	SrO-a	Tc2O7-a	TeO2-a	ThO2-a	TiO2-a	Tl2O-a	Tl2O3-a	U3O8-a	UO2-a	UO3-a	V2O5-a	WO3-a	Y2O3-a	ZnO-a	Sum-a	T_M (°C)	$T_{L,G}$ (°C)	$T_{L,U}$ (°C)	$T_{1\%}$ (°C)	Primary Phase	$C_{650°C}$	$C_{700°C}$	$C_{750°C}$
1723	DP-20																			1.0307								
1724	DP-21																			1.0104								
1725	DP-22																			1.0168								
1726	DP-23																			1.0124								
1727	DP-24																			1.0353								
1728	DP-BL1																			1.0107								
1729	DP-BL2																			1.0236								
1730	DP-centroid																			1.0099								
1731	DZr-CV-1																			0.0000								
1732	DZr-CV-2																			0.0000								
1733	DZr-CV-3																			0.0000								
1734	DZr-CV-4																			0.0000								
1735	DZr-CV-5																			0.0000								
1736	DZr-CV-6																			0.0000								
1737	DZr-CV-7																			0.0000								
1738	DZr-CV-8																			0.0000								
1739	DZr-CV-9																			0.0000								
1740	DZr-CV-10																			0.0000								
1741	DZr-CV-11																			0.0000								
1742	DZr-CV-12																			0.0000								
1743	DZr-CV-13																			0.0000								
1744	DZr-CV-14																			0.0000								
1745	DZr-CV-15																			0.0000								
1746	DZr-CV-16																			0.0000								
1747	DZr-CV-17																			0.0000								
1748	DZr-CV-18																			0.0000								
1749	DZr-CV-19																			0.0000								
1750	DZr-CV-20																			0.0000								
1751	DZr-CV-21																			0.0000								
1752	DZr-CV-22																			0.0000								
1753	DZr-CV-23																			0.0000								
1754	DZr-CV-24																			0.0000								
1755	HLP-01									0.0300									0.0146	0.9777								
1756	HLP-02									0.0386									0.0188	0.9922								
1757	HLP-03									0.0289									0.0143	0.9927								
1758	HLP-04									0.0356									0.0174	1.0094								
1759	HLP-05									0.0317									0.0156	0.9734								
1760	HLP-06									0.0294									0.0142	0.9846								
1761	HLP-07									0.0315									0.0156	1.0351								
1762	HLP-08									0.0304									0.0146	0.9514								
1763	HLP-09									0.0287									0.0151	0.9473								
1764	HLP-10									0.0309									0.0149	0.9679								
1765	HLP-11									0.0283									0.0148	0.9459								
1766	HLP-12									0.0275									0.0145	0.9615								
1767	HLP-13									0.0295									0.0153	0.9688								
1768	HLP-14																		0.0155	0.9560								
1769	HLP-15									0.0591									0.0151	1.0006								
1770	HLP-16									0.0318										1.0287								
1771	HLP-17									0.0300									0.0396	1.0019								
1772	HLP-18									0.0318									0.0154	0.9622								
1773	HLP-19									0.0298									0.0150	1.0124								
1774	HLP-20									0.0320									0.0160	0.9912								
1775	HLP-21									0.0303									0.0168	0.9860								
1776	HLP-22									0.0327									0.0165	1.0280								
1777	HLP-23									0.0290									0.0147	0.9599								
1778	HLP-24									0.0324									0.0160	0.9875								
1779	HLP-25									0.0266									0.0149	0.9665								
1780	HLP-26									0.0286									0.0140	0.9493								
1781	HLP-27																			0.9770								
1782	HLP-28									0.0174									0.0092	1.0025								
1783	HLP-29									0.0141									0.0073	0.9657								
1784	HLP-30									0.0320									0.0155	0.9604								
1785	HLP-31									0.0178									0.0094	0.9660								
1786	HLP-32									0.0357									0.0186	0.9511								
1787	HLP-33									0.0323									0.0167	1.0035								
1788	HLP-34									0.0470									0.0232	0.9733								
1789	HLP-35									0.0361									0.0183	0.9824								
1790	HLP-36									0.0549									0.0269	0.9947								
1791	HLP-37									0.0504									0.0246	0.9805								
1792	HLP-38									0.0688									0.0333	0.9860								
1793	HLP-39									0.0550									0.0272	0.9700								
1794	HLP-40									0.0765									0.0373	1.0042								
1795	HLP-40Q									0.0728									0.0362	0.9764								
1796	HLP-41									0.0678									0.0348	0.9728								
1797	HLP-42									0.0866									0.0417	0.9748								
1798	HLP-42Q									0.0831									0.0429	0.9839								
1799	HLP-43									0.0286									0.0140	0.9747								
1800	HLP-44									0.0312									0.0151	0.9774								
1801	HLP-45									0.0293									0.0146	0.9820								
1802	HLP-46																			0.9775								
1803	HLP-47									0.0009										0.9660								
1804	HLP-48									0.0245									0.0410	0.9501								

#	Glass ID	$C_{800°C}$	$C_{850°C}$	$C_{900°C}$	$C_{950°C}$	$C_{1000°C}$	$C_{1050°C}$	$C_{1100°C}$	$C_{1150°C}$	$C_{1200°C}$	Quenched Visual/OM	Quenched XRD	CCC XRD	ρ (g/cm³)	Fulc Visc A	Fulc Visc B	Fulc Visc To	Arrh Visc E	Arrh Visc F	T1 (°C)	V1 (Pa·s)
1723	DP-20											Zircon	Zircon								
1724	DP-21											Amorphous	Amorphous								
1725	DP-22											Baddeleyite	Nosean, Baddeleyite								
1726	DP-23											Amorphous	3 unidentifiable								
1727	DP-24											Fluorapatite	Fluorapatite								
1728	DP-BL1											Calcium Fluoride	Baddeleyite, Hydroxylapatite								
1729	DP-BL2											Amorphous	Amorphous								
1730	DP-centroid											Amorphous	Fluorite, Hydroxylapatite								
1731	DZr-CV-1										amorphous Homo.		no crystal								
1732	DZr-CV-2										slight phase speration		20.4 wt% hiortdahlite, 3.5 wt% nepheline, 13.1 wt% sodium aluminum silicate sulfide								
1733	DZr-CV-3										amorphous Homo.		0.8 wt% fluorapatite, 0.4 wt% fluorite								
1734	DZr-CV-4										amorphous Homo.		6.2 wt% cuspidine, 2.1 wt% sodium aluminum silicate sulfide								
1735	DZr-CV-5										slight phase separation		1.7 wt% fluorapatite								
1736	DZr-CV-6										amorphous Homo.		no crystal								
1737	DZr-CV-7										amorphous Homo.		no crystal								
1738	DZr-CV-8										massive phase separation		0.3 wt% fluorapatite, 3.8 wt% fluorite								
1739	DZr-CV-9										amorphous Homo.		2.1 wt% fluorapatite								
1740	DZr-CV-10										amorphous Homo.		3.0 wt% cuspidine								
1741	DZr-CV-11										amorphous Homo.		1.6 wt% cuspidine								
1742	DZr-CV-12										amorphous Homo.		5.5 wt% apatite								
1743	DZr-CV-13										slight phase separation		1.4 wt% fluorite, 6.2 wt% sodium calcium oxide fluoride phosphate								
1744	DZr-CV-14										amorphous Homo.		no crystal								
1745	DZr-CV-15										slight phase separation		2.4 wt% fluorite								
1746	DZr-CV-16										amorphous Homo.		no crystal								
1747	DZr-CV-17										amorphous Homo.		1.3 wt% cuspidine								
1748	DZr-CV-18										moderate phase separation		4.8 wt% fluorapatite								
1749	DZr-CV-19										amorphous Homo.		no crystal								
1750	DZr-CV-20										moderate phase separation		8.7 wt% sodalite								
1751	DZr-CV-21										amorphous Homo.		3.7 wt% cuspidine, 12.1 wt% nosean								
1752	DZr-CV-22										amorphous Homo.		0.6 wt% fluorapatite, 0.6 wt% fluorite								
1753	DZr-CV-23										amorphous Homo.		1.0 wt% cuspidine								
1754	DZr-CV-24										amorphous Homo.		0.6 wt% fluorite, 15.3 wt% hiortdahlite								
1755	HLP-01													2.649							
1756	HLP-02													2.702							
1757	HLP-03													2.636							
1758	HLP-04													2.683							
1759	HLP-05													2.676							
1760	HLP-06													2.561							
1761	HLP-07													2.603							
1762	HLP-08													2.692							
1763	HLP-09													2.601							
1764	HLP-10													2.623							
1765	HLP-11													2.563							
1766	HLP-12													2.682							
1767	HLP-13													2.607							
1768	HLP-14													2.588							
1769	HLP-15													2.628							
1770	HLP-16													2.592							
1771	HLP-17													2.657							
1772	HLP-18													2.600							
1773	HLP-19													2.669							
1774	HLP-20													2.626							
1775	HLP-21													2.615							
1776	HLP-22													2.590							
1777	HLP-23													2.629							
1778	HLP-24													2.609							
1779	HLP-25													2.641							
1780	HLP-26													2.642							
1781	HLP-27													2.505							
1782	HLP-28													2.517							
1783	HLP-29													2.569							
1784	HLP-30													2.599							
1785	HLP-31													2.624							
1786	HLP-32													2.625							
1787	HLP-33													2.635							
1788	HLP-34													2.673							
1789	HLP-35													2.644							
1790	HLP-36																				
1791	HLP-37																				
1792	HLP-38																				
1793	HLP-39													2.730							
1794	HLP-40																				
1795	HLP-40Q																				
1796	HLP-41																				
1797	HLP-42																				
1798	HLP-42Q																				
1799	HLP-43													2.635							
1800	HLP-44													2.639							
1801	HLP-45													2.657							
1802	HLP-46													2.539							
1803	HLP-47													2.523							
1804	HLP-48													2.687							

#	Glass ID	T2 (°C)	V2 (Pa·s)	T3 (°C)	V3 (Pa·s)	T4 (°C)	V4 (Pa·s)	T5 (°C)	V5 (Pa·s)	T6 (°C)	V6 (Pa·s)	T7 (°C)	V7 (Pa·s)	T8 (°C)	V8 (Pa·s)	T9 (°C)	V9 (Pa·s)	T10 (°C)	V10 (Pa·s)	TCLP Ag	TCLP As	TCLP Ba	TCLP Cd	TCLP Cr	TCLP Ni	TCLP Pb
1723	DP-20																									
1724	DP-21																									
1725	DP-22																									
1726	DP-23																									
1727	DP-24																									
1728	DP-BL1																									
1729	DP-BL2																									
1730	DP-centroid																									
1731	DZr-CV-1																									
1732	DZr-CV-2																									
1733	DZr-CV-3																									
1734	DZr-CV-4																									
1735	DZr-CV-5																									
1736	DZr-CV-6																									
1737	DZr-CV-7																									
1738	DZr-CV-8																									
1739	DZr-CV-9																									
1740	DZr-CV-10																									
1741	DZr-CV-11																									
1742	DZr-CV-12																									
1743	DZr-CV-13																									
1744	DZr-CV-14																									
1745	DZr-CV-15																									
1746	DZr-CV-16																									
1747	DZr-CV-17																									
1748	DZr-CV-18																									
1749	DZr-CV-19																									
1750	DZr-CV-20																									
1751	DZr-CV-21																									
1752	DZr-CV-22																									
1753	DZr-CV-23																									
1754	DZr-CV-24																									
1755	HLP-01																									
1756	HLP-02																									
1757	HLP-03																									
1758	HLP-04																									
1759	HLP-05																									
1760	HLP-06																									
1761	HLP-07																									
1762	HLP-08																									
1763	HLP-09																									
1764	HLP-10																									
1765	HLP-11																									
1766	HLP-12																									
1767	HLP-13																									
1768	HLP-14																									
1769	HLP-15																									
1770	HLP-16																									
1771	HLP-17																									
1772	HLP-18																									
1773	HLP-19																									
1774	HLP-20																									
1775	HLP-21																									
1776	HLP-22																									
1777	HLP-23																									
1778	HLP-24																									
1779	HLP-25																									
1780	HLP-26																									
1781	HLP-27																									
1782	HLP-28																									
1783	HLP-29																									
1784	HLP-30																									
1785	HLP-31																									
1786	HLP-32																									
1787	HLP-33																									
1788	HLP-34																									
1789	HLP-35																									
1790	HLP-36																									
1791	HLP-37																									
1792	HLP-38																									
1793	HLP-39																									
1794	HLP-40																									
1795	HLP-40Q																									
1796	HLP-41																									
1797	HLP-42																									
1798	HLP-42Q																									
1799	HLP-43																									
1800	HLP-44																									
1801	HLP-45																									
1802	HLP-46																									
1803	HLP-47																									
1804	HLP-48																									

#	Glass ID	TCLP Se	TCLP Zn	TCLP Al	TCLP B	TCLP Sb	TCLP Tl	TCLP V	Q PCT B (g/m²)	Q PCT Li (g/m²)	Q PCT Na (g/m²)	Q PCT Si (g/m²)	Q PCT pH	CCC PCT B (g/m²)	CCC PCT Li (g/m²)	CCC PCT Na (g/m²)	CCC PCT Si (g/m²)	CCC PCT pH	T1 (°C)
1723	DP-20								0.123	0.221	0.203		10.630	NR		0.204	0.166		10.610
1724	DP-21								0.252	0.290	0.276		10.330	0.229	0.265	0.243		10.420	
1725	DP-22								0.421	0.525	0.607		11.330	0.833	1.890	0.767		11.610	
1726	DP-23								0.128	0.189	0.277		11.050	7.973	6.289	2.731		11.350	
1727	DP-24								0.133	0.257	0.156		10.680	0.351	0.270	0.170		10.750	
1728	DP-BL1								0.162	0.253	0.246		10.640	0.268	0.224	0.225		10.610	
1729	DP-BL2								0.161	0.257	0.274		10.960	0.219	0.236	0.245		11.000	
1730	DP-centroid								0.183	0.253	0.250		10.660	0.200	0.227	0.222		10.700	
1731	DZr-CV-1								0.309	0.343	0.387	0.106		0.218	0.284	0.311	0.095		
1732	DZr-CV-2								0.107	0.210	0.216	0.063		3.119	3.729	0.977	0.571		
1733	DZr-CV-3								0.207	0.270	0.303	0.086		0.165	0.263	0.282	0.091		
1734	DZr-CV-4								0.896	0.894	0.842	0.127		0.059	0.252	0.308	0.109		
1735	DZr-CV-5								0.210	0.293	0.321	0.095		2.243	0.689	0.601	0.102		
1736	DZr-CV-6								0.131	0.263	0.263	0.068		0.177	0.234	0.242	0.078		
1737	DZr-CV-7								0.172	0.288	0.300	0.089		0.125	0.234	0.237	0.079		
1738	DZr-CV-8								0.183	0.274	0.294	0.090		0.233	0.446	0.318	0.152		
1739	DZr-CV-9								6.561	0.284	0.338	0.091		0.164	0.248	0.285	0.084		
1740	DZr-CV-10								0.215	0.302	0.337	0.086		0.156	0.226	0.263	0.097		
1741	DZr-CV-11								0.206	0.299	0.337	0.087		0.134	0.065	0.251	0.082		
1742	DZr-CV-12								0.206	0.317	0.319	0.092		0.106	0.214	0.244	0.077		
1743	DZr-CV-13								0.098	0.203	0.213	0.064		0.118	0.214	0.216	0.098		
1744	DZr-CV-14								0.237	0.350	0.396	0.105		0.182	0.303	0.327	0.099		
1745	DZr-CV-15								0.102	0.195	0.164	0.056		0.096	0.186	0.143	0.060		
1746	DZr-CV-16								0.217	0.311	0.398	0.099		0.151	0.251	0.322	0.089		
1747	DZr-CV-17								0.110	0.239	0.261	0.070		0.077	0.189	0.228	0.073		
1748	DZr-CV-18								0.236	0.350	0.375	0.116		0.178	0.263	0.269	0.085		
1749	DZr-CV-19								0.125	0.250	0.266	0.078		0.096	0.209	0.219	0.073		
1750	DZr-CV-20								0.153	0.258	0.290	0.077		0.057	0.192	0.239	0.071		
1751	DZr-CV-21								0.310	0.430	0.483	0.111		0.659	0.267	0.574	0.215		
1752	DZr-CV-22								0.118	0.227	0.234	0.070		0.105	0.212	0.204	0.067		
1753	DZr-CV-23								0.140	0.247	0.288	0.076		0.126	0.221	0.255	0.079		
1754	DZr-CV-24								0.141	0.249	0.251	0.072		0.130	0.214	0.218	0.113		
1755	HLP-01								0.270		0.350	0.170	10.313						
1756	HLP-02								2.900		2.310	0.330	11.680						
1757	HLP-03								0.280		0.320	0.180	10.220						
1758	HLP-04								1.940		1.170	0.310	11.293						
1759	HLP-05								1.280		0.840	0.420	10.350						
1760	HLP-06								0.300		0.280	0.180	10.273						
1761	HLP-07								0.300		0.310	0.180	10.290						
1762	HLP-08								0.330		0.440	0.220	10.840						
1763	HLP-09								0.500		0.450	0.160	10.293						
1764	HLP-10								0.340		0.370	0.200	10.603						
1765	HLP-11								0.440		0.410	0.200	10.567						
1766	HLP-12								0.410		0.340	0.220	10.320						
1767	HLP-13								0.450		0.430	0.200	10.520						
1768	HLP-14								0.690		0.540	0.190	10.637						
1769	HLP-15								0.340		0.350	0.220	10.440						
1770	HLP-16								0.360		0.360	0.200	10.550						
1771	HLP-17								0.440		0.420	0.200	10.457						
1772	HLP-18								0.510		0.450	0.240	10.613						
1773	HLP-19								0.270		0.300	0.160	10.553						
1774	HLP-20								0.370		0.330	0.200	10.537						
1775	HLP-21								0.580		0.460	0.230	10.563						
1776	HLP-22								0.240		0.230	0.170	9.803						
1777	HLP-23								0.960		0.760	0.300	11.167						
1778	HLP-24								0.330		0.350	0.190	10.137						
1779	HLP-25								0.430		0.420	0.200	10.503						
1780	HLP-26								0.520		0.380	0.220	10.453						
1781	HLP-27								2.170		1.520	0.230	11.357						
1782	HLP-28								0.250		0.190	0.180	9.587						
1783	HLP-29								0.380		0.530	0.260	11.067						
1784	HLP-30								0.150		0.240	0.150	10.173						
1785	HLP-31								6.540		4.670	1.480	11.400						
1786	HLP-32								0.460		0.340	0.180	9.840						
1787	HLP-33								1.920		1.610	0.810	11.350						
1788	HLP-34								0.380		0.360	0.190	10.203						
1789	HLP-35								1.320		1.000	0.210	11.157						
1790	HLP-36													0.430		0.350	0.160	9.870	
1791	HLP-37								0.630		0.750	0.300	11.447						
1792	HLP-38								0.400		0.370	0.180	10.583						
1793	HLP-39								2.310		1.490	0.400	11.457						
1794	HLP-40													0.940		0.730	0.210	10.053	
1795	HLP-40Q								0.810		0.640	0.210	10.030						
1796	HLP-41													6.940		4.660	1.110	12.203	
1797	HLP-42													0.740		0.590	0.260	10.867	
1798	HLP-42Q								0.970		0.710	0.270	10.990						
1799	HLP-43								0.400		0.330	0.180	10.493						
1800	HLP-44								0.450		0.400	0.170	10.480						
1801	HLP-45								0.420		0.380	0.170	10.463						
1802	HLP-46								0.050		0.470	0.110	10.903						
1803	HLP-47								0.490		0.490	0.140	10.930						
1804	HLP-48								0.610		0.520	0.170	10.567						

#	Glass ID	EC1 (S/cm)	T2 (°C)	EC2 (S/cm)	T3 (°C)	EC3 (S/cm)	T4 (°C)	EC4 (S/cm)	T5 (°C)	EC5 (S/cm)	T6 (°C)	EC6 (S/cm)	A	B	To
1723	DP-20														
1724	DP-21														
1725	DP-22														
1726	DP-23														
1727	DP-24														
1728	DP-BL1														
1729	DP-BL2														
1730	DP-centroid														
1731	DZr-CV-1														
1732	DZr-CV-2														
1733	DZr-CV-3														
1734	DZr-CV-4														
1735	DZr-CV-5														
1736	DZr-CV-6														
1737	DZr-CV-7														
1738	DZr-CV-8														
1739	DZr-CV-9														
1740	DZr-CV-10														
1741	DZr-CV-11														
1742	DZr-CV-12														
1743	DZr-CV-13														
1744	DZr-CV-14														
1745	DZr-CV-15														
1746	DZr-CV-16														
1747	DZr-CV-17														
1748	DZr-CV-18														
1749	DZr-CV-19														
1750	DZr-CV-20														
1751	DZr-CV-21														
1752	DZr-CV-22														
1753	DZr-CV-23														
1754	DZr-CV-24														
1755	HLP-01														
1756	HLP-02														
1757	HLP-03														
1758	HLP-04														
1759	HLP-05														
1760	HLP-06														
1761	HLP-07														
1762	HLP-08														
1763	HLP-09														
1764	HLP-10														
1765	HLP-11														
1766	HLP-12														
1767	HLP-13														
1768	HLP-14														
1769	HLP-15														
1770	HLP-16														
1771	HLP-17														
1772	HLP-18														
1773	HLP-19														
1774	HLP-20														
1775	HLP-21														
1776	HLP-22														
1777	HLP-23														
1778	HLP-24														
1779	HLP-25														
1780	HLP-26														
1781	HLP-27														
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1785	HLP-31														
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1787	HLP-33														
1788	HLP-34														
1789	HLP-35														
1790	HLP-36														
1791	HLP-37														
1792	HLP-38														
1793	HLP-39														
1794	HLP-40														
1795	HLP-40Q														
1796	HLP-41														
1797	HLP-42														
1798	HLP-42Q														
1799	HLP-43														
1800	HLP-44														
1801	HLP-45														
1802	HLP-46														
1803	HLP-47														
1804	HLP-48														

#	Glass ID	Study	Reference	Al2O3-t	B2O3-t	CaO-t	Fe2O3-t	FeO-t	K2O-t	Li2O-t	MgO-t	Na2O-t	NiO-t	P2O5-t	SiO2-t	ZrO2-t	Ag2O-t	As2O3-t	As2O5-t	BaO-t	BeO-t	Bi2O3-t	Br-t	CdO-t	Ce2O3-t	CeO2-t	Cl-t
1805	HLP-49	HLP glasses	Vienna et al. 2001	0.0803	0.0807	0.0703	0.0803		0.0036	0.0408	0.0300	0.1000		0.0001	0.4393	0.0304											0.0029
1806	HLP-51	HLP glasses	Vienna et al. 2001	0.1000	0.0925	0.0000	0.0250		0.0220	0.0000	0.0100	0.2000		0.0008	0.4189	0.0525											0.0058
1807	HLP-52	HLP glasses	Vienna et al. 2001	0.1019	0.0000	0.0260	0.0254		0.0197	0.0000	0.0118	0.2874		0.0191	0.4464	0.0502											0.0013
1808	HLP-53	HLP glasses	Vienna et al. 2001	0.0986	0.0423	0.0438	0.0730		0.0310	0.0204	0.0204	0.2000		0.0008	0.4015	0.0299											0.0036
1809	HLP-53Q	HLP glasses	Vienna et al. 2001	0.0986	0.0423	0.0438	0.0730		0.0310	0.0204	0.0204	0.2000		0.0008	0.4015	0.0299											0.0036
1810	HLP-54	HLP glasses	Vienna et al. 2001	0.1200	0.0900	0.0000	0.0000		0.0033	0.0000	0.0000	0.2000		0.0119	0.5678	0.0000											0.0009
1811	HLP-55	HLP glasses	Vienna et al. 2001	0.0900	0.0900	0.0000	0.0000		0.0033	0.0000	0.0000	0.2000		0.0119	0.5978	0.0000											0.0009
1812	HLP-56	HLP glasses	Vienna et al. 2001	0.0620	0.0890	0.0199	0.0698		0.0050	0.0000	0.0199	0.2000		0.0003	0.4455	0.0299											0.0065
1813	HLP-58	HLP glasses	Vienna et al. 2001	0.0686	0.0980	0.0200	0.0539		0.0040	0.0000	0.0147	0.1960		0.0006	0.4809	0.0147											0.0027
1814	HLP-59	HLP glasses	Vienna et al. 2001	0.0665	0.0950	0.0500	0.0523		0.0039	0.0000	0.0143	0.1900		0.0006	0.4662	0.0143											0.0027
1815	HLP-60	HLP glasses	Vienna et al. 2001	0.1194	0.1257	0.0001	0.0171		0.0033	0.0000	0.0430	0.1600		0.0200	0.3600	0.0600											0.0035
1816	HLP-61	HLP glasses	Vienna et al. 2001	0.0400	0.1257	0.0500	0.0000		0.0500	0.0000	0.0430	0.1600		0.0004	0.3965	0.0000											0.0035
1817	HLP-62	HLP glasses	Vienna et al. 2001	0.0400	0.1257	0.0500	0.0000		0.0033	0.0000	0.0000	0.1600		0.0004	0.4692	0.0600											0.0035
1818	HLP-63	HLP glasses	Vienna et al. 2001	0.0400	0.0600	0.0001	0.1504		0.0033	0.0000	0.0430	0.2514		0.0004	0.3600	0.0000											0.0035
1819	HLP-64	HLP glasses	Vienna et al. 2001	0.0400	0.0600	0.0001	0.0000		0.0500	0.0000	0.0430	0.1600		0.0200	0.5200	0.0600											0.0035
1820	HLP-65	HLP glasses	Vienna et al. 2001	0.0400	0.0600	0.0500	0.0982		0.0033	0.0000	0.0430	0.1600		0.0200	0.5200	0.0000											0.0035
1821	HLP-66	HLP glasses	Vienna et al. 2001	0.0400	0.1257	0.0001	0.0536		0.0033	0.0000	0.0000	0.2514		0.0004	0.5200	0.0000											0.0035
1822	HLP-67	HLP glasses	Vienna et al. 2001	0.0400	0.1257	0.0001	0.0443		0.0500	0.0000	0.0000	0.2514		0.0200	0.3600	0.0600											0.0035
1823	HLP-68	HLP glasses	Vienna et al. 2001	0.0964	0.0600	0.0500	0.1577		0.0500	0.0000	0.0000	0.1600		0.0004	0.3600	0.0600											0.0035
1824	HLP-69	HLP glasses	Vienna et al. 2001	0.1194	0.0600	0.0001	0.0024		0.0033	0.0000	0.0000	0.1600		0.0004	0.5200	0.0000											0.0035
1825	HLP-70	HLP glasses	Vienna et al. 2001	0.1194	0.0600	0.0478	0.0000		0.0500	0.0000	0.0000	0.2514		0.0200	0.3600	0.0000											0.0035
1826	HLP-71	HLP glasses	Vienna et al. 2001	0.1194	0.0600	0.0500	0.0040		0.0033	0.0000	0.0430	0.2514		0.0004	0.3600	0.0600											0.0035
1827	HLP-72	HLP glasses	Vienna et al. 2001	0.0400	0.0600	0.0001	0.1577		0.0033	0.0000	0.0000	0.1600		0.0200	0.3645	0.0600											0.0035
1828	HLP-73	HLP glasses	Vienna et al. 2001	0.1194	0.1257	0.0001	0.1359		0.0500	0.0000	0.0430	0.1600		0.0004	0.3600	0.0000											0.0035
1829	HLP-74	HLP glasses	Vienna et al. 2001	0.1194	0.1257	0.0500	0.1131		0.0033	0.0000	0.0000	0.1600		0.0200	0.3600	0.0000											0.0035
1830	HLP-75	HLP glasses	Vienna et al. 2001	0.0743	0.0893	0.0231	0.0554		0.0249	0.0000	0.0200	0.1984		0.0099	0.4155	0.0270											0.0035
1831	HLP-76	HLP glasses	Vienna et al. 2001	0.1000	0.0800	0.0050	0.0100		0.0150	0.0010	0.0010	0.2000	0.0010	0.0050	0.5437	0.0100				0.0001				0.0020			0.0080
1832	HLP-77	HLP glasses	Vienna et al. 2001	0.1000	0.0800	0.0050	0.0100		0.0150	0.0010	0.0010	0.2000	0.0010	0.0050	0.5437	0.0100				0.0001				0.0020			0.0080
1833	L1-9	Hanford LLW Glass Formulati	Feng et al. 1996	0.0900			0.0000		0.0033			0.2000		0.0119	0.6878	0.0000						0.0001					0.0009
1834	L1-12	Hanford LLW Glass Formulati	Feng et al. 1996	0.1200			0.0000		0.0033			0.2000		0.0119	0.6578	0.0000						0.0001					0.0009
1835	L1-15	Hanford LLW Glass Formulati	Feng et al. 1996	0.1500			0.0000		0.0033			0.2000		0.0119	0.6278	0.0000						0.0001					0.0009
1836	L4-69	Hanford LLW Glass Formulati	Feng et al. 1996	0.0900	0.0600		0.0000		0.0033			0.2000		0.0119	0.6278	0.0000						0.0001					0.0009
1837	L4-612	Hanford LLW Glass Formulati	Feng et al. 1996	0.1200	0.0600		0.0000		0.0033			0.2000		0.0119	0.5978	0.0000						0.0001					0.0009
1838	L4-615	Hanford LLW Glass Formulati	Feng et al. 1996	0.1500	0.0600		0.0000		0.0033			0.2000		0.0119	0.5678	0.0000						0.0001					0.0009
1839	L4-96	Hanford LLW Glass Formulati	Feng et al. 1996	0.0600	0.0900		0.0000		0.0033			0.2000		0.0119	0.6278	0.0000						0.0001					0.0009
1840	L4-99	Hanford LLW Glass Formulati	Feng et al. 1996	0.0900	0.0900		0.0000		0.0033			0.2000		0.0119	0.5978	0.0000						0.0001					0.0009
1841	L4-912	Hanford LLW Glass Formulati	Feng et al. 1996	0.1200	0.0900		0.0000		0.0033			0.2000		0.0119	0.5678	0.0000						0.0001					0.0009
1842	L4-915	Hanford LLW Glass Formulati	Feng et al. 1996	0.1500	0.0900		0.0000		0.0033			0.2000		0.0119	0.5378	0.0000						0.0001					0.0009
1843	L4-129	Hanford LLW Glass Formulati	Feng et al. 1996	0.0900	0.1200		0.0000		0.0033			0.2000		0.0119	0.5678	0.0000						0.0001					0.0009
1844	L4-1212	Hanford LLW Glass Formulati	Feng et al. 1996	0.1200	0.1200		0.0000		0.0033			0.2000		0.0119	0.5378	0.0000						0.0001					0.0009
1845	L4-1215	Hanford LLW Glass Formulati	Feng et al. 1996	0.1500	0.1200		0.0000		0.0033			0.2000		0.0119	0.5078	0.0000						0.0001					0.0009
1846	L5-69	Hanford LLW Glass Formulati	Feng et al. 1996	0.0900		0.0600	0.0000		0.0033			0.2000		0.0119	0.6278	0.0000						0.0001					0.0009
1847	L5-612	Hanford LLW Glass Formulati	Feng et al. 1996	0.1200		0.0600	0.0000		0.0033			0.2000		0.0119	0.5978	0.0000						0.0001					0.0009
1848	L5-615	Hanford LLW Glass Formulati	Feng et al. 1996	0.1500		0.0600	0.0000		0.0033			0.2000		0.0119	0.5678	0.0000						0.0001					0.0009
1849	L5-96	Hanford LLW Glass Formulati	Feng et al. 1996	0.0600		0.0900	0.0000		0.0033			0.2000		0.0119	0.6278	0.0000						0.0001					0.0009
1850	L5-99	Hanford LLW Glass Formulati	Feng et al. 1996	0.0900		0.0900	0.0000		0.0033			0.2000		0.0119	0.5978	0.0000						0.0001					0.0009
1851	L5-912	Hanford LLW Glass Formulati	Feng et al. 1996	0.1200		0.0900	0.0000		0.0033			0.2000		0.0119	0.5678	0.0000						0.0001					0.0009
1852	L5-915	Hanford LLW Glass Formulati	Feng et al. 1996	0.1500		0.0900	0.0000		0.0033			0.2000		0.0119	0.5378	0.0000						0.0001					0.0009
1853	L5-129	Hanford LLW Glass Formulati	Feng et al. 1996	0.0900		0.1200	0.0000		0.0033			0.2000		0.0119	0.5678	0.0000						0.0001					0.0009
1854	L5-1212	Hanford LLW Glass Formulati	Feng et al. 1996	0.1200		0.1200	0.0000		0.0033			0.2000		0.0119	0.5378	0.0000						0.0001					0.0009
1855	L5-1215	Hanford LLW Glass Formulati	Feng et al. 1996	0.1500		0.1200	0.0000		0.0033			0.2000		0.0119	0.5078	0.0000						0.0001					0.0009
1856	L6-3312	Hanford LLW Glass Formulati	Feng et al. 1996	0.1200	0.0300	0.0300	0.0000		0.0033			0.2000		0.0119	0.5978	0.0000						0.0001					0.0009
1857	L6-546	Hanford LLW Glass Formulati	Feng et al. 1996	0.0600	0.0500	0.0400	0.0000		0.0033			0.2000		0.0119	0.6278	0.0000						0.0001					0.0009
1858	L6-549	Hanford LLW Glass Formulati	Feng et al. 1996	0.0900	0.0500	0.0400	0.0000		0.0033			0.2000		0.0119	0.5978	0.0000						0.0001					0.0009
1859	L6-5412	Hanford LLW Glass Formulati	Feng et al. 1996	0.1200	0.0500	0.0400	0.0000		0.0033			0.2000		0.0119	0.5678	0.0000						0.0001					0.0009
1860	L6-5415	Hanford LLW Glass Formulati	Feng et al. 1996	0.1500	0.0500	0.0400	0.0000		0.0033			0.2000		0.0119	0.5378	0.0000						0.0001					0.0009
1861	L6-669	Hanford LLW Glass Formulati	Feng et al. 1996	0.0900	0.0600	0.0600	0.0000		0.0033			0.2000		0.0119	0.5678	0.0000						0.0001					0.0009
1862	L6-6612	Hanford LLW Glass Formulati	Feng et al. 1996	0.1200	0.0600	0.0600	0.0000		0.0033			0.2000		0.0119	0.5378	0.0000						0.0001					0.0009
1863	L7-15	Hanford LLW Glass Formulati	Feng et al. 1996	0.1245	0.0539	0.0431	0.0000		0.0025			0.1500		0.0089	0.6119	0.0000						0.0001					0.0007
1864	L7-25	Hanford LLW Glass Formulati	Feng et al. 1996	0.1155	0.0461	0.0369	0.0000		0.0041			0.2500		0.0148	0.5238	0.0001						0.0002					0.0012
1865	L7-30	Hanford LLW Glass Formulati	Feng et al. 1996	0.1110	0.0422	0.0338	0.0001		0.0049			0.3000		0.0178	0.4797	0.0001						0.0002					0.0014
1866	L7-35	Hanford LLW Glass Formulati	Feng et al. 1996	0.1065	0.0384	0.0307	0.0001		0.0057			0.3500		0.0208	0.4357	0.0001						0.0002					0.0016
1867	L8-1	Hanford LLW Glass Formulati	Feng et al. 1996	0.0900	0.0600		0.0000		0.0033			0.2000		0.0119	0.5678	0.0600						0.0001					0.0009
1868	L8-2	Hanford LLW Glass Formulati	Feng et al. 1996	0.0900		0.0600	0.0000		0.0033			0.2000		0.0119	0.5678	0.0600						0.0001					0.0009
1869	L8-3	Hanford LLW Glass Formulati	Feng et al. 1996	0.0900	0.0300	0.0300	0.0000		0.0033			0.2000		0.0119	0.5678	0.0600						0.0001					0.0009
1870	L8-4	Hanford LLW Glass Formulati	Feng et al. 1996	0.0900	0.0600		0.0600		0.0033			0.2000		0.0119	0.5678	0.0000						0.0001					0.0009
1871	L8-5	Hanford LLW Glass Formulati	Feng et al. 1996	0.0900		0.0600	0.0600		0.0033			0.2000		0.0119	0.5678	0.0000						0.0001					0.0009
1872	L8-6	Hanford LLW Glass Formulati	Feng et al. 1996	0.0900	0.0300	0.0300	0.0600		0.0033			0.2000		0.0119	0.5678	0.0000						0.0001					0.0009
1873	L8-7	Hanford LLW Glass Formulati	Feng et al. 1996	0.0900	0.0600		0.0300		0.0033			0.2000		0.0119	0.5678	0.0300						0.0001					0.0009
1874	L8-8	Hanford LLW Glass Formulati	Feng et al. 1996	0.0900	0.0500		0.0000		0.0033		0.0400	0.2000		0.0119	0.5979	0.0000						0.0001					0.0009
1875	LD4-912	Hanford LLW Glass Formulati	Feng et al. 1996	0.1200	0.0900		0.0000		0.0146		0.0000	0.2000		0.0019	0.5591												0.0035
1876	LD5-912	Hanford LLW Glass Formulati	Feng et al. 1996	0.1200		0.0900	0.0000		0.0146		0.0000	0.2000		0.0019	0.5591												0.0035
1877	LD6-5314	Hanford LLW Glass Formulati	Feng et al. 1996	0.1400	0.0500	0.0300	0.0000		0.0146		0.0000	0.2000		0.0019	0.5491												0.0035
1878	LD6-5412	Hanford LLW Glass Formulati	Feng et al. 1996	0.1200	0.0500	0.0400	0.0000		0.0146		0.0000	0.2000		0.0019	0.5591												0.0035
1879	LD6-5510	Hanford LLW Glass Formulati	Feng et al. 1996	0.1000	0.0500	0.0500	0.0000		0.0146		0.0000	0.2000		0.0019	0.5691												0.0035
1880	LDM-912	Hanford LLW Glass Formulati	Feng et al. 1996	0.1200		0.0900			0.0143			0.2000		0.0019	0.5514												0.0064
1881	LDM-1	Hanford LLW Glass Formulati	Feng et al. 1996	0.1200	0.0200	0.0200	0.0600		0.0143			0.2000		0.0019	0.5014	0.0400											0.0064
1882	LDM-2	Hanford LLW Glass Formulati	Feng et al. 1996	0.1200		0.0600	0.0600		0.0143			0.2000		0.0019	0.5214												0.0064
1883	LDM-3	Hanford LLW Glass Formulati	Feng et al. 1996	0.1200	0.0600				0.0143			0.2000		0.0019	0.5214	0.0600											0.0064
1884	LDM-4	Hanford LLW Glass Formulati	Feng et al. 1996	0.1000	0.0600	0.0600	0.0600		0.0143			0.2000		0.0019	0.4414	0.0400											0.0064
1885	LDM-5412	Hanford LLW Glass Formulati	Feng et al. 1996	0.1200	0.0500	0.0400			0.0143			0.2000		0.0019	0.5514												0.0064
1886	LDMS-1	Hanford LLW Glass Formulati	Feng et al. 1996	0.1200	0.0200	0.0200	0.0600		0.0143			0.2000		0.0019	0.5014	0.0400											0.0064

#	Glass ID	CoO-t	Co2O3-t	Cr2O3-t	Cs2O-t	CuO-t	Dy2O3-t	Eu2O3-t	F-t	Ga2O3-t	Gd2O3-t	HfO2-t	HgO-t	I-t	La2O3-t	MnO2-t	MnO-t	MoO-t	MoO2-t	MoO3-t	Nb2O5-t	Nd2O3-t	NpO2-t	PbO-t	PdO2-t	PdO-t	Pr2O3-t	Pr6O11-t	Rb2O-t	ReO-t
1805	HLP-49			0.0010					0.0000						0.0000					0.0000										0.0000
1806	HLP-51			0.0002					0.0004						0.0200					0.0000										0.0000
1807	HLP-52			0.0008					0.0031						0.0000					0.0000										0.0000
1808	HLP-53			0.0001					0.0012						0.0000					0.0000										0.0000
1809	HLP-53Q			0.0001					0.0012						0.0000					0.0000										0.0000
1810	HLP-54			0.0004					0.0021						0.0001					0.0000										0.0000
1811	HLP-55			0.0004					0.0021						0.0001					0.0000										0.0000
1812	HLP-56			0.0002					0.0001						0.0000					0.0001										0.0010
1813	HLP-58			0.0008					0.0001						0.0000					0.0000										0.0001
1814	HLP-59			0.0008					0.0001						0.0000					0.0000										0.0001
1815	HLP-60			0.0009					0.0001						0.0000					0.0000										0.0001
1816	HLP-61			0.0009					0.0001						0.0000					0.0000										0.0001
1817	HLP-62			0.0009					0.0001						0.0000					0.0000										0.0001
1818	HLP-63			0.0009					0.0001						0.0000					0.0000										0.0001
1819	HLP-64			0.0009					0.0001						0.0000					0.0000										0.0001
1820	HLP-65			0.0009					0.0001						0.0000					0.0000										0.0001
1821	HLP-66			0.0009					0.0001						0.0000					0.0000										0.0001
1822	HLP-67			0.0009					0.0001						0.0000					0.0000										0.0001
1823	HLP-68			0.0009					0.0001						0.0000					0.0000										0.0001
1824	HLP-69			0.0009					0.0001						0.0000					0.0000										0.0001
1825	HLP-70			0.0009					0.0001						0.0000					0.0000										0.0001
1826	HLP-71			0.0009					0.0001						0.0000					0.0000										0.0001
1827	HLP-72			0.0009					0.0001						0.0000					0.0000										0.0001
1828	HLP-73			0.0009					0.0001						0.0000					0.0000										0.0001
1829	HLP-74			0.0009					0.0001						0.0000					0.0000										0.0001
1830	HLP-75			0.0009					0.0001						0.0000					0.0000										0.0001
1831	HLP-76			0.0020					0.0100					0.0000	0.0001		0.0010			0.0000				0.0010						0.0000
1832	HLP-77			0.0020					0.0100					0.0000	0.0001		0.0010			0.0000				0.0010						0.0000
1833	L1-9			0.0004					0.0021								0.0001					0.0001								
1834	L1-12			0.0004					0.0021								0.0001					0.0001								
1835	L1-15			0.0004					0.0021								0.0001					0.0001								
1836	L4-69			0.0004					0.0021								0.0001					0.0001								
1837	L4-612			0.0004					0.0021								0.0001					0.0001								
1838	L4-615			0.0004					0.0021								0.0001					0.0001								
1839	L4-96			0.0004					0.0021								0.0001					0.0001								
1840	L4-99			0.0004					0.0021								0.0001					0.0001								
1841	L4-912			0.0004					0.0021								0.0001					0.0001								
1842	L4-915			0.0004					0.0021								0.0001					0.0001								
1843	L4-129			0.0004					0.0021								0.0001					0.0001								
1844	L4-1212			0.0004					0.0021								0.0001					0.0001								
1845	L4-1215			0.0004					0.0021								0.0001					0.0001								
1846	L5-69			0.0004					0.0021								0.0001					0.0001								
1847	L5-612			0.0004					0.0021								0.0001					0.0001								
1848	L5-615			0.0004					0.0021								0.0001					0.0001								
1849	L5-96			0.0004					0.0021								0.0001					0.0001								
1850	L5-99			0.0004					0.0021								0.0001					0.0001								
1851	L5-912			0.0004					0.0021								0.0001					0.0001								
1852	L5-915			0.0004					0.0021								0.0001					0.0001								
1853	L5-129			0.0004					0.0021								0.0001					0.0001								
1854	L5-1212			0.0004					0.0021								0.0001					0.0001								
1855	L5-1215			0.0004					0.0021								0.0001					0.0001								
1856	L6-3312			0.0004					0.0021								0.0001					0.0001								
1857	L6-546			0.0004					0.0021								0.0001					0.0001								
1858	L6-549			0.0004					0.0021								0.0001					0.0001								
1859	L6-5412			0.0004					0.0021								0.0001					0.0001								
1860	L6-5415			0.0004					0.0021								0.0001					0.0001								
1861	L6-669			0.0004					0.0021								0.0001					0.0001								
1862	L6-6612			0.0004					0.0021								0.0001					0.0001								
1863	L7-15			0.0003					0.0016								0.0001					0.0001								
1864	L7-25			0.0004					0.0027								0.0001					0.0001								
1865	L7-30			0.0005					0.0032								0.0001					0.0002								
1866	L7-35			0.0006					0.0037								0.0001					0.0002								
1867	L8-1			0.0004					0.0021								0.0001					0.0001								
1868	L8-2			0.0004					0.0021								0.0001					0.0001								
1869	L8-3			0.0004					0.0021								0.0001					0.0001								
1870	L8-4			0.0004					0.0021								0.0001					0.0001								
1871	L8-5			0.0004					0.0021								0.0001					0.0001								
1872	L8-6			0.0004					0.0021								0.0001					0.0001								
1873	L8-7			0.0004					0.0021								0.0001					0.0001								
1874	L8-8			0.0004					0.0021								0.0001					0.0001								
1875	LD4-912			0.0004	0.0015				0.0029					0.0013			0.0000			0.0015										
1876	LD5-912			0.0004	0.0015				0.0029					0.0013			0.0000			0.0015										
1877	LD6-5314			0.0004	0.0015				0.0029					0.0013			0.0000			0.0015										
1878	LD6-5412			0.0004	0.0015				0.0029					0.0013			0.0000			0.0015										
1879	LD6-5510			0.0004	0.0015				0.0029					0.0013			0.0000			0.0015										
1880	LDM-912			0.0004	0.0014				0.0082					0.0013						0.0015										
1881	LDM-1			0.0004	0.0014				0.0082					0.0013						0.0015										
1882	LDM-2			0.0004	0.0014				0.0082					0.0013						0.0015										
1883	LDM-3			0.0004	0.0014				0.0082					0.0013						0.0015										
1884	LDM-4			0.0004	0.0014				0.0082					0.0013						0.0015										
1885	LDM-5412			0.0004	0.0014				0.0082					0.0013						0.0015										
1886	LDMS-1			0.0004	0.0014				0.0082					0.0013						0.0014										

#	Glass ID	ReO2-t	Re2O7-t	Rh2O3-t	RhO2-t	RuO2-t	Ru2O3-t	Sb2O3-t	Sb2O5-t	SeO2-t	Sm2O3-t	SnO-t	SnO2-t	SO3-t	SrO-t	Tc2O7-t	TeO2-t	ThO2-t	TiO2-t	Tl2O-t	Tl2O3-t	U3O8-t	UO2-t	UO3-t	V2O5-t	WO3-t	Y2O3-t	ZnO-t	Sum-t	Al2O3-a
1805	HLP-49													0.0002					0.0000								0.0399	0.9998	0.0776
1806	HLP-51													0.0010					0.0249								0.0260	1.0000	0.0968
1807	HLP-52													0.0030					0.0038								0.0000	1.0000	0.0963
1808	HLP-53													0.0004					0.0000								0.0328	0.9998	0.0931
1809	HLP-53Q													0.0004					0.0000								0.0328	0.9998	0.0979
1810	HLP-54													0.0032					0.0000								0.0000	0.9997	0.1170
1811	HLP-55													0.0032					0.0000								0.0000	0.9997	0.0887
1812	HLP-56													0.0010					0.0199								0.0296	0.9997	0.0633
1813	HLP-58													0.0007					0.0294								0.0147	0.9999	0.0663
1814	HLP-59													0.0007					0.0285								0.0143	1.0003	0.0659
1815	HLP-60													0.0009					0.0859								0.0000	1.0000	0.1181
1816	HLP-61													0.0009					0.0859								0.0430	1.0000	0.0408
1817	HLP-62													0.0009					0.0859								0.0000	1.0000	0.0403
1818	HLP-63													0.0009					0.0859								0.0000	1.0000	0.0390
1819	HLP-64													0.0009					0.0000								0.0414	1.0000	0.0404
1820	HLP-65													0.0009					0.0000								0.0000	1.0000	0.0399
1821	HLP-66													0.0009					0.0000								0.0000	1.0000	0.0418
1822	HLP-67													0.0009					0.0000								0.0430	1.0000	0.0410
1823	HLP-68													0.0009					0.0000								0.0000	1.0000	0.0941
1824	HLP-69													0.0009					0.0859								0.0430	1.0000	0.1131
1825	HLP-70													0.0009					0.0859								0.0000	1.0000	0.1179
1826	HLP-71													0.0009					0.0000								0.0430	1.0000	0.1184
1827	HLP-72													0.0009					0.0859								0.0430	1.0000	0.0401
1828	HLP-73													0.0009					0.0000								0.0000	1.0000	0.1181
1829	HLP-74													0.0009					0.0000								0.0430	1.0000	0.1193
1830	HLP-75													0.0009					0.0368								0.0200	1.0001	0.0762
1831	HLP-76													0.0020					0.0010								0.0000	0.9989	0.0997
1832	HLP-77													0.0020					0.0010								0.0000	0.9989	0.0958
1833	L1-9													0.0032														1.0000	
1834	L1-12													0.0032														1.0000	
1835	L1-15													0.0032														1.0000	
1836	L4-69													0.0032														1.0000	
1837	L4-612													0.0032														1.0000	
1838	L4-615													0.0032														1.0000	
1839	L4-96													0.0032														1.0000	
1840	L4-99													0.0032														1.0000	
1841	L4-912													0.0032														1.0000	
1842	L4-915													0.0032														1.0000	
1843	L4-129													0.0032														1.0000	
1844	L4-1212													0.0032														1.0000	
1845	L4-1215													0.0032														1.0000	
1846	L5-69													0.0032														1.0000	
1847	L5-612													0.0032														1.0000	
1848	L5-615													0.0032														1.0000	
1849	L5-96													0.0032														1.0000	
1850	L5-99													0.0032														1.0000	
1851	L5-912													0.0032														1.0000	
1852	L5-915													0.0032														1.0000	
1853	L5-129													0.0032														1.0000	
1854	L5-1212													0.0032														1.0000	
1855	L5-1215													0.0032														1.0000	
1856	L6-3312													0.0032														1.0000	
1857	L6-546													0.0032														1.0000	
1858	L6-549													0.0032														1.0000	
1859	L6-5412													0.0032														1.0000	
1860	L6-5415													0.0032														1.0000	
1861	L6-669													0.0032														1.0000	
1862	L6-6612													0.0032														1.0000	
1863	L7-15													0.0024														1.0000	
1864	L7-25													0.0040														1.0000	
1865	L7-30													0.0048														1.0000	
1866	L7-35													0.0056														1.0001	
1867	L8-1													0.0032														0.9999	
1868	L8-2													0.0032														0.9999	
1869	L8-3													0.0032														0.9999	
1870	L8-4													0.0032														0.9999	
1871	L8-5													0.0032														0.9999	
1872	L8-6													0.0032														0.9999	
1873	L8-7													0.0032														0.9999	
1874	L8-8													0.0032														1.0001	
1875	LD4-912													0.0022	0.0011													1.0000	
1876	LD5-912													0.0022	0.0011													1.0000	
1877	LD6-5314													0.0022	0.0011													1.0000	
1878	LD6-5412													0.0022	0.0011													1.0000	0.1217
1879	LD6-5510													0.0022	0.0011													1.0000	
1880	LDM-912													0.0021	0.0010													0.9999	0.1222
1881	LDM-1													0.0021	0.0010													0.9999	0.1217
1882	LDM-2													0.0021	0.0010													0.9999	0.1208
1883	LDM-3													0.0021	0.0010													0.9999	0.1244
1884	LDM-4													0.0021	0.0010													0.9999	0.1006
1885	LDM-5412													0.0021	0.0010													0.9999	0.1205
1886	LDMS-1													0.0021	0.0010													0.9998	0.1213

#	Glass ID	B2O3-a	CaO-a	Fe2O3-a	FeO-a	K2O-a	Li2O-a	MgO-a	Na2O-a	NiO-a	P2O5-a	SiO2-a	ZrO2-a	Ag2O-a	As2O3-a	As2O5-a	BaO-a	BeO-a	Bi2O3-a	Br-a	CdO-a	Ce2O3-a	CeO2-a	Cl-a	CoO-a	Co2O3-a	Cr2O3-a	Cs2O-a	CuO-a	F-a
1805	HLP-49	0.0874	0.0696	0.0871		0.0036	0.0411	0.0281	0.0965			0.4110	0.0273														0.0024			
1806	HLP-51	0.0926		0.0294		0.0207		0.0092	0.1880			0.4120	0.0390														0.0014			
1807	HLP-52	0.0010	0.0251	0.0300		0.0180		0.0108	0.2750			0.4580	0.0254														0.0021			
1808	HLP-53	0.0546	0.0421	0.0767		0.0275	0.0229	0.0193	0.1860			0.3950	0.0276														0.0014			
1809	HLP-53Q	0.0454	0.0433	0.0752		0.0308	0.0213	0.0184	0.2040			0.4080	0.0282																	
1810	HLP-54	0.0876		0.0056		0.0028			0.1780			0.5640	0.0007														0.0016			
1811	HLP-55	0.0892		0.0058		0.0032			0.1770			0.6060															0.0017			
1812	HLP-56	0.0931	0.0206	0.0705		0.0212		0.0204	0.1810			0.4690	0.0135														0.0002			
1813	HLP-58	0.0998	0.0202	0.0545		0.0045	0.0013	0.0143	0.1903		0.0008	0.4822	0.0146											0.0027			0.0008			0.0005
1814	HLP-59	0.0932	0.0468	0.0540		0.0045	0.0013	0.0138	0.1837		0.0005	0.4482	0.0152											0.0031			0.0008			0.0005
1815	HLP-60	0.1225	0.0002	0.0185		0.0038	0.0013	0.0390	0.1569		0.0068	0.3531	0.0414											0.0031			0.0010			0.0011
1816	HLP-61	0.1252	0.0474	0.0013		0.0478	0.0014	0.0387	0.1592		0.0007	0.3945	0.0007											0.0032			0.0010			0.0005
1817	HLP-62	0.1278	0.0467	0.0019		0.0037	0.0012		0.1641		0.0007	0.4839	0.0552											0.0032			0.0007			0.0015
1818	HLP-63	0.0600	0.0001	0.1452		0.0038	0.0011	0.0391	0.2565		0.0008	0.3696	0.0006											0.0036			0.0008			0.0005
1819	HLP-64	0.0609		0.0016		0.0460	0.0011	0.0392	0.1599		0.0106	0.5296	0.0424											0.0033			0.0007			0.0005
1820	HLP-65	0.0602	0.0466	0.0990		0.0037	0.0011	0.0398	0.1688		0.0198	0.5340	0.0004											0.0032			0.0008			0.0005
1821	HLP-66	0.1257	0.0004	0.0544		0.0041	0.0013		0.2349		0.0004	0.5151	0.0002											0.0034			0.0009			0.0005
1822	HLP-67	0.1232	0.0002	0.0443		0.0473	0.0013		0.2372		0.0055	0.3526	0.0379											0.0035			0.0009			0.0005
1823	HLP-68	0.0624	0.0470	0.1590		0.0464	0.0012		0.1631		0.0006	0.3778	0.0563											0.0029			0.0008			0.0005
1824	HLP-69	0.0611		0.0038		0.0038	0.0011		0.1694		0.0009	0.5389	0.0007											0.0030			0.0007			0.0005
1825	HLP-70	0.0616	0.0456	0.0023		0.0497	0.0012		0.2431		0.0193	0.3799	0.0005											0.0037			0.0007			0.0005
1826	HLP-71	0.0590	0.0465	0.0045		0.0037	0.0013	0.0391	0.2447		0.0004	0.3579	0.0612											0.0036			0.0009			0.0005
1827	HLP-72	0.0615	0.0017	0.1533		0.0037	0.0015	0.0004	0.1642		0.0087	0.3701	0.0385											0.0033			0.0008			0.0005
1828	HLP-73	0.1220	0.0004	0.1349		0.0478	0.0013	0.0391	0.1556		0.0005	0.3532	0.0001											0.0032			0.0009			0.0005
1829	HLP-74	0.1245	0.0473	0.1108		0.0042	0.0014		0.1573		0.0201	0.3584												0.0034			0.0008			0.0005
1830	HLP-75	0.0943	0.0238	0.0585		0.0264	0.0028	0.0195	0.1925		0.0080	0.4225	0.0253											0.0028			0.0009			0.0005
1831	HLP-76	0.0785	0.0054	0.0157		0.0164	0.0018	0.0009	0.1938		0.0052	0.5546	0.0111											0.0011			0.0019			0.0086
1832	HLP-77	0.0790	0.0049	0.0167		0.0156	0.0019	0.0006	0.2029		0.0052	0.5612	0.0101											0.0010			0.0018			0.0086
1833	L1-9																													
1834	L1-12																													
1835	L1-15																													
1836	L4-69																													
1837	L4-612																													
1838	L4-615																													
1839	L4-96																													
1840	L4-99																													
1841	L4-912																													
1842	L4-915																													
1843	L4-129																													
1844	L4-1212																													
1845	L4-1215																													
1846	L5-69																													
1847	L5-612																													
1848	L5-615																													
1849	L5-96																													
1850	L5-99																													
1851	L5-912																													
1852	L5-915																													
1853	L5-129																													
1854	L5-1212																													
1855	L5-1215																													
1856	L6-3312																													
1857	L6-546																													
1858	L6-549																													
1859	L6-5412																													
1860	L6-5415																													
1861	L6-669																													
1862	L6-6612																													
1863	L7-15																													
1864	L7-25																													
1865	L7-30																													
1866	L7-35																													
1867	L8-1																													
1868	L8-2																													
1869	L8-3																													
1870	L8-4																													
1871	L8-5																													
1872	L8-6																													
1873	L8-7																													
1874	L8-8																													
1875	LD4-912																													
1876	LD5-912																													
1877	LD6-5314																													
1878	LD6-5412	0.0505	0.0412	0.0011		0.0166	0.0001		0.2041	0.0003	0.0022	0.5544	0.0008														0.0005			
1879	LD6-5510																													
1880	LDM-912		0.0960	0.0006		0.0167		0.0010	0.1992		0.0024	0.5530											0.0006							
1881	LDM-1	0.0201	0.0178	0.0621		0.0146			0.2105		0.0046	0.5006	0.0402										0.0005				0.0005			
1882	LDM-2		0.0624	0.0619		0.0179			0.2030		0.0028	0.5187	0.0001														0.0005			
1883	LDM-3	0.0631	0.0012	0.0005		0.0230			0.1885	0.0005	0.0028	0.5350	0.0527										0.0008				0.0005			
1884	LDM-4	0.0625	0.0648	0.0614		0.0202			0.2036	0.0003	0.0027	0.4370	0.0382														0.0005			
1885	LDM-5412	0.0501	0.0394	0.0006		0.0213		0.0015	0.2122		0.0062	0.5356															0.0005			
1886	LDMS-1	0.0203	0.0205	0.0607		0.0250	0.0001	0.0011	0.2083	0.0002	0.0028	0.4803	0.0405										0.0005				0.0003			

#	Glass ID	Ga2O3-a	Gd2O3-a	I-a	La2O3-a	MnO2-a	MnO-a	MoO-a	MoO3-a	Nb2O5-a	Nd2O3-a	NpO2-a	PbO-a	PdO2-a	PdO-a	Pr2O3-a	Pr6O11-a	PuO2-a	Rb2O-a	ReO-a	ReO2-a	Re2O7-a	Rh2O3-a	RhO2-a	RuO2-a	Sb2O3-a	Sb2O5-a	SeO2-a
1805	HLP-49																											
1806	HLP-51				0.0194																							
1807	HLP-52																											
1808	HLP-53																											
1809	HLP-53Q																											
1810	HLP-54																											
1811	HLP-55																											
1812	HLP-56																											
1813	HLP-58				0.0001				0.0002																			
1814	HLP-59				0.0001				0.0002																			
1815	HLP-60				0.0001				0.0002																			
1816	HLP-61				0.0001				0.0002																			
1817	HLP-62				0.0001				0.0002																			
1818	HLP-63				0.0001				0.0002																			
1819	HLP-64				0.0001				0.0002																			
1820	HLP-65				0.0001				0.0002																			
1821	HLP-66				0.0001				0.0002																			
1822	HLP-67				0.0001				0.0002																			
1823	HLP-68				0.0001				0.0002																			
1824	HLP-69				0.0001				0.0002																			
1825	HLP-70				0.0001				0.0002																			
1826	HLP-71				0.0001				0.0002																			
1827	HLP-72				0.0001				0.0002																			
1828	HLP-73				0.0001				0.0002																			
1829	HLP-74				0.0001				0.0002																			
1830	HLP-75				0.0001				0.0002																			
1831	HLP-76				0.0001				0.0009																			
1832	HLP-77				0.0001				0.0008																			
1833	L1-9																											
1834	L1-12																											
1835	L1-15																											
1836	L4-69																											
1837	L4-612																											
1838	L4-615																											
1839	L4-96																											
1840	L4-99																											
1841	L4-912																											
1842	L4-915																											
1843	L4-129																											
1844	L4-1212																											
1845	L4-1215																											
1846	L5-69																											
1847	L5-612																											
1848	L5-615																											
1849	L5-96																											
1850	L5-99																											
1851	L5-912																											
1852	L5-915																											
1853	L5-129																											
1854	L5-1212																											
1855	L5-1215																											
1856	L6-3312																											
1857	L6-546																											
1858	L6-549																											
1859	L6-5412																											
1860	L6-5415																											
1861	L6-669																											
1862	L6-6612																											
1863	L7-15																											
1864	L7-25																											
1865	L7-30																											
1866	L7-35																											
1867	L8-1																											
1868	L8-2																											
1869	L8-3																											
1870	L8-4																											
1871	L8-5																											
1872	L8-6																											
1873	L8-7																											
1874	L8-8																											
1875	LD4-912																											
1876	LD5-912																											
1877	LD6-5314																											
1878	LD6-5412						0.0001		0.0013		0.0006																	
1879	LD6-5510																											
1880	LDM-912								0.0016																			
1881	LDM-1						0.0001		0.0015		0.0005																	
1882	LDM-2								0.0015		0.0006																	
1883	LDM-3								0.0016		0.0007																	
1884	LDM-4						0.0001		0.0015		0.0008																	
1885	LDM-5412								0.0016		0.0006																	
1886	LDMS-1						0.0001		0.0013		0.0008																	

#	Glass ID	Sm2O3-a	SnO-a	SnO2-a	SO3-a	SrO-a	Tc2O7-a	TeO2-a	ThO2-a	TiO2-a	Tl2O-a	Tl2O3-a	U3O8-a	UO2-a	UO3-a	V2O5-a	WO3-a	Y2O3-a	ZnO-a	Sum-a	T_M (°C)	$T_{L,G}$ (°C)	$T_{L,U}$ (°C)	$T_{1\%}$ (°C)	Primary Phase	$C_{650°C}$	$C_{700°C}$	$C_{750°C}$
1805	HLP-49																		0.0393	0.9710								
1806	HLP-51									0.0237									0.0251	0.9573								
1807	HLP-52									0.0037										0.9454								
1808	HLP-53																		0.0309	0.9771								
1809	HLP-53Q																		0.0324	1.0049								
1810	HLP-54																			0.9573								
1811	HLP-55																			0.9716								
1812	HLP-56																		0.0409	0.9937								
1813	HLP-58				0.0009					0.0301									0.0143	0.9984								
1814	HLP-59				0.0009					0.0288									0.0143	0.9758								
1815	HLP-60				0.0009					0.0857									0.0002	0.9539								
1816	HLP-61				0.0013					0.0846									0.0399	0.9885								
1817	HLP-62				0.0013					0.0856										1.0181								
1818	HLP-63				0.0014					0.0883										1.0107								
1819	HLP-64				0.0004														0.0373	0.9742								
1820	HLP-65				0.0011															1.0192								
1821	HLP-66				0.0011					0.0004									0.0001	0.9850								
1822	HLP-67				0.0011					0.0001									0.0395	0.9364								
1823	HLP-68				0.0014															1.0138								
1824	HLP-69				0.0004					0.0879									0.0394	1.0250								
1825	HLP-70				0.0009					0.0843										1.0115								
1826	HLP-71				0.0012					0.0001									0.0393	0.9826								
1827	HLP-72				0.0014					0.0856									0.0386	0.9742								
1828	HLP-73				0.0014					0.0002									0.0001	0.9796								
1829	HLP-74				0.0010														0.0401	0.9894								
1830	HLP-75				0.0010					0.0366									0.0197	1.0116								
1831	HLP-76				0.0020					0.0013									0.0001	0.9991								
1832	HLP-77				0.0019					0.0008										1.0089								
1833	L1-9																			0.0000								
1834	L1-12																			0.0000								
1835	L1-15																			0.0000								
1836	L4-69																			0.0000								
1837	L4-612																			0.0000								
1838	L4-615																			0.0000								
1839	L4-96																			0.0000								
1840	L4-99																			0.0000								
1841	L4-912																			0.0000								
1842	L4-915																			0.0000								
1843	L4-129																			0.0000								
1844	L4-1212																			0.0000								
1845	L4-1215																			0.0000								
1846	L5-69																			0.0000								
1847	L5-612																			0.0000								
1848	L5-615																			0.0000								
1849	L5-96																			0.0000								
1850	L5-99																			0.0000								
1851	L5-912																			0.0000								
1852	L5-915																			0.0000								
1853	L5-129																			0.0000								
1854	L5-1212																			0.0000								
1855	L5-1215																			0.0000								
1856	L6-3312																			0.0000								
1857	L6-546																			0.0000								
1858	L6-549																			0.0000								
1859	L6-5412																			0.0000								
1860	L6-5415																			0.0000								
1861	L6-669																			0.0000								
1862	L6-6612																			0.0000								
1863	L7-15																			0.0000								
1864	L7-25																			0.0000								
1865	L7-30																			0.0000								
1866	L7-35																			0.0000								
1867	L8-1																			0.0000								
1868	L8-2																			0.0000								
1869	L8-3																			0.0000								
1870	L8-4																			0.0000								
1871	L8-5																			0.0000								
1872	L8-6																			0.0000								
1873	L8-7																			0.0000								
1874	L8-8																			0.0000								
1875	LD4-912																			0.0000								
1876	LD5-912																			0.0000								
1877	LD6-5314																			0.0000								
1878	LD6-5412				0.0018	0.0009				0.0002									0.0014	0.9998								
1879	LD6-5510																			0.0000								
1880	LDM-912				0.0026	0.0012														0.9971								
1881	LDM-1				0.0022	0.0010				0.0001									0.0011	0.9997								
1882	LDM-2				0.0023	0.0011													0.0006	0.9942								
1883	LDM-3				0.0021	0.0012				0.0001									0.0008	0.9995								
1884	LDM-4				0.0026	0.0012													0.0014	0.9994								
1885	LDM-5412				0.0069	0.0011				0.0001									0.0016	0.9998								
1886	LDMS-1				0.0026	0.0009				0.0002									0.0006	0.9884								

#	Glass ID	$C_{800°C}$	$C_{850°C}$	$C_{900°C}$	$C_{950°C}$	$C_{1000°C}$	$C_{1050°C}$	$C_{1100°C}$	$C_{1150°C}$	$C_{1200°C}$	Quenched Visual/OM	Quenched XRD	CCC XRD	ρ (g/cm³)	Fulc Visc A	Fulc Visc B	Fulc Visc To	Arrh Visc E	Arrh Visc F	T1 (°C)	V1 (Pa·s)
1805	HLP-49																				
1806	HLP-51													2.675							
1807	HLP-52													2.654							
1808	HLP-53																				
1809	HLP-53Q													2.726							
1810	HLP-54													2.490							
1811	HLP-55													2.455							
1812	HLP-56													2.680							
1813	HLP-58													2.622							
1814	HLP-59													2.645							
1815	HLP-60																				
1816	HLP-61													2.649							
1817	HLP-62													2.680							
1818	HLP-63													2.781							
1819	HLP-64													2.633							
1820	HLP-65													2.649							
1821	HLP-66													2.583							
1822	HLP-67													2.712							
1823	HLP-68													2.795							
1824	HLP-69													2.605							
1825	HLP-70																				
1826	HLP-71													2.716							
1827	HLP-72																				
1828	HLP-73																				
1829	HLP-74																				
1830	HLP-75													2.681							
1831	HLP-76													2.554							
1832	HLP-77													2.561							
1833	L1-9																				
1834	L1-12																				
1835	L1-15																				
1836	L4-69																				
1837	L4-612																				
1838	L4-615																	-10.107	21514.4	1214.0	79.100
1839	L4-96																	-9.925	19184.6	1139.0	40.800
1840	L4-99																				
1841	L4-912																	-9.443	19143.8	1140.0	66.500
1842	L4-915																				
1843	L4-129																	-9.629	18093.3	1089.0	41.600
1844	L4-1212																				
1845	L4-1215																	-9.373	18494.4	1140.0	43.900
1846	L5-69																				
1847	L5-612																				
1848	L5-615																				
1849	L5-96																	-10.576	20941.0	1139.0	74.500
1850	L5-99																				
1851	L5-912																				
1852	L5-915																				
1853	L5-129																	-11.479	21915.7	1089.0	108.800
1854	L5-1212																				
1855	L5-1215																	-11.864	22949.3	1139.0	85.200
1856	L6-3312																	-9.784	20688.7	1188.0	86.900
1857	L6-546																	-9.898	19289.6	1089.0	78.600
1858	L6-549																	-9.858	19476.5	1089.0	95.200
1859	L6-5412																	-9.845	19820.9	1139.0	71.300
1860	L6-5415																	-9.945	20303.5	1138.0	89.400
1861	L6-669																	-10.126	19064.5	1090.0	50.700
1862	L6-6612																	-10.057	19249.1	1089.0	62.800
1863	L7-15																	-10.227	22267.0	1188.0	154.500
1864	L7-25																	-9.774	18172.2	1089.0	36.400
1865	L7-30																	-10.088	17489.3	990.0	43.700
1866	L7-35																	-10.863	17430.6	891.0	63.700
1867	L8-1																	-11.168	22495.8	1189.0	72.500
1868	L8-2																	-12.425	24879.3	1186.0	108.900
1869	L8-3																	-11.713	23496.3	1189.0	83.100
1870	L8-4																	-12.650	23160.4	1094.0	77.300
1871	L8-5																	-10.915	21611.1	1091.0	143.300
1872	L8-6																	-9.611	19309.7	1142.0	60.000
1873	L8-7																	-10.390	20691.6	1141.0	76.300
1874	L8-8																	-9.780	20032.8	1190.0	54.500
1875	LD4-912																	-10.096	19838.1	1045.0	153.400
1876	LD5-912																	-11.888	23324.3	1095.0	179.900
1877	LD6-5314																	-10.564	21253.2	1070.0	198.300
1878	LD6-5412																	-10.879	21013.7	1046.0	161.000
1879	LD6-5510																	-11.161	21110.3	997.0	244.200
1880	LDM-912																	-10.759	21165.8	1138.0	76.800
1881	LDM-1																	-11.786	23083.2	1092.0	179.300
1882	LDM-2																	-11.119	21720.8	1091.0	133.500
1883	LDM-3																	-11.395	22585.1	1138.0	111.100
1884	LDM-4																	-12.435	21132.1	941.0	158.700
1885	LDM-5412																	-8.601	17292.2	(1088)	(78.7)
1886	LDMS-1																	-11.648	22995.7	1143.0	108.100

#	Glass ID	T2 (°C)	V2 (Pa·s)	T3 (°C)	V3 (Pa·s)	T4 (°C)	V4 (Pa·s)	T5 (°C)	V5 (Pa·s)	T6 (°C)	V6 (Pa·s)	T7 (°C)	V7 (Pa·s)	T8 (°C)	V8 (Pa·s)	T9 (°C)	V9 (Pa·s)	T10 (°C)	V10 (Pa·s)	TCLP Ag	TCLP As	TCLP Ba	TCLP Cd	TCLP Cr	TCLP Ni	TCLP Pb
1805	HLP-49																									
1806	HLP-51																									
1807	HLP-52																									
1808	HLP-53																									
1809	HLP-53Q																									
1810	HLP-54																									
1811	HLP-55																									
1812	HLP-56																									
1813	HLP-58																									
1814	HLP-59																									
1815	HLP-60																									
1816	HLP-61																									
1817	HLP-62																									
1818	HLP-63																									
1819	HLP-64																									
1820	HLP-65																									
1821	HLP-66																									
1822	HLP-67																									
1823	HLP-68																									
1824	HLP-69																									
1825	HLP-70																									
1826	HLP-71																									
1827	HLP-72																									
1828	HLP-73																									
1829	HLP-74																									
1830	HLP-75																									
1831	HLP-76																									
1832	HLP-77																									
1833	L1-9																									
1834	L1-12																									
1835	L1-15																									
1836	L4-69																									
1837	L4-612																									
1838	L4-615	1264	50.100	1314	32.9	1363.0	18.9	1412.0	13.9	1413.0	13.5	1462.0	9.5	1462.0	10.1	1464.0	11.1	(1516)	(9.7)							
1839	L4-96	1189	25.500	1239	16.4	1288.0	9.5	1337.0	6.8	1337.0	6.9	1387.0	4.8	1387.0	5.0	1388.0	5.6	1437.0	3.7							
1840	L4-99																									
1841	L4-912	1189	40.600	1239	26.4	1289.0	14.3	1338.0	10.2	1338.0	10.4	1388.0	7.2	1388.0	7.6	1388.0	8.9	1438.0	6.0							
1842	L4-915																									
1843	L4-129	1139	24.900	1189	15.8	1238.0	9.5	1287.0	6.6	1287.0	6.7	1336.0	4.7	1337.0	4.9	1338.0	5.3	1387.0	3.7							
1844	L4-1212																									
1845	L4-1215	1189	27.600	1239	18.4	1288.0	10.5	1337.0	7.3	1338.0	7.6	1387.0	5.2	1388.0	5.8	1388.0	6.6	1437.0	4.4							
1846	L5-69																									
1847	L5-612																									
1848	L5-615																									
1849	L5-96	1189	43.000	1238	26.0	1287.0	16.5	1287.0	16.6	1336.0	11.2	1337.0	11.2	1338.0	11.4	1387.0	7.6	1437.0	5.5							
1850	L5-99																									
1851	L5-912																									
1852	L5-915																									
1853	L5-129	1139	58.000	1189	32.0	1238.0	19.5	1238.0	19.7	1287.0	12.8	1287.0	12.9	1288.0	12.9	1337.0	8.4	1387.0	5.8							
1854	L5-1212																									
1855	L5-1215	1189	46.600	1238	27.1	1287.0	16.5	1287.0	16.5	1336.0	10.8	1337.0	10.8	1338.0	10.8	1387.0	7.3	1437.0	4.9							
1856	L6-3312	1238	53.200	1287	29.8	1336.0	19.9	1336.0	20.3	1386.0	13.6	1386.0	14.4	1388.0	15.5	1436.0	10.1	1487.0	7.4							
1857	L6-546	1138	45.100	1188	25.6	1237.0	16.7	1238.0	16.4	1286.0	11.5	1287.0	11.0	1287.0	12.2	1337.0	8.0	1387.0	5.9							
1858	L6-549	1138	55.000	1187	29.5	1236.0	19.6	1237.0	19.0	1286.0	12.8	1286.0	13.6	1287.0	14.8	1336.0	9.4	1386.0	6.9							
1859	L6-5412	1188	43.100	1238	24.6	1287.0	16.0	1287.0	16.5	1337.0	10.9	1337.0	11.7	1337.0	12.6	1387.0	8.4	1437.0	6.2							
1860	L6-5415	1188	53.200	1237	31.7	1287.0	20.5	1287.0	21.0	1336.0	13.6	1336.0	14.5	1337.0	15.0	1386.0	10.0	1437.0	7.3							
1861	L6-669	1140	29.400	1189	17.2	1239.0	11.5	1239.0	11.6	1288.0	7.7	1288.0	8.0	1289.0	8.3	1338.0	5.6	1388.0	4.1							
1862	L6-6612	1138	36.200	1188	21.3	1238.0	14.2	1238.0	14.3	1287.0	9.4	1287.0	9.7	1287.0	9.9	1337.0	6.9	1387.0	4.9							
1863	L7-15	1237	91.300	1287	56.3	1336.0	35.8	1386.0	23.6	1386.0	25.0	1436.0	15.7	1436.0	17.7	1436.0	16.7									
1864	L7-25	1138	22.600	1188	13.8	1237.0	9.4	1237.0	9.5	1286.0	6.4	1286.0	6.6	1287.0	6.7	1336.0	4.6	1387.0	3.3							
1865	L7-30	1040	25.400	1090	15.4	1139.0	9.7	1188.0	6.5	1189.0	6.5	1238.0	4.4	1238.0	4.4	1239.0	4.5	1288.0	3.1							
1866	L7-35	941	32.400	991	18.3	1040.0	11.0	1089.0	6.8	1089.0	6.8	1139.0	4.4	1139.0	4.4	1140.0	4.4	1189.0	3.0							
1867	L8-1	1239	42.100	1288	26.1	1338.0	14.4	1388.0	10.0	1389.0	9.7	1438.0	6.9	1438.0	7.5	1438.0	7.7	1488.0	5.7							
1868	L8-2	1236	60.100	1286	32.6	1336.0	19.8	1336.0	20.0	1386.0	12.9	1386.0	12.9	1386.0	13.1	1436.0	8.4	1486.0	5.7							
1869	L8-3	1239	47.700	1288	26.7	1338.0	16.5	1338.0	17.0	1388.0	10.5	1388.0	11.3	1388.0	11.9	1438.0	7.8	1488.0	5.5							
1870	L8-4	1145	39.700	1194	21.8	1244.0	13.3	1244.0	13.4	1294.0	8.1	1294.0	8.4	1294.0	8.5	1344.0	5.4	1344.0	5.7							
1871	L8-5	1141	78.600	1191	45.6	1241.0	28.2	1291.0	17.8	1341.0	12.0	1391.0	8.2													
1872	L8-6	1192	35.800	1242	21.9	1292.0	14.9	1292.0	14.6	1342.0	10.0	1342.0	10.4	1343.0	10.7	1392.0	7.3	1443.0	5.5							
1873	L8-7	1191	45.300	1240	24.1	1290.0	15.7	1290.0	15.9	1340.0	10.6	1340.0	11.2	1341.0	12.4	1390.0	7.9	1442.0	6.0							
1874	L8-8	1239	33.100	1289	19.6	1339.0	13.3	1339.0	13.4	1388.0	9.3	1389.0	9.0	1390.0	10.2	1439.0	7.1	1489.0	5.4							
1875	LD4-912	1144	48.500	1243	19.4	1342.0	7.4	1343.0	9.2	1392.0	5.8	1442.0	4.4	1492.0	3.7											
1876	LD5-912	1145	94.600	1244	32.2	1343.0	12.3	1343.0	12.6	1393.0	8.2	1443.0	5.8													
1877	LD6-5314	1119	109.400	1220	39.6	1318.0	14.4	1319.0	16.9	1368.0	10.6	1418.0	8.1													
1878	LD6-5412	1145	49.700	1244	19.1	1342.0	8.7																			
1879	LD6-5510	1096	69.400	1195	23.7	1294.0	9.6	1294.0	10.3	1344.0	7.1															
1880	LDM-912	1186	40.900	1236	24.8	1236.0	25.9	1285.0	15.6	1285.0	16.5	1286.0	17.1	1336.0	11.2	1385.0	7.6	1436.0	5.3							
1881	LDM-1	1142	96.100	1191	50.8	1241.0	29.8	1241.0	31.1	1290.0	17.9	1290.0	19.3	1292.0	19.8	1343.0	13.0	1392.0	8.6							
1882	LDM-2	1141	72.700	1190	38.6	1239.0	24.7	1240.0	23.7	1289.0	15.7	1290.0	14.9	1290.0	16.1	1340.0	10.8	1392.0	7.8							
1883	LDM-3	1187	62.800	1236	31.8	1286.0	20.0	1286.0	20.8	1336.0	12.5	1336.0	13.9	1336.0	15.0	1386.0	9.7	1436.0	6.9							
1884	LDM-4	992	72.600	1041	35.9	1090.0	20.1	1091.0	20.1	1140.0	12.2	1141.0	11.9	1141.0	12.4	1190.0	7.5	1240.0	5.2							
1885	LDM-5412	1138	40.000	1187	24.9	1187.0	25.9	1236.0	15.8	1237.0	17.0	1237.0	18.8	1286.0	12.0	1336.0	8.6	1386.0	6.3							
1886	LDMS-1	1193	60.300	1243	30.1	1292.0	19.9	1293.0	18.8	1342.0	12.2	1342.0	13.4	1344.0	14.4	1393.0	8.8	1444.0	6.3							

#	Glass ID	TCLP Se	TCLP Zn	TCLP Al	TCLP B	TCLP Sb	TCLP Tl	TCLP V	Q PCT B (g/m²)	Q PCT Li (g/m²)	Q PCT Na (g/m²)	Q PCT Si (g/m²)	Q PCT pH	CCC PCT B (g/m²)	CCC PCT Li (g/m²)	CCC PCT Na (g/m²)	CCC PCT Si (g/m²)	CCC PCT pH	T1 (°C)
1805	HLP-49													0.310		0.290	0.090	10.870	
1806	HLP-51								0.340		0.380	0.150	12.680						
1807	HLP-52										5.570	0.650	10.330						
1808	HLP-53																		
1809	HLP-53Q																		
1810	HLP-54								0.430		0.450	0.190	10.323						
1811	HLP-55								0.140		0.250	0.110	11.363						
1812	HLP-56																		
1813	HLP-58								0.260		0.310	0.140	10.463						
1814	HLP-59								0.290		0.370	0.150	10.737						
1815	HLP-60													0.030		0.040	0.020		
1816	HLP-61								0.960		0.330	0.240	10.573						
1817	HLP-62								0.250		0.270	0.120	9.970						
1818	HLP-63								1.270		3.730	0.990	11.860						
1819	HLP-64								3.200		2.400	0.580	11.193						
1820	HLP-65								0.460		0.490	0.230	10.570						
1821	HLP-66								8.920		6.500	2.340	11.540						
1822	HLP-67								7.660		5.620	0.910	12.197						
1823	HLP-68													0.320		0.430	0.110	11.187	
1824	HLP-69								0.200		0.210	0.140	10.297						
1825	HLP-70													0.310		0.140	0.130	12.277	
1826	HLP-71													42.680		11.010	0.430	12.467	
1827	HLP-72													0.290		0.300	0.120	9.893	
1828	HLP-73													2.060		1.240	0.140	10.267	
1829	HLP-74													0.250		0.290	0.100	10.183	
1830	HLP-75								0.330		0.430	0.170	10.967						
1831	HLP-76								0.230		0.300	0.130	10.797						
1832	HLP-77								0.220		0.300	0.130	10.760						
1833	L1-9										6.085	0.935	12.735						
1834	L1-12										2.620	0.400	12.337						
1835	L1-15										0.860	0.210	11.630						
1836	L4-69								0.470		0.530	0.220	10.880						
1837	L4-612								0.155		0.270	0.130	10.705						
1838	L4-615								0.145		0.235	0.130	10.615						
1839	L4-96								2.975		2.290	0.785	10.620						
1840	L4-99								0.775		0.595	0.210	10.510						
1841	L4-912								0.280		0.300	0.130	10.530						
1842	L4-915								0.200		0.225	0.120	10.335						
1843	L4-129								1.650		1.130	0.245	10.385						
1844	L4-1212								1.080		0.695	0.130	10.390						
1845	L4-1215								0.640		0.410	0.115	10.075						
1846	L5-69										1.905	0.350	12.165						
1847	L5-612										1.010	0.155	11.940						
1848	L5-615										0.540	0.120	11.635						
1849	L5-96										2.235	0.500	12.220						
1850	L5-99										1.675	0.335	12.165						
1851	L5-912										0.945	0.180	11.955						
1852	L5-915										0.640	0.110	11.800						
1853	L5-129										1.403	0.290	12.090						
1854	L5-1212										1.050	0.210	11.970						
1855	L5-1215										0.600	0.095	11.795						
1856	L6-3312								0.165		0.575	0.155	11.635						
1857	L6-546								0.235		0.940	0.220	11.900						
1858	L6-549								0.170		0.595	0.155	11.650						
1859	L6-5412								0.130		0.395	0.120	11.400						
1860	L6-5415								0.110		0.305	0.100	11.240						
1861	L6-669								0.140		0.490	0.130	11.365						
1862	L6-6612								0.115		0.380	0.105	11.465						
1863	L7-15								0.070		0.150	0.060	10.400						
1864	L7-25								0.390		1.505	0.370	12.220						
1865	L7-30								1.190		6.020	0.955	12.890						
1866	L7-35								44.385		35.520	16.605	13.355						
1867	L8-1								0.170		0.345	0.120	11.000						
1868	L8-2										1.030	0.185	11.865						
1869	L8-3								0.240		0.670	0.155	11.580						
1870	L8-4								1.290		1.015	0.430	10.705						
1871	L8-5										1.160	0.215	11.935						
1872	L8-6								0.240		0.615	0.190	11.470						
1873	L8-7								0.185		0.350	0.140	10.985						
1874	L8-8								1.435		1.285	0.400	11.285						
1875	LD4-912								0.352		0.316	0.127	10.545						
1876	LD5-912										1.229	0.224	12.030						
1877	LD6-5314								0.099		0.257	0.090	11.050						
1878	LD6-5412								0.112		0.376	0.105	11.385						
1879	LD6-5510								0.132		0.518	0.120	11.475						
1880	LDM-912										1.197	0.219	11.815						
1881	LDM-1								0.173		0.365	0.131	11.120						
1882	LDM-2										0.845	0.143	10.665						
1883	LDM-3								0.166		0.288	0.111	10.665						
1884	LDM-4								0.282		0.463	0.129	10.945						
1885	LDM-5412								0.126		0.405	0.109	10.945						
1886	LDMS-1								0.154		0.306	0.126	10.905						

#	Glass ID	EC1 (S/cm)	T2 (°C)	EC2 (S/cm)	T3 (°C)	EC3 (S/cm)	T4 (°C)	EC4 (S/cm)	T5 (°C)	EC5 (S/cm)	T6 (°C)	EC6 (S/cm)	A	B	To
1805	HLP-49														
1806	HLP-51														
1807	HLP-52														
1808	HLP-53														
1809	HLP-53Q														
1810	HLP-54														
1811	HLP-55														
1812	HLP-56														
1813	HLP-58														
1814	HLP-59														
1815	HLP-60														
1816	HLP-61														
1817	HLP-62														
1818	HLP-63														
1819	HLP-64														
1820	HLP-65														
1821	HLP-66														
1822	HLP-67														
1823	HLP-68														
1824	HLP-69														
1825	HLP-70														
1826	HLP-71														
1827	HLP-72														
1828	HLP-73														
1829	HLP-74														
1830	HLP-75														
1831	HLP-76														
1832	HLP-77														
1833	L1-9														
1834	L1-12														
1835	L1-15														
1836	L4-69														
1837	L4-612														
1838	L4-615														
1839	L4-96														
1840	L4-99														
1841	L4-912														
1842	L4-915														
1843	L4-129														
1844	L4-1212														
1845	L4-1215														
1846	L5-69														
1847	L5-612														
1848	L5-615														
1849	L5-96														
1850	L5-99														
1851	L5-912														
1852	L5-915														
1853	L5-129														
1854	L5-1212														
1855	L5-1215														
1856	L6-3312														
1857	L6-546														
1858	L6-549														
1859	L6-5412														
1860	L6-5415														
1861	L6-669														
1862	L6-6612														
1863	L7-15														
1864	L7-25														
1865	L7-30														
1866	L7-35														
1867	L8-1														
1868	L8-2														
1869	L8-3														
1870	L8-4														
1871	L8-5														
1872	L8-6														
1873	L8-7														
1874	L8-8														
1875	LD4-912														
1876	LD5-912														
1877	LD6-5314														
1878	LD6-5412														
1879	LD6-5510														
1880	LDM-912														
1881	LDM-1														
1882	LDM-2														
1883	LDM-3														
1884	LDM-4														
1885	LDM-5412														
1886	LDMS-1														

#	Glass ID	Study	Reference	Al2O3-t	B2O3-t	CaO-t	Fe2O3-t	FeO-t	K2O-t	Li2O-t	MgO-t	Na2O-t	NiO-t	P2O5-t	SiO2-t	ZrO2-t	Ag2O-t	As2O3-t	As2O5-t	BaO-t	BeO-t	Bi2O3-t	Br-t	CdO-t	Ce2O3-t	CeO2-t	Cl-t
1887	LRM-912	Hanford LLW Glass Formulati	Feng et al. 1996	0.1200		0.0900			0.0003			0.2000		0.0252	0.5454												0.0004
1888	LRM-1	Hanford LLW Glass Formulati	Feng et al. 1996	0.1200	0.0200	0.0200	0.0600		0.0003	0.0100		0.2000		0.0252	0.4854	0.0400											0.0004
1889	LRM-2	Hanford LLW Glass Formulati	Feng et al. 1996	0.1200		0.0600	0.0600		0.0003			0.2000		0.0252	0.5154												0.0004
1890	LRM-3	Hanford LLW Glass Formulati	Feng et al. 1996	0.1200	0.0600				0.0003			0.2000		0.0252	0.5154	0.0600											0.0004
1891	LRM-4	Hanford LLW Glass Formulati	Feng et al. 1996	0.1000	0.0600	0.0600	0.0600		0.0003	0.0050		0.2000		0.0252	0.4304	0.0400											0.0004
1892	LRM-5412	Hanford LLW Glass Formulati	Feng et al. 1996	0.1200	0.0500	0.0400			0.0003			0.2000		0.0252	0.5454												0.0004
1893	LRMS-1	Hanford LLW Glass Formulati	Feng et al. 1996	0.1200	0.0200	0.0200	0.0600		0.0003	0.0100		0.2000		0.0252	0.4854	0.0400											0.0004
1894	SSHTM-3	Hanford LLW Glass Formulati	Feng et al. 1996	0.1200	0.0500	0.0400	0.0000		0.0146		0.0000	0.2000		0.0019	0.5591												0.0035
1895	B1G9-0IIC4	Hanford LLW Glass Formulati	Feng et al. 1996	0.1000	0.0500	0.0500	0.0000		0.0146		0.0000	0.2000		0.0019	0.5691												0.0035
1896	B1G9-013C5	Hanford LLW Glass Formulati	Feng et al. 1996	0.1000	0.0500	0.0500	0.0000		0.0146		0.0000	0.2000		0.0019	0.5691												0.0035
1897	B1G9-014C	Hanford LLW Glass Formulati	Feng et al. 1996	0.1000	0.0500	0.0500	0.0000		0.0146		0.0000	0.2000		0.0019	0.5691												0.0035
1898	D1G4-022P2	Hanford LLW Glass Formulati	Feng et al. 1996	0.0614	0.0615	0.0780	0.0750		0.0368		0.0000	0.1882		0.0018	0.4223	0.0509											0.0033
1899	D1G4-023P3	Hanford LLW Glass Formulati	Feng et al. 1996	0.0614	0.0615	0.0780	0.0750		0.0368		0.0000	0.1882		0.0018	0.4223	0.0509											0.0033
1900	Duratek	Hanford LLW Glass Formulati	Feng et al. 1996	0.0614	0.0615	0.0780	0.0750		0.0368		0.0000	0.1882		0.0018	0.4223	0.0509											0.0033
1901	PEI	Hanford LLW Glass Formulati	Feng et al. 1996	0.0600		0.0973	0.0100		0.0150		0.0013	0.1882		0.0019	0.5922	0.0200											0.0035
1902	M1G1-008P	Hanford LLW Glass Formulati	Feng et al. 1996	0.1000	0.0500	0.0500	0.0000		0.0146		0.0000	0.2000		0.0019	0.5691												0.0035
1903	M1G1-011P	Hanford LLW Glass Formulati	Feng et al. 1996	0.1000	0.0500	0.0500	0.0000		0.0146		0.0000	0.2000		0.0019	0.5691												0.0035
1904	V1M2 6 32 011 P1	Hanford LLW Glass Formulati	Feng et al. 1996	0.1000	0.0800	0.0290	0.0100		0.0146		0.0210	0.2000		0.0019	0.5290												0.0035
1905	V1M2 6 32 040 P2	Hanford LLW Glass Formulati	Feng et al. 1996	0.1000	0.0800	0.0290	0.0100		0.0146		0.0210	0.2000		0.0019	0.5290												0.0035
1906	V1M3 6 32 059 P1	Hanford LLW Glass Formulati	Feng et al. 1996	0.1000	0.0800	0.0290	0.0100		0.0146		0.0210	0.2000		0.0019	0.5290												0.0035
1907	V1M3 6 32 075 P2	Hanford LLW Glass Formulati	Feng et al. 1996	0.1000	0.0800	0.0290	0.0100		0.0146		0.0210	0.2000		0.0019	0.5290												0.0035
1908	V1M4 6 32 088 P1	Hanford LLW Glass Formulati	Feng et al. 1996	0.1000	0.0800	0.0290	0.0100		0.0146		0.0210	0.2000		0.0019	0.5290												0.0035
1909	V1M4 6 32 096 P2	Hanford LLW Glass Formulati	Feng et al. 1996	0.1000	0.0800	0.0290	0.0100		0.0146		0.0210	0.2000		0.0019	0.5290												0.0035
1910	Vectra	Hanford LLW Glass Formulati	Feng et al. 1996	0.1000	0.0800	0.0290	0.0100		0.0146		0.0210	0.2000		0.0019	0.5290												0.0035
1911	WSTC	Hanford LLW Glass Formulati	Feng et al. 1996	0.1822	0.0945	0.0465	0.0000		0.0144	0.0083	0.0000	0.1882		0.0019	0.4290	0.0210											0.0035
1912	SBW1-01	SBW CVS Phase 1	Scholes et al. 2002	0.1003	0.0900	0.0218	0.0412		0.0278	0.0200	0.0000	0.1772	0.0008	0.0122	0.4548	0.0120				0.0200				0.0020			0.0015
1913	SBW1-02	SBW CVS Phase 1	Scholes et al. 2002	0.0980	0.0900	0.0218	0.0608		0.0278	0.0300	0.0000	0.1408	0.0008	0.0084	0.4650	0.0120				0.0200				0.0030			0.0015
1914	SBW1-03	SBW CVS Phase 1	Scholes et al. 2002	0.0980	0.0900	0.0218	0.0412		0.0278	0.0200	0.0000	0.1408	0.0008	0.0084	0.5029	0.0080				0.0200				0.0020			0.0015
1915	SBW1-04	SBW CVS Phase 1	Scholes et al. 2002	0.0980	0.1100	0.0218	0.0412		0.0362	0.0300	0.0000	0.1450	0.0008	0.0122	0.4548	0.0080				0.0200				0.0020			0.0015
1916	SBW1-05	SBW CVS Phase 1	Scholes et al. 2002	0.1270	0.0900	0.0218	0.0412		0.0278	0.0300	0.0000	0.1408	0.0008	0.0084	0.4548	0.0080				0.0258				0.0020			0.0015
1917	SBW1-06	SBW CVS Phase 1	Scholes et al. 2002	0.1171	0.0900	0.0218	0.0608		0.0362	0.0200	0.0000	0.1408	0.0008	0.0084	0.4548	0.0080				0.0200				0.0030			0.0015
1918	SBW1-07	SBW CVS Phase 1	Scholes et al. 2002	0.0980	0.0900	0.0218	0.0608		0.0362	0.0200	0.0000	0.1432	0.0008	0.0122	0.4548	0.0120				0.0282				0.0020			0.0015
1919	SBW1-08	SBW CVS Phase 1	Scholes et al. 2002	0.1270	0.0904	0.0300	0.0412		0.0278	0.0200	0.0000	0.1408	0.0008	0.0122	0.4548	0.0120				0.0200				0.0030			0.0015
1920	SBW1-09	SBW CVS Phase 1	Scholes et al. 2002	0.0980	0.1100	0.0218	0.0412		0.0278	0.0300	0.0000	0.1408	0.0008	0.0122	0.4559	0.0120				0.0282				0.0030			0.0015
1921	SBW1-10	SBW CVS Phase 1	Scholes et al. 2002	0.0980	0.0900	0.0300	0.0412		0.0362	0.0300	0.0000	0.1583	0.0008	0.0084	0.4548	0.0120				0.0200				0.0020			0.0015
1922	SBW1-11	SBW CVS Phase 1	Scholes et al. 2002	0.1029	0.1100	0.0218	0.0412		0.0362	0.0200	0.0000	0.1408	0.0008	0.0084	0.4548	0.0120				0.0282				0.0030			0.0015
1923	SBW1-12	SBW CVS Phase 1	Scholes et al. 2002	0.0980	0.0900	0.0300	0.0412		0.0362	0.0200	0.0000	0.1408	0.0008	0.0122	0.4782	0.0080				0.0200				0.0030			0.0015
1924	SBW1-13	SBW CVS Phase 1	Scholes et al. 2002	0.0980	0.0900	0.0218	0.0608		0.0278	0.0300	0.0000	0.1447	0.0008	0.0122	0.4548	0.0080				0.0282				0.0030			0.0015
1925	SBW1-14	SBW CVS Phase 1	Scholes et al. 2002	0.0980	0.0908	0.0218	0.0412		0.0278	0.0200	0.0000	0.1772	0.0008	0.0084	0.4548	0.0080				0.0282				0.0030			0.0015
1926	SBW1-15	SBW CVS Phase 1	Scholes et al. 2002	0.0980	0.1100	0.0300	0.0595		0.0278	0.0200	0.0000	0.1408	0.0008	0.0084	0.4548	0.0080				0.0200				0.0020			0.0015
1927	SBW1-16	SBW CVS Phase 1	Scholes et al. 2002	0.0690	0.1300	0.0124	0.0216		0.0194	0.0400	0.0000	0.1044	0.0008	0.0045	0.5550	0.0040				0.0100				0.0040			0.0015
1928	SBW1-17	SBW CVS Phase 1	Scholes et al. 2002	0.0690	0.0700	0.0400	0.0804		0.0194	0.0400	0.0000	0.1044	0.0008	0.0161	0.5299	0.0040				0.0100				0.0010			0.0015
1929	SBW1-18	SBW CVS Phase 1	Scholes et al. 2002	0.1560	0.0700	0.0400	0.0804		0.0446	0.0400	0.0000	0.1044	0.0008	0.0045	0.4215	0.0040				0.0100				0.0040			0.0015
1930	SBW1-19	SBW CVS Phase 1	Scholes et al. 2002	0.0690	0.0700	0.0124	0.0216		0.0446	0.0100	0.0000	0.1954	0.0008	0.0161	0.5253	0.0040				0.0100				0.0010			0.0015
1931	SBW1-20	SBW CVS Phase 1	Scholes et al. 2002	0.0690	0.0700	0.0400	0.0804		0.0194	0.0170	0.0000	0.2136	0.0008	0.0045	0.4304	0.0160				0.0100				0.0040			0.0015
1932	SBW1-21	SBW CVS Phase 1	Scholes et al. 2002	0.1560	0.0700	0.0124	0.0804		0.0194	0.0400	0.0000	0.1276	0.0008	0.0161	0.4254	0.0160				0.0100				0.0010			0.0015
1933	SBW1-22	SBW CVS Phase 1	Scholes et al. 2002	0.1560	0.0700	0.0124	0.0216		0.0446	0.0400	0.0000	0.1484	0.0008	0.0045	0.4567	0.0160				0.0100				0.0040			0.0015
1934	SBW1-23	SBW CVS Phase 1	Scholes et al. 2002	0.1110	0.0700	0.0124	0.0216		0.0194	0.0400	0.0000	0.1906	0.0008	0.0161	0.4524	0.0040				0.0376				0.0040			0.0015
1935	SBW1-24	SBW CVS Phase 1	Scholes et al. 2002	0.1560	0.1300	0.0124	0.0804		0.0446	0.0100	0.0000	0.1059	0.0008	0.0161	0.4057	0.0040				0.0100				0.0040			0.0015
1936	SBW1-25	SBW CVS Phase 1	Scholes et al. 2002	0.0690	0.1300	0.0400	0.0216		0.0194	0.0100	0.0000	0.1293	0.0008	0.0161	0.5188	0.0160				0.0100				0.0040			0.0015
1937	SBW1-26	SBW CVS Phase 1	Scholes et al. 2002	0.0690	0.0700	0.0124	0.0804		0.0446	0.0244	0.0000	0.1044	0.0008	0.0045	0.5148	0.0160				0.0376				0.0010			0.0015
1938	SBW1-27	SBW CVS Phase 1	Scholes et al. 2002	0.1560	0.1300	0.0124	0.0216		0.0194	0.0100	0.0000	0.1301	0.0008	0.0045	0.4408	0.0160				0.0376				0.0010			0.0015
1939	SBW1-28	SBW CVS Phase 1	Scholes et al. 2002	0.0938	0.1300	0.0124	0.0804		0.0446	0.0400	0.0000	0.1044	0.0008	0.0161	0.4024	0.0160				0.0353				0.0040			0.0015
1940	SBW1-29	SBW CVS Phase 1	Scholes et al. 2002	0.1155	0.1300	0.0400	0.0216		0.0446	0.0400	0.0000	0.1419	0.0008	0.0161	0.4024	0.0160				0.0100				0.0010			0.0015
1941	SBW1-30	SBW CVS Phase 1	Scholes et al. 2002	0.0727	0.1300	0.0124	0.0804		0.0194	0.0100	0.0000	0.2123	0.0008	0.0045	0.4275	0.0040				0.0100				0.0010			0.0015
1942	SBW1-31D	SBW CVS Phase 1	Scholes et al. 2002	0.1617	0.1354	0.0085	0.0854		0.0173	0.0428	0.0000	0.0917	0.0008	0.0171	0.4066	0.0030				0.0058				0.0043			0.0015
1943	SBW1-32	SBW CVS Phase 1	Scholes et al. 2002	0.0400	0.1500	0.0030	0.0020		0.0530	0.0500	0.0000	0.0680	0.0008	0.0006	0.6044												0.0015
1944	SBW1-33A	SBW CVS Phase 1	Scholes et al. 2002	0.0400	0.1500	0.0500	0.1000		0.0530		0.0000	0.0680	0.0008	0.0200	0.4780	0.0200											0.0015
1945	SBW1-34	SBW CVS Phase 1	Scholes et al. 2002	0.0400	0.1289	0.0030	0.0020		0.0110	0.0500	0.0000	0.0680	0.0008	0.0006	0.6120	0.0200				0.0470				0.0050			0.0015
1946	SBW1-35	SBW CVS Phase 1	Scholes et al. 2002	0.1799	0.1500	0.0500	0.0020		0.0530		0.0000	0.1970	0.0008	0.0006	0.3500									0.0050			0.0015
1947	SBW1-36	SBW CVS Phase 1	Scholes et al. 2002	0.1850	0.0500	0.0030	0.0020		0.0110		0.0000	0.2390	0.0008	0.0006	0.4334					0.0470							0.0015
1948	SBW1-37	SBW CVS Phase 1	Scholes et al. 2002	0.0400	0.0500	0.0030	0.1000		0.0110		0.0000	0.2163	0.0008	0.0200	0.5142	0.0200								0.0050			0.0015
1949	SBW1-38B	SBW CVS Phase 1	Scholes et al. 2002	0.1617	0.1354	0.0085	0.0854		0.0173	0.0078	0.0000	0.1127	0.0008	0.0035	0.4010	0.0030				0.0387				0.0043			0.0015
1950	SBW1-39B	SBW CVS Phase 1	Scholes et al. 2002	0.1592	0.0586	0.0048	0.0951		0.0509	0.0026	0.0000	0.1920	0.0008	0.0016	0.3886	0.0190				0.0019				0.0048			0.0015
1951	SBW1-40	SBW CVS Phase 1	Scholes et al. 2002	0.1523	0.1356	0.0030	0.1000		0.0530	0.0500	0.0000	0.0680	0.0008	0.0006	0.3500	0.0200				0.0470							0.0015
1952	SBW1-41	SBW CVS Phase 1	Scholes et al. 2002	0.0400	0.1500	0.0030	0.1000		0.0110		0.0000	0.2280	0.0008	0.0006	0.4549												0.0015
1953	SBW1-42	SBW CVS Phase 1	Scholes et al. 2002	0.0400	0.1500	0.0500	0.1000		0.0110	0.0500	0.0000	0.0798	0.0008	0.0006	0.4646	0.0200								0.0050			0.0015
1954	SBW1-43	SBW CVS Phase 1	Scholes et al. 2002	0.1650	0.1500	0.0030	0.0020		0.0110	0.0500	0.0000	0.1781	0.0008	0.0200	0.3799	0.0200											0.0015
1955	SBW1-44B	SBW CVS Phase 1	Scholes et al. 2002	0.0602	0.0654	0.0085	0.0854		0.0467	0.0428	0.0000	0.1400	0.0008	0.0171	0.4672	0.0030				0.0387				0.0043			0.0015
1956	SBW1-45	SBW CVS Phase 1	Scholes et al. 2002	0.0400	0.1500	0.0030	0.0020		0.0530		0.0000	0.1867	0.0008	0.0200	0.4443	0.0200				0.0470				0.0050			0.0015
1957	SBW1-46	SBW CVS Phase 1	Scholes et al. 2002	0.1072	0.1014	0.0214	0.0513		0.0320	0.0259	0.0000	0.1471	0.0008	0.0102	0.4512	0.0099				0.0192				0.0025			0.0015
1958	SBW1-47	SBW CVS Phase 1	Scholes et al. 2002	0.1072	0.1014	0.0214	0.0513		0.0320	0.0259	0.0000	0.1471	0.0008	0.0102	0.4512	0.0099				0.0192				0.0025			0.0015
1959	SBW1-48	SBW CVS Phase 1	Scholes et al. 2002	0.0904	0.1236	0.0103	0.0894		0.0270	0.0057	0.0000	0.1422	0.0005	0.0064	0.4866	0.0029								0.0015			0.0009
1960	SBW1-49	SBW CVS Phase 1	Scholes et al. 2002	0.0904	0.1236	0.0103	0.0054		0.0270	0.0412	0.0000	0.1422	0.0005	0.0064	0.5001	0.0029				0.0350				0.0015			0.0009
1961	SBW1-50	SBW CVS Phase 1	Scholes et al. 2002	0.0904	0.1198	0.0453	0.0894		0.0270	0.0412	0.0000	0.1422	0.0005	0.0064	0.4199	0.0029								0.0015			0.0009
1962	SBW1-51	SBW CVS Phase 1	Scholes et al. 2002	0.0904	0.0700	0.0103	0.0894		0.0270	0.0136	0.0000	0.1422	0.0005	0.0064	0.4973	0.0029				0.0350				0.0015			0.0009
1963	SBW1-52	SBW CVS Phase 1	Scholes et al. 2002	0.0904	0.1236	0.0453	0.0367		0.0270	0.0061	0.0000	0.1422	0.0005	0.0064	0.5039	0.0029								0.0015			0.0009
1964	SBW1-53	SBW CVS Phase 1	Scholes et al. 2002	0.0904	0.0700	0.0112	0.0894		0.0270	0.0412	0.0000	0.1422	0.0005	0.0064	0.5038	0.0029								0.0015			0.0009
1965	SBW1-54	SBW CVS Phase 1	Scholes et al. 2002	0.0725	0.1125	0.0461	0.0795		0.0224	0.0375	0.0000	0.1169	0.0006	0.0052	0.4873	0.0047								0.0012			0.0011
1966	SBW1-55	SBW CVS Phase 1	Scholes et al. 2002	0.0870	0.1050	0.0453	0.0754		0.0269	0.0350	0.0000	0.1403	0.0007	0.0062	0.4549	0.0056								0.0014			0.0014
1967	SBW1-56	SBW CVS Phase 1	Scholes et al. 2002	0.1014	0.0975	0.0445	0.0713		0.0314	0.0325	0.0000	0.1637	0.0009	0.0073	0.4224	0.0065								0.0017			0.0016
1968	SBW1-57	SBW CVS Phase 1	Scholes et al. 2002	0.0725	0.1125	0.0086	0.0795		0.0224	0.0375	0.0000	0.1169	0.0006	0.0052	0.4873	0.0047				0.0375				0.0012			0.0011

#	Glass ID	CoO-t	Co2O3-t	Cr2O3-t	Cs2O-t	CuO-t	Dy2O3-t	Eu2O3-t	F-t	Ga2O3-t	Gd2O3-t	HfO2-t	HgO-t	I-t	La2O3-t	MnO2-t	MnO-t	MoO-t	MoO2-t	MoO3-t	Nb2O5-t	Nd2O3-t	NpO2-t	PbO-t	PdO2-t	PdO-t	Pr2O3-t	Pr6O11-t	Rb2O-t	ReO-t
1887	LRM-912			0.0004	0.0015				0.0026					0.0014			0.0001			0.0015										
1888	LRM-1			0.0004	0.0015				0.0026					0.0014			0.0001			0.0015										
1889	LRM-2			0.0004	0.0015				0.0026					0.0014			0.0001			0.0015										
1890	LRM-3			0.0004	0.0015				0.0026					0.0014			0.0001			0.0015										
1891	LRM-4			0.0004	0.0015				0.0026					0.0014			0.0001			0.0015										
1892	LRM-5412			0.0004	0.0015				0.0026					0.0014			0.0001			0.0015										
1893	LRMS-1			0.0004	0.0015				0.0026					0.0014			0.0001			0.0015										
1894	SSHTM-3			0.0004	0.0015				0.0029					0.0013			0.0000			0.0015										
1895	B1G9-0IIC4			0.0004	0.0015				0.0029					0.0013			0.0000			0.0015										
1896	B1G9-013C5			0.0004	0.0015				0.0029					0.0013			0.0000			0.0015										
1897	B1G9-014C			0.0004	0.0015				0.0029					0.0013			0.0000			0.0015										
1898	D1G4-022P2			0.0004	0.0014				0.0028					0.0012			0.0000			0.0014										
1899	D1G4-023P3			0.0004	0.0014				0.0028					0.0012			0.0000			0.0014										
1900	Duratek			0.0004	0.0014				0.0028					0.0012			0.0000			0.0014										
1901	PEI			0.0004	0.0015				0.0029					0.0013			0.0000			0.0015										
1902	M1G1-008P			0.0004	0.0015				0.0029					0.0013			0.0000			0.0015										
1903	M1G1-011P			0.0004	0.0015				0.0029					0.0013			0.0000			0.0015										
1904	V1M2 6 32 011 P1			0.0004	0.0015				0.0029					0.0013			0.0000			0.0015										
1905	V1M2 6 32 040 P2			0.0004	0.0015				0.0029					0.0013			0.0000			0.0015										
1906	V1M3 6 32 059 P1			0.0004	0.0015				0.0029					0.0013			0.0000			0.0015										
1907	V1M3 6 32 075 P2			0.0004	0.0015				0.0029					0.0013			0.0000			0.0015										
1908	V1M4 6 32 088 P1			0.0004	0.0015				0.0029					0.0013			0.0000			0.0015										
1909	V1M4 6 32 096 P2			0.0004	0.0015				0.0029					0.0013			0.0000			0.0015										
1910	Vectra			0.0004	0.0015				0.0029					0.0013			0.0000			0.0015										
1911	WSTC			0.0004	0.0015				0.0029					0.0013			0.0000			0.0015										
1912	SBW1-01			0.0013					0.0058					0.0001	0.0003		0.0049			0.0002				0.0007						
1913	SBW1-02			0.0013					0.0058					0.0001	0.0003		0.0066			0.0002				0.0007						
1914	SBW1-03			0.0013					0.0042					0.0001	0.0003		0.0049			0.0002				0.0007						
1915	SBW1-04			0.0013					0.0042					0.0001	0.0003		0.0066			0.0002				0.0007						
1916	SBW1-05			0.0013					0.0058					0.0001	0.0003		0.0066			0.0002				0.0007						
1917	SBW1-06			0.0013					0.0042					0.0001	0.0003		0.0049			0.0002				0.0007						
1918	SBW1-07			0.0013					0.0042					0.0001	0.0003		0.0066			0.0002				0.0007						
1919	SBW1-08			0.0013					0.0042					0.0001	0.0003		0.0066			0.0002				0.0007						
1920	SBW1-09			0.0013					0.0042					0.0001	0.0003		0.0049			0.0002				0.0007						
1921	SBW1-10			0.0013					0.0042					0.0001	0.0003		0.0049			0.0002				0.0007						
1922	SBW1-11			0.0013					0.0058					0.0001	0.0003		0.0049			0.0002				0.0007						
1923	SBW1-12			0.0013					0.0058					0.0001	0.0003		0.0066			0.0002				0.0007						
1924	SBW1-13			0.0013					0.0058					0.0001	0.0003		0.0049			0.0002				0.0007						
1925	SBW1-14			0.0013					0.0042					0.0001	0.0003		0.0066			0.0002				0.0007						
1926	SBW1-15			0.0013					0.0058					0.0001	0.0003		0.0049			0.0002				0.0007						
1927	SBW1-16			0.0013					0.0074					0.0001	0.0003		0.0083			0.0002				0.0007						
1928	SBW1-17			0.0013					0.0026					0.0001	0.0003		0.0032			0.0002				0.0007						
1929	SBW1-18			0.0013					0.0074					0.0001	0.0003		0.0032			0.0002				0.0007						
1930	SBW1-19			0.0013					0.0074					0.0001	0.0003		0.0032			0.0002				0.0007						
1931	SBW1-20			0.0013					0.0074					0.0001	0.0003		0.0083			0.0002				0.0007						
1932	SBW1-21			0.0013					0.0074					0.0001	0.0003		0.0083			0.0002				0.0007						
1933	SBW1-22			0.0013					0.0026					0.0001	0.0003		0.0032			0.0002				0.0007						
1934	SBW1-23			0.0013					0.0026					0.0001	0.0003		0.0083			0.0002				0.0007						
1935	SBW1-24			0.0013					0.0026					0.0001	0.0003		0.0083			0.0002				0.0007						
1936	SBW1-25			0.0013					0.0026					0.0001	0.0003		0.0032			0.0002				0.0007						
1937	SBW1-26			0.0013					0.0026					0.0001	0.0003		0.0083			0.0002				0.0007						
1938	SBW1-27			0.0013					0.0074					0.0001	0.0003		0.0032			0.0002				0.0007						
1939	SBW1-28			0.0013					0.0074					0.0001	0.0003		0.0032			0.0002				0.0007						
1940	SBW1-29			0.0013					0.0026					0.0001	0.0003		0.0083			0.0002				0.0007						
1941	SBW1-30			0.0013					0.0026					0.0001	0.0003		0.0032			0.0002				0.0007						
1942	SBW1-31D			0.0013					0.0078					0.0001	0.0003		0.0028			0.0002				0.0007						
1943	SBW1-32			0.0013					0.0090					0.0001	0.0003		0.0100			0.0002				0.0007						
1944	SBW1-33A			0.0013					0.0010					0.0001	0.0003		0.0100			0.0002				0.0007						
1945	SBW1-34			0.0013					0.0010					0.0001	0.0003		0.0015			0.0002				0.0007						
1946	SBW1-35			0.0013					0.0010					0.0001	0.0003		0.0015			0.0002				0.0007						
1947	SBW1-36			0.0013					0.0090					0.0001	0.0003		0.0100			0.0002				0.0007						
1948	SBW1-37			0.0013					0.0090					0.0001	0.0003		0.0015			0.0002				0.0007						
1949	SBW1-38B			0.0013					0.0022					0.0001	0.0003		0.0087			0.0002				0.0007						
1950	SBW1-39B			0.0013					0.0014					0.0001	0.0003		0.0096			0.0002				0.0007						
1951	SBW1-40			0.0013					0.0090					0.0001	0.0003		0.0015			0.0002				0.0007						
1952	SBW1-41			0.0013					0.0010					0.0001	0.0003		0.0015			0.0002				0.0007						
1953	SBW1-42			0.0013					0.0090					0.0001	0.0003		0.0100			0.0002				0.0007						
1954	SBW1-43			0.0013					0.0010					0.0001	0.0003		0.0100			0.0002				0.0007						
1955	SBW1-44B			0.0013					0.0022					0.0001	0.0003		0.0087			0.0002				0.0007						
1956	SBW1-45			0.0013					0.0090					0.0001	0.0003		0.0100			0.0002				0.0007						
1957	SBW1-46			0.0013					0.0050					0.0001	0.0003		0.0057			0.0002				0.0007						
1958	SBW1-47			0.0013					0.0050					0.0001	0.0003		0.0057			0.0002				0.0007						
1959	SBW1-48			0.0008					0.0037					0.0001	0.0002		0.0044			0.0001				0.0004						
1960	SBW1-49			0.0008					0.0037					0.0001	0.0002		0.0044			0.0001				0.0004						
1961	SBW1-50			0.0008					0.0037					0.0001	0.0002		0.0044			0.0001				0.0004						
1962	SBW1-51			0.0008					0.0037					0.0001	0.0002		0.0044			0.0001				0.0004						
1963	SBW1-52			0.0008					0.0037					0.0001	0.0002		0.0044			0.0001				0.0004						
1964	SBW1-53			0.0008					0.0037					0.0001	0.0002		0.0044			0.0001				0.0004						
1965	SBW1-54			0.0010					0.0031					0.0001	0.0002		0.0036			0.0001				0.0005						
1966	SBW1-55			0.0012					0.0037					0.0001	0.0003		0.0043			0.0002				0.0006						
1967	SBW1-56			0.0014					0.0043					0.0001	0.0003		0.0050			0.0002				0.0007						
1968	SBW1-57			0.0010					0.0031					0.0001	0.0002		0.0036			0.0001				0.0005						

#	Glass ID	ReO2-t	Re2O7-t	Rh2O3-t	RhO2-t	RuO2-t	Ru2O3-t	Sb2O3-t	Sb2O5-t	SeO2-t	Sm2O3-t	SnO-t	SnO2-t	SO3-t	SrO-t	Tc2O7-t	TeO2-t	ThO2-t	TiO2-t	Tl2O-t	Tl2O3-t	U3O8-t	UO2-t	UO3-t	V2O5-t	WO3-t	Y2O3-t	ZnO-t	Sum-t	Al2O3-a
1887	LRM-912													0.0101	0.0011													1.0000	0.1179
1888	LRM-1													0.0101	0.0011													1.0000	0.1219
1889	LRM-2													0.0101	0.0011													1.0000	0.1141
1890	LRM-3													0.0101	0.0011													1.0000	0.1262
1891	LRM-4													0.0101	0.0011													1.0000	0.0977
1892	LRM-5412													0.0101	0.0011													1.0000	0.1186
1893	LRMS-1													0.0101	0.0011													1.0000	0.1191
1894	SSHTM-3													0.0022	0.0011													1.0000	0.1163
1895	B1G9-0IIC4													0.0022	0.0011													1.0000	0.1215
1896	B1G9-013C5													0.0022	0.0011													1.0000	0.1294
1897	B1G9-014C													0.0022	0.0011													1.0000	0.1260
1898	D1G4-022P2													0.0020	0.0010				0.0100									0.9994	0.0670
1899	D1G4-023P3													0.0020	0.0010				0.0100									0.9994	0.0641
1900	Duratek													0.0020	0.0010				0.0100									0.9994	
1901	PEI													0.0021	0.0010													1.0002	
1902	M1G1-008P													0.0022	0.0011													1.0000	0.1498
1903	M1G1-011P													0.0022	0.0011													1.0000	0.1335
1904	V1M2 6 32 011 P1													0.0022	0.0011													0.9999	0.1028
1905	V1M2 6 32 040 P2													0.0022	0.0011													0.9999	0.1042
1906	V1M3 6 32 059 P1													0.0022	0.0011													0.9999	0.1062
1907	V1M3 6 32 075 P2													0.0022	0.0011													0.9999	0.1098
1908	V1M4 6 32 088 P1													0.0022	0.0011													0.9999	0.1059
1909	V1M4 6 32 096 P2													0.0022	0.0011													0.9999	0.1087
1910	Vectra													0.0022	0.0011													0.9999	0.0945
1911	WSTC													0.0022	0.0011													1.0004	
1912	SBW1-01					0.0000								0.0050														1.0000	0.1007
1913	SBW1-02					0.0000								0.0050														1.0000	0.0991
1914	SBW1-03					0.0000								0.0050														1.0000	0.1041
1915	SBW1-04					0.0000								0.0050														1.0000	0.0998
1916	SBW1-05					0.0000								0.0050														1.0000	0.1293
1917	SBW1-06					0.0000								0.0050														1.0000	0.1181
1918	SBW1-07					0.0000								0.0050														1.0000	0.0976
1919	SBW1-08					0.0000								0.0050														1.0000	0.1299
1920	SBW1-09					0.0000								0.0050														1.0000	0.1013
1921	SBW1-10					0.0000								0.0050														1.0000	0.0991
1922	SBW1-11					0.0000								0.0050														1.0000	0.1093
1923	SBW1-12					0.0000								0.0050														1.0000	0.0993
1924	SBW1-13					0.0000								0.0050														1.0000	0.1018
1925	SBW1-14					0.0000								0.0050														1.0000	0.1004
1926	SBW1-15					0.0000								0.0050														1.0000	0.0986
1927	SBW1-16					0.0000								0.0050														1.0000	0.0719
1928	SBW1-17					0.0000								0.0050														1.0000	0.0725
1929	SBW1-18					0.0000								0.0050														1.0000	0.1602
1930	SBW1-19					0.0000								0.0050														1.0000	0.0703
1931	SBW1-20					0.0000								0.0050														1.0000	0.0727
1932	SBW1-21					0.0000								0.0050														1.0000	0.1579
1933	SBW1-22					0.0000								0.0050														1.0000	0.1593
1934	SBW1-23					0.0000								0.0050														1.0000	0.1139
1935	SBW1-24					0.0000								0.0050														1.0000	0.1589
1936	SBW1-25					0.0000								0.0050														1.0000	0.0628
1937	SBW1-26					0.0000								0.0050														1.0000	0.0699
1938	SBW1-27					0.0000								0.0050														1.0000	0.1565
1939	SBW1-28					0.0000								0.0050														1.0000	0.0955
1940	SBW1-29					0.0000								0.0050														1.0000	0.1161
1941	SBW1-30					0.0000								0.0050														1.0000	0.0731
1942	SBW1-31D					0.0000								0.0050														1.0000	0.1690
1943	SBW1-32					0.0000								0.0050														1.0000	0.0369
1944	SBW1-33A					0.0000								0.0050														1.0000	0.0387
1945	SBW1-34					0.0000								0.0050														1.0000	0.0008
1946	SBW1-35					0.0000								0.0050														1.0000	0.1648
1947	SBW1-36					0.0000								0.0050														1.0000	0.1732
1948	SBW1-37					0.0000								0.0050														1.0000	0.0428
1949	SBW1-38B					0.0000								0.0050														1.0000	0.1664
1950	SBW1-39B					0.0000								0.0050														1.0000	0.1610
1951	SBW1-40					0.0000								0.0050														1.0000	0.1528
1952	SBW1-41					0.0000								0.0050														1.0000	0.0411
1953	SBW1-42					0.0000								0.0050														1.0000	0.0465
1954	SBW1-43					0.0000								0.0050														1.0000	0.1586
1955	SBW1-44B					0.0000								0.0050														1.0000	0.0593
1956	SBW1-45					0.0000								0.0050														1.0000	0.0434
1957	SBW1-46					0.0000								0.0050														1.0000	0.1082
1958	SBW1-47					0.0000								0.0050														1.0000	0.1087
1959	SBW1-48					0.0000								0.0030														1.0000	0.0869
1960	SBW1-49					0.0000								0.0030														1.0000	0.0926
1961	SBW1-50					0.0000								0.0030														1.0000	0.0810
1962	SBW1-51					0.0000								0.0030														1.0000	0.0922
1963	SBW1-52					0.0000								0.0030														1.0000	0.0922
1964	SBW1-53					0.0000								0.0030														1.0000	0.0852
1965	SBW1-54					0.0000								0.0038														1.0000	0.0742
1966	SBW1-55					0.0000								0.0045														1.0000	0.0923
1967	SBW1-56					0.0000								0.0053														1.0000	0.1057
1968	SBW1-57					0.0000								0.0038														1.0000	0.0746

#	Glass ID	B2O3-a	CaO-a	Fe2O3-a	FeO-a	K2O-a	Li2O-a	MgO-a	Na2O-a	NiO-a	P2O5-a	SiO2-a	ZrO2-a	Ag2O-a	As2O3-a	As2O5-a	BaO-a	BeO-a	Bi2O3-a	Br-a	CdO-a	Ce2O3-a	CeO2-a	Cl-a	CoO-a	Co2O3-a	Cr2O3-a	Cs2O-a	CuO-a	F-a
1887	LRM-912	0.0003	0.0941	0.0005		0.0070		0.0012	0.2042		0.0267	0.5319											0.0005				0.0004			
1888	LRM-1	0.0202	0.0182	0.0624			0.0102		0.2123		0.0272	0.4742	0.0399														0.0004			
1889	LRM-2		0.0613	0.0587				0.0011	0.2213		0.0252	0.4820														0.0004			
1890	LRM-3	0.0638	0.0019	0.0005		0.0044			0.1811		0.0282	0.5529	0.0507														0.0004			
1891	LRM-4	0.0601	0.0619	0.0598		0.0146	0.0049	0.0011	0.2022	0.0002	0.0262	0.4174	0.0382										0.0006				0.0004			
1892	LRM-5412	0.0509	0.0423	0.0005		0.0092			0.2027	0.0003	0.0267	0.5341											0.0005				0.0004			
1893	LRMS-1	0.0201	0.0220	0.0598		0.0176	0.0101	0.0011		0.0002	0.0257	0.4717											0.0005				0.0003			
1894	SSHTM-3	0.0609	0.0414	0.0002		0.0104	0.0002		0.2255	0.0003	0.0031	0.5281	0.0034														0.0016			
1895	B1G9-0IIC4	0.0141	0.0516	0.0044		0.0371		0.0025	0.1205	0.0004		0.6387	0.0008				0.0001										0.0005			
1896	B1G9-013C5	0.0139	0.0514	0.0066		0.0315		0.0023	0.1250	0.0004		0.6300	0.0006				0.0001										0.0005			
1897	B1G9-014C	0.0162	0.0522	0.0058		0.0284		0.0024	0.1337	0.0004		0.6256	0.0006				0.0001										0.0005			
1898	D1G4-022P2	0.0736	0.0869	0.0777		0.0246		0.0061	0.1800	0.0006	0.0006	0.4247	0.0362				0.0004						0.0007				0.0021			
1899	D1G4-023P3	0.0710	0.0857	0.0776		0.0302		0.0053	0.1824	0.0007	0.0004	0.4227	0.0382				0.0004						0.0004				0.0019			
1900	Duratek																													
1901	PEI																													
1902	M1G1-008P	0.0181	0.0950	0.0106				0.0039	0.1321			0.4782																		
1903	M1G1-011P	0.0253	0.0675	0.0116				0.0030	0.1524			0.5053																		
1904	V1M2 6 32 011 P1	0.0701	0.0299	0.0104		0.0123		0.0214	0.1622	0.0004		0.5809	0.0006														0.0031			
1905	V1M2 6 32 040 P2	0.0718	0.0306	0.0102		0.0226		0.0221	0.1553	0.0004		0.5735	0.0004										0.0001				0.0029			
1906	V1M3 6 32 059 P1	0.0729	0.0333	0.0104		0.0200		0.0221	0.1597	0.0004		0.5669	0.0005										0.0006				0.0027			
1907	V1M3 6 32 075 P2	0.0761	0.0351	0.0114		0.0181	0.0001	0.0228	0.1267	0.0004		0.5908	0.0003				0.0001						0.0006				0.0029			
1908	V1M4 6 32 088 P1	0.0733	0.0335	0.0120		0.0202	0.0003	0.0213	0.1680	0.0004		0.5563	0.0004				0.0001						0.0005				0.0031			
1909	V1M4 6 32 096 P2	0.0752	0.0299	0.0099		0.0212		0.0215	0.1654	0.0003		0.5597	0.0004														0.0030			
1910	Vectra	0.0820	0.0290	0.0110		0.0091		0.0187	0.2082	0.0003	0.0040	0.5331	0.0002														0.0004			
1911	WSTC																													
1912	SBW1-01	0.0874	0.0220	0.0414		0.0268	0.0192		0.1712	0.0009	0.0111	0.4343	0.0118				0.0201				0.0024			0.0013		0.0011			0.0049
1913	SBW1-02	0.0863	0.0219	0.0597		0.0269	0.0285		0.1403	0.0009	0.0082	0.4429	0.0115				0.0203				0.0036			0.0015		0.0011			0.0052
1914	SBW1-03	0.0922	0.0228	0.0416		0.0278	0.0200		0.1441	0.0009	0.0085	0.5092	0.0080				0.0206				0.0024			0.0014		0.0011			0.0038
1915	SBW1-04	0.1058	0.0224	0.0413		0.0353	0.0289		0.1452	0.0009	0.0112	0.4363	0.0074				0.0205				0.0023			0.0012		0.0011			0.0038
1916	SBW1-05	0.0868	0.0226	0.0420		0.0277	0.0289		0.1421	0.0009	0.0071	0.4427	0.0082				0.0268				0.0024			0.0013		0.0011			0.0048
1917	SBW1-06	0.0895	0.0220	0.0617		0.0357	0.0193		0.1409	0.0009	0.0079	0.4515	0.0073				0.0206				0.0035			0.0012		0.0011			0.0038
1918	SBW1-07	0.0906	0.0219	0.0602		0.0353	0.0194		0.1449	0.0009	0.0108	0.4867	0.0112				0.0285				0.0023			0.0014		0.0011			0.0036
1919	SBW1-08	0.0873	0.0306	0.0415		0.0273	0.0190		0.1439	0.0011	0.0103	0.4340	0.0112				0.0203				0.0036			0.0014		0.0011			0.0036
1920	SBW1-09	0.1092	0.0222	0.0418		0.0281	0.0295		0.1432	0.0009	0.0112	0.4512	0.0112				0.0286				0.0035			0.0014		0.0011			0.0037
1921	SBW1-10	0.0878	0.0297	0.0411		0.0349	0.0287		0.1555	0.0009	0.0081	0.4396	0.0116				0.0199				0.0023			0.0012		0.0011			0.0037
1922	SBW1-11	0.1120	0.0230	0.0426		0.0366	0.0202		0.1440	0.0009	0.0082	0.4621	0.0116				0.0293				0.0035			0.0013		0.0011			0.0051
1923	SBW1-12	0.0901	0.0300	0.0415		0.0351	0.0196		0.1400	0.0009	0.0099	0.4672	0.0082				0.0202				0.0035			0.0007		0.0011			0.0065
1924	SBW1-13	0.0905	0.0222	0.0611		0.0273	0.0293		0.1467	0.0009	0.0108	0.4479	0.0061				0.0287				0.0036			0.0013		0.0011			0.0050
1925	SBW1-14	0.0887	0.0222	0.0422		0.0272	0.0194		0.1760	0.0009	0.0081	0.4406	0.0072				0.0293				0.0036			0.0012		0.0011			0.0038
1926	SBW1-15	0.1087	0.0300	0.0591		0.0266	0.0194		0.1383	0.0009	0.0082	0.4444	0.0082				0.0200				0.0024			0.0013		0.0011			0.0048
1927	SBW1-16	0.1262	0.0128	0.0218		0.0191	0.0387		0.1052	0.0009	0.0046	0.5334	0.0041				0.0104				0.0047			0.0015		0.0011			0.0062
1928	SBW1-17	0.0688	0.0407	0.0796		0.0191	0.0392		0.1060	0.0009	0.0163	0.5132	0.0038				0.0104				0.0012			0.0014		0.0011			0.0029
1929	SBW1-18	0.0712	0.0396	0.0792		0.0437	0.0391		0.1055	0.0008	0.0044	0.4206	0.0038				0.0104				0.0046			0.0012		0.0011			0.0063
1930	SBW1-19	0.0695	0.0124	0.0219		0.0435	0.0096		0.1927	0.0008	0.0146	0.5199	0.0037				0.0102				0.0012			0.0012		0.0010			0.0064
1931	SBW1-20	0.0696	0.0402	0.0795		0.0191	0.0166		0.2186	0.0010	0.0048	0.4305	0.0166				0.0102				0.0047			0.0012		0.0011			0.0062
1932	SBW1-21	0.0691	0.0129	0.0793		0.0188	0.0386		0.1259	0.0011	0.0143	0.4137	0.0156				0.0105				0.0013			0.0011		0.0011			0.0061
1933	SBW1-22	0.0682	0.0130	0.0219		0.0433	0.0376		0.1491	0.0009	0.0048	0.4305	0.0163				0.0102				0.0048			0.0011		0.0011			0.0025
1934	SBW1-23	0.0717	0.0128	0.0221		0.0193	0.0396		0.1923	0.0009	0.0151	0.4576	0.0039				0.0387				0.0047			0.0013		0.0010			0.0026
1935	SBW1-24	0.1251	0.0129	0.0802		0.0428	0.0096		0.1058	0.0009	0.0136	0.3878	0.0039				0.0103				0.0047			0.0014		0.0011			0.0018
1936	SBW1-25	0.1266	0.0406	0.0224		0.0188	0.0097		0.1277	0.0009	0.0140	0.5032	0.0132				0.0105				0.0046			0.0013		0.0011			0.0024
1937	SBW1-26	0.0720	0.0125	0.0797		0.0430	0.0244		0.1042	0.0009	0.0049	0.5208	0.0164				0.0396				0.0012			0.0014		0.0011			0.0026
1938	SBW1-27	0.1282	0.0125	0.0215		0.0188	0.0098		0.1288	0.0009	0.0047	0.4298	0.0164				0.0367				0.0012			0.0012		0.0011			0.0060
1939	SBW1-28	0.1281	0.0127	0.0804		0.0441	0.0385		0.1063	0.0009	0.0141	0.3937	0.0146				0.0362				0.0048			0.0013		0.0011			0.0047
1940	SBW1-29	0.1313	0.0396	0.0218		0.0431	0.0397		0.1401	0.0009	0.0140	0.3987	0.0129				0.0103				0.0012			0.0013		0.0010			0.0026
1941	SBW1-30	0.1259	0.0129	0.0798		0.0191	0.0096		0.2107	0.0009	0.0046	0.4211	0.0041				0.0101				0.0012			0.0013		0.0011			0.0023
1942	SBW1-31D	0.1386	0.0090	0.0854		0.0177	0.0421		0.0942	0.0010	0.0161	0.4084	0.0029				0.0062				0.0050			0.0013		0.0011			0.0063
1943	SBW1-32	0.1494	0.0032	0.0026		0.0506	0.0491		0.0675	0.0011	0.0003	0.5946	0.0001				0.0003				0.0000			0.0013		0.0011			0.0075
1944	SBW1-33A	0.1502	0.0473	0.0993		0.0514	0.0000		0.0681	0.0009	0.0158	0.4721	0.0174				0.0003				0.0000			0.0013		0.0011			0.0011
1945	SBW1-34	0.1481	0.0032	0.0021		0.0111	0.0488		0.0693	0.0009	0.0003	0.5930	0.0393				0.0480				0.0060			0.0013		0.0010			0.0015
1946	SBW1-35	0.1483	0.0506	0.0026		0.0518	0.0000		0.1980	0.0009	0.0004	0.3409	0.0000				0.0000				0.0058			0.0020		0.0011			0.0009
1947	SBW1-36	0.0492	0.0033	0.0024		0.0103	0.0000		0.2341	0.0008	0.0004	0.4202	0.0000				0.0460				0.0000			0.0012		0.0010			0.0076
1948	SBW1-37	0.0510	0.0034	0.1004		0.0112	0.0000		0.2196	0.0009	0.0195	0.5158	0.0194				0.0001				0.0059			0.0014		0.0011			0.0081
1949	SBW1-38B	0.1392	0.0090	0.0866		0.0173	0.0077		0.1151	0.0009	0.0038	0.4073	0.0028				0.0391				0.0050			0.0010		0.0011			0.0020
1950	SBW1-39B	0.0596	0.0051	0.0957		0.0485	0.0026		0.1928	0.0008	0.0028	0.3842	0.0180				0.0023				0.0053			0.0007		0.0010			0.0014
1951	SBW1-40	0.1381	0.0034	0.0995		0.0534	0.0488		0.0701	0.0010	0.0004	0.3653	0.0209				0.0467				0.0000			0.0011		0.0011			0.0056
1952	SBW1-41	0.1444	0.0031	0.0987		0.0109	0.0000		0.2232	0.0009	0.0004	0.4505	0.0001				0.0001				0.0000			0.0015		0.0011			0.0012
1953	SBW1-42	0.1451	0.0521	0.0986		0.0138	0.0440		0.0790	0.0009	0.0041	0.4580	0.0209				0.0003				0.0054			0.0012		0.0011			0.0048
1954	SBW1-43	0.1455	0.0033	0.0024		0.0108	0.0476		0.1762	0.0009	0.0169	0.3704	0.0140				0.0002				0.0000			0.0013		0.0010			0.0012
1955	SBW1-44B	0.0653	0.0087	0.0854		0.0451	0.0411		0.1404	0.0009	0.0161	0.4546	0.0028				0.0398				0.0050			0.0013		0.0011			0.0021
1956	SBW1-45	0.1483	0.0033	0.0025		0.0536	0.0001		0.1923	0.0009	0.0177	0.4332	0.0191				0.0488				0.0060			0.0015		0.0011			0.0075
1957	SBW1-46	0.1009	0.0216	0.0506		0.0311	0.0251		0.1455	0.0010	0.0093	0.4455	0.0087				0.0194				0.0030			0.0011		0.0011			0.0042
1958	SBW1-47	0.1015	0.0213	0.0509		0.0314	0.0255		0.1464	0.0009	0.0095	0.4417	0.0096				0.0192				0.0030			0.0011		0.0011			0.0042
1959	SBW1-48	0.1196	0.0105	0.0884		0.0261	0.0055		0.1406	0.0006	0.0066	0.4738	0.0030				0.0001				0.0018			0.0009		0.0007			0.0033
1960	SBW1-49	0.1214	0.0107	0.0057		0.0262	0.0398		0.1415	0.0006	0.0066	0.4843	0.0029				0.0353				0.0018			0.0009		0.0007			0.0038
1961	SBW1-50	0.1189	0.0461	0.0886		0.0259	0.0395		0.1407	0.0006	0.0064	0.4119	0.0029				0.0001				0.0017			0.0012		0.0006			0.0033
1962	SBW1-51	0.0702	0.0106	0.0912		0.0261	0.0131		0.1391	0.0005	0.0063	0.4945	0.0028				0.0359				0.0018			0.0008		0.0007			0.0033
1963	SBW1-52	0.1220	0.0458	0.0368		0.0262	0.0060		0.1400	0.0006	0.0064	0.4903	0.0030				0.0001				0.0018			0.0008		0.0007			0.0032
1964	SBW1-53	0.0706	0.0115	0.0899		0.0265	0.0399		0.1416	0.0006	0.0062	0.4945	0.0028				0.0001				0.0018			0.0011		0.0007			0.0034
1965	SBW1-54	0.1074	0.0465	0.0783		0.0217	0.0357		0.1162	0.0007	0.0055	0.4600	0.0047				0.0001				0.0014			0.0010		0.0008			0.0030
1966	SBW1-55	0.1083	0.0481	0.0764		0.0268	0.0356		0.1434	0.0008	0.0064	0.4622	0.0057				0.0001				0.0017			0.0009		0.0010			0.0033
1967	SBW1-56	0.0979	0.0462	0.0726		0.0311	0.0324		0.1660	0.0010	0.0070	0.4220	0.0067				0.0002				0.0021			0.0014		0.0011			0.0036
1968	SBW1-57	0.1085	0.0088	0.0791		0.0217	0.0359		0.1150	0.0007	0.0059	0.4716	0.0049				0.0376				0.0014			0.0009		0.0009			0.0032

#	Glass ID	Ga2O3-a	Gd2O3-a	I-a	La2O3-a	MnO2-a	MnO-a	MoO-a	MoO3-a	Nb2O5-a	Nd2O3-a	NpO2-a	PbO-a	PdO2-a	PdO-a	Pr2O3-a	Pr6O11-a	PuO2-a	Rb2O-a	ReO-a	ReO2-a	Re2O7-a	Rh2O3-a	RhO2-a	RuO2-a	Sb2O3-a	Sb2O5-a	SeO2-a
1887	LRM-912						0.0001		0.0016		0.0009																	
1888	LRM-1						0.0002		0.0015																			
1889	LRM-2						0.0002		0.0016		0.0003																	
1890	LRM-3						0.0001		0.0017		0.0004																	
1891	LRM-4						0.0002		0.0015		0.0009																	
1892	LRM-5412						0.0001		0.0016		0.0008																	
1893	LRMS-1						0.0001		0.0015		0.0010																	
1894	SSHTM-3						0.0001		0.0014		0.0002																	
1895	B1G9-0IIC4						0.0002		0.0006		0.0008																	
1896	B1G9-013C5						0.0002		0.0006		0.0011																	
1897	B1G9-014C						0.0002		0.0007		0.0013																	
1898	D1G4-022P2						0.0002		0.0015		0.0005																	
1899	D1G4-023P3						0.0002		0.0015		0.0003																	
1900	Duratek																											
1901	PEI																											
1902	M1G1-008P								0.0007																			
1903	M1G1-011P								0.0009																			
1904	V1M2 6 32 011 P1						0.0001		0.0022		0.0002																	
1905	V1M2 6 32 040 P2						0.0001		0.0019		0.0004																	
1906	V1M3 6 32 059 P1						0.0001		0.0016		0.0010																	
1907	V1M3 6 32 075 P2						0.0002		0.0016		0.0009																	
1908	V1M4 6 32 088 P1						0.0003		0.0013		0.0009																	
1909	V1M4 6 32 096 P2						0.0001		0.0013		0.0006																	
1910	Vectra								0.0015		0.0003																	
1911	WSTC																											
1912	SBW1-01						0.0035																					
1913	SBW1-02						0.0047																					
1914	SBW1-03						0.0035																					
1915	SBW1-04						0.0047																					
1916	SBW1-05						0.0047																					
1917	SBW1-06						0.0035																					
1918	SBW1-07						0.0046																					
1919	SBW1-08						0.0047																					
1920	SBW1-09						0.0035																					
1921	SBW1-10						0.0035																					
1922	SBW1-11						0.0036																					
1923	SBW1-12						0.0048																					
1924	SBW1-13						0.0036																					
1925	SBW1-14						0.0047																					
1926	SBW1-15						0.0035																					
1927	SBW1-16						0.0059																					
1928	SBW1-17						0.0023																					
1929	SBW1-18						0.0022																					
1930	SBW1-19						0.0023																					
1931	SBW1-20						0.0061																					
1932	SBW1-21						0.0059																					
1933	SBW1-22						0.0023																					
1934	SBW1-23						0.0061																					
1935	SBW1-24						0.0060																					
1936	SBW1-25						0.0022																					
1937	SBW1-26						0.0060																					
1938	SBW1-27						0.0023																					
1939	SBW1-28						0.0024																					
1940	SBW1-29						0.0059																					
1941	SBW1-30						0.0023																					
1942	SBW1-31D						0.0021																					
1943	SBW1-32						0.0071																					
1944	SBW1-33A						0.0071																					
1945	SBW1-34						0.0011																					
1946	SBW1-35						0.0011																					
1947	SBW1-36						0.0070																					
1948	SBW1-37						0.0012																					
1949	SBW1-38B						0.0065																					
1950	SBW1-39B						0.0069																					
1951	SBW1-40						0.0011																					
1952	SBW1-41						0.0011																					
1953	SBW1-42						0.0072																					
1954	SBW1-43						0.0071																					
1955	SBW1-44B						0.0062																					
1956	SBW1-45						0.0072																					
1957	SBW1-46						0.0041																					
1958	SBW1-47						0.0041																					
1959	SBW1-48						0.0031																					
1960	SBW1-49						0.0032																					
1961	SBW1-50						0.0031																					
1962	SBW1-51						0.0032																					
1963	SBW1-52						0.0032																					
1964	SBW1-53						0.0032																					
1965	SBW1-54						0.0026																					
1966	SBW1-55						0.0032																					
1967	SBW1-56						0.0037																					
1968	SBW1-57						0.0026																					

#	Glass ID	Sm2O3-a	SnO-a	SnO2-a	SO3-a	SrO-a	Tc2O7-a	TeO2-a	ThO2-a	TiO2-a	Tl2O-a	Tl2O3-a	U3O8-a	UO2-a	UO3-a	V2O5-a	WO3-a	Y2O3-a	ZnO-a	Sum-a	T_M (°C)	$T_{L,G}$ (°C)	$T_{L,U}$ (°C)	$T_{1\%}$ (°C)	Primary Phase	$C_{650°C}$	$C_{700°C}$	$C_{750°C}$
1887	LRM-912				0.0101	0.0013													0.0010	0.9997								
1888	LRM-1				0.0076	0.0012				0.0002									0.0021	0.9997								
1889	LRM-2				0.0074	0.0012				0.0001									0.0018	0.9767								
1890	LRM-3				0.0059	0.0013				0.0001									0.0024	1.0220								
1891	LRM-4				0.0093	0.0012				0.0001									0.0009	0.9994								
1892	LRM-5412				0.0087	0.0013													0.0011	0.9998								
1893	LRMS-1				0.0101	0.0011				0.0002									0.0006	0.7628								
1894	SSHTM-3				0.0029	0.0007				0.0007									0.0026	1.0000								
1895	B1G9-0IIC4					0.0010				0.0019									0.0014	0.9981								
1896	B1G9-013C5					0.0010				0.0017									0.0012	0.9975								
1897	B1G9-014C					0.0010				0.0017									0.0019	0.9987								
1898	D1G4-022P2				0.0021	0.0010				0.0089									0.0021	0.9975								
1899	D1G4-023P3				0.0021	0.0010				0.0091									0.0027	0.9979								
1900	Duratek																			0.0000								
1901	PEI																			0.0000								
1902	M1G1-008P									0.0068										0.8952								
1903	M1G1-011P									0.0035										0.9030								
1904	V1M2 6 32 011 P1					0.0006				0.0001									0.0008	0.9981								
1905	V1M2 6 32 040 P2					0.0006				0.0001									0.0006	0.9978								
1906	V1M3 6 32 059 P1					0.0008				0.0001									0.0007	1.0000								
1907	V1M3 6 32 075 P2					0.0008				0.0002									0.0008	0.9997								
1908	V1M4 6 32 088 P1					0.0009				0.0002									0.0008	0.9997								
1909	V1M4 6 32 096 P2					0.0008				0.0001										0.9981								
1910	Vectra				0.0022	0.0011													0.0028	0.9984								
1911	WSTC																			0.0000								
1912	SBW1-01				0.0056															0.9656	1150		793		Ca5(PO4)3F			
1913	SBW1-02				0.0066															0.9693	1150		783		Ca5(PO4)3F			
1914	SBW1-03				0.0055															1.0174	1150		848		(Na,K)(Si3Al)O8			
1915	SBW1-04				0.0054															0.9735	1150		783		Ca5(PO4)3F			
1916	SBW1-05				0.0055															0.9849	1150		808		Na6(AlSiO4)6			
1917	SBW1-06				0.0054															0.9939	1150		848		Ca5(PO4)3F			
1918	SBW1-07				0.0054															1.0261	1150		828		Ca5(PO4)3F			
1919	SBW1-08				0.0051															0.9759	1150		908		Ca5(PO4)3F			
1920	SBW1-09				0.0056															0.9971	1150		793		Ca5(PO4)3F			
1921	SBW1-10				0.0056															0.9744	1150		743		Na6(AlSiO4)6			
1922	SBW1-11				0.0054															1.0198	1150		828		K(Si3Al)O8			
1923	SBW1-12				0.0049															0.9833	1150		878		Ca5(PO4)3F			
1924	SBW1-13				0.0055															0.9935	1150		783		Ca5(PO4)3F			
1925	SBW1-14				0.0056															0.9823	1150		773		Na6(AlSiO4)6			
1926	SBW1-15				0.0055															0.9809	1150		866		Ca5(PO4)3F			
1927	SBW1-16				0.0053															0.9740	1150		783		NaAlSi3O8			
1928	SBW1-17				0.0057															0.9851	1150		931		Ca5(PO4)3F			
1929	SBW1-18				0.0053															0.9992	1150		948		NaAlSiO4			
1930	SBW1-19				0.0054															0.9865	1150		801		Na3PO4			
1931	SBW1-20				0.0057															1.0044	1150		801		Na6(AlSiO4)6			
1932	SBW1-21				0.0053															0.9785	1150		938		Fe2O3			
1933	SBW1-22				0.0054															0.9724	1150		908		NaAlSiO4			
1934	SBW1-23				0.0055															1.0091	1150		828		Na6(AlSiO4)6			
1935	SBW1-24				0.0037															0.9705	1150		1038		Ca4P2O9			
1936	SBW1-25				0.0052															0.9673	1150		1031		Ca5(PO4)3F			
1937	SBW1-26				0.0054															1.0059	1150		866		K(Si3Al)O8			
1938	SBW1-27				0.0048															0.9812	1150		943		Ca5(PO4)3F			
1939	SBW1-28				0.0056															0.9848	1150		878		NaAlSiO4			
1940	SBW1-29				0.0055															0.9861	1150		793		Ca5(PO4)3F			
1941	SBW1-30				0.0058															0.9857	1150		756		NaAlSiO4			
1942	SBW1-31D				0.0050															1.0115	1150		1028		Fe2O3			
1943	SBW1-32				0.0051															0.9778	1150		773		SiO2			
1944	SBW1-33A				0.0048															0.9767	1250							
1945	SBW1-34				0.0049															0.9807	1150		978		SiO2			
1946	SBW1-35				0.0053															0.9747	1150		908		Na6(AlSiO4)6			
1947	SBW1-36				0.0054															0.9621	1150		1123		Na6(AlSiO4)6			
1948	SBW1-37				0.0059															1.0077	1150		916		Na2CaSiO4			
1949	SBW1-38B				0.0028															1.0137	1350		1131		Fe3O4			
1950	SBW1-39B				0.0043															0.9928	1350		1073		NaAlSiO4			
1951	SBW1-40				0.0053															1.0144	1150		1038		LiFe2O3F			
1952	SBW1-41				0.0057															0.9839	1150		736		(K,Na)(Si3Al)O8			
1953	SBW1-42				0.0050															0.9880	1150		838		(Na,Ca)FeSi2O6			
1954	SBW1-43				0.0055															0.9628	1150		858		Na6(AlSiO4)6			
1955	SBW1-44B				0.0056															0.9806	1150		736		K(Si3Al)O8			
1956	SBW1-45				0.0057															0.9919	1150		801		NaBaPO4			
1957	SBW1-46				0.0054															0.9858	1150		808		Ca5(PO4)3F			
1958	SBW1-47				0.0055															0.9855	1150		798		Ca5(PO4)3F			
1959	SBW1-48				0.0034															0.9748	1150		868		Ca5(PO4)3F			
1960	SBW1-49				0.0035															0.9815	1150		766		(K,Na)(Si3Al)O8			
1961	SBW1-50				0.0037															0.9762	1150							
1962	SBW1-51				0.0037															0.9957	1151		788		(K,Na)(Si3Al)O8			
1963	SBW1-52				0.0037															0.9827	1150		971		Ca5(PO4)3F			
1964	SBW1-53				0.0037															0.9834	1150		783		(K,Ba,Na)(Si,Al)4O8			
1965	SBW1-54				0.0038															0.9638	1150		828		Ca5(PO4)3F			
1966	SBW1-55				0.0051															1.0215	1150		828		NaAlSiO4			
1967	SBW1-56				0.0060															1.0068	1150		828		Na6(AlSiO4)6			
1968	SBW1-57				0.0047															0.9779	1150		756		(Na,K)(Si3Al)O8			

#	Glass ID	$C_{800°C}$	$C_{850°C}$	$C_{900°C}$	$C_{950°C}$	$C_{1000°C}$	$C_{1050°C}$	$C_{1100°C}$	$C_{1150°C}$	$C_{1200°C}$	Quenched Visual/OM	Quenched XRD	CCC XRD	ρ (g/cm³)	Fulc Visc A	Fulc Visc B	Fulc Visc To	Arrh Visc E	Arrh Visc F	T1 (°C)	V1 (Pa·s)
1887	LRM-912																	-10.848	21757.9	1187.0	59.900
1888	LRM-1																	-11.491	22167.2	1142.0	67.300
1889	LRM-2																	-10.836	21715.1	1191.0	54.900
1890	LRM-3																	-11.854	23833.9	1187.0	90.300
1891	LRM-4																	-13.327	22476.2	940.0	203.900
1892	LRM-5412																	-8.839	18144.8	1188.0	40.800
1893	LRMS-1																	-11.130	21635.2	1142.0	67.300
1894	SSHTM-3																	-12.900	24419.0	1195.0	46.900
1895	B1G9-0IIC4																				
1896	B1G9-013C5																				
1897	B1G9-014C																				
1898	D1G4-022P2																				
1899	D1G4-023P3																				
1900	Duratek																	-12.584	20386.2	941.0	76.500
1901	PEI																	-11.457	22008.1	1090.0	116.800
1902	M1G1-008P																				
1903	M1G1-011P																				
1904	V1M2 6 32 011 P1																				
1905	V1M2 6 32 040 P2																				
1906	V1M3 6 32 059 P1																				
1907	V1M3 6 32 075 P2																				
1908	V1M4 6 32 088 P1																				
1909	V1M4 6 32 096 P2																				
1910	Vectra																	-9.500	17677.5	1090.0	33.400
1911	WSTC																	-9.980	18288.5	1040.0	54.700
1912	SBW1-01										Clear dark brown glass with black	Amorphous	Amorphous	2.605				-9.866	16504.0	1155.4	5.259
1913	SBW1-02										Clear dark brown glass with black	Amorphous	Amorphous	2.610				-10.105	16909.0	1157.1	5.516
1914	SBW1-03										Clear dark brown glass with black	Amorphous	Amorphous	2.575				-9.996	17892.0	1155.8	12.149
1915	SBW1-04										Clear dark brown glass with black	Amorphous	Amorphous	2.589				-9.904	16145.0	1157.0	3.902
1916	SBW1-05										Clear dark reddish brown glass w	Amorphous	Amorphous	2.593				-9.649	16730.0	1155.7	7.563
1917	SBW1-06										Clear dark brown glass with black	Amorphous	Amorphous	2.600				-9.904	17477.0	1155.8	10.009
1918	SBW1-07										Clear dark brown glass with black	Amorphous	Amorphous	2.626				-10.333	17591.0	1160.2	6.961
1919	SBW1-08										Clear very dark brown glass with	Amorphous	Fe2O3, LiOH, NaHF2, and Na2C	2.584				-10.365	18249.0	1156.5	10.768
1920	SBW1-09										Clear dark brown glass with a few	Amorphous	Amorphous	2.607				-9.967	16451.0	1153.7	4.661
1921	SBW1-10										Clear dark brown glass with black	Amorphous	Amorphous	2.607				-9.985	16250.0	1156.6	3.907
1922	SBW1-11										Clear dark brown glass with a few	Amorphous	NaMn3F7 and ZrO2 (0.00 vol% c	2.602				-10.200	17229.0	1156.7	6.179
1923	SBW1-12										Clear dark brown glass with a few	Amorphous	NaMn3F7 (0.05 vol% crystallinity)	2.595				-10.243	17669.0	1159.8	7.889
1924	SBW1-13										Clear dark brown glass with a few	Amorphous	Amorphous	2.626				-9.824	16351.0	1154.1	5.011
1925	SBW1-14										Clear dark brown glass with black	Amorphous	Ca5Si6O16(OH)2 (0.03 vol% cry	2.618				-9.899	16323.0	1155.1	4.520
1926	SBW1-15										Clear dark brown glass with black	Amorphous	Ca5Si6O16(OH)2 (0.11 vol% cry	2.610				-10.262	17277.0	1156.0	6.077
1927	SBW1-16										Clear dark brown glass with black	Amorphous	Amorphous	2.513				-10.055	17309.0	1155.3	7.488
1928	SBW1-17										Clear brown glass with black spe	Amorphous	Ca5(PO4)3F (0.20 vol% crystallir	2.593				-10.418	18108.0	1156.2	9.623
1929	SBW1-18										Clear reddish brown glass with bl	Amorphous	Amorphous	2.605				-10.585	18071.0	1155.1	7.999
1930	SBW1-19										Clear brown glass with few black	Amorphous	Amorphous	2.546				-9.707	16981.0	1155.8	8.469
1931	SBW1-20										Clear dark reddish brown glass w	Amorphous	Amorphous	2.674				-10.229	15879.0	1156.2	2.382
1932	SBW1-21										Clear dark brown glass with a few	Amorphous	LiAlO2 (0.15 vol% crystallinity)	2.594				-10.728	18683.0	1153.6	10.838
1933	SBW1-22										Clear brown glass with a few blac	Amorphous	Amorphous	2.548				-9.799	17272.0	1156.5	9.640
1934	SBW1-23										Clear dark reddish brown glass w	Amorphous	Amorphous	2.607				-9.222	15119.0	1155.3	3.833
1935	SBW1-24										Clear dark brown glass with black	Ca5(PO4)3(OH)	Ca5(PO4)3F and Fe3O4 (0.76 vc	2.522				-11.127	20624.0	1154.2	28.332
1936	SBW1-25										Clear dark brown glass with black	Na3Ca6(PO4)5	Ca5(PO4)3F and CaF2 (0.42 vol'	2.557				-11.565	20246.0	1156.9	12.822
1937	SBW1-26										Clear dark brown glass with black	Amorphous	Amorphous	2.638				-10.730	19202.0	1160.1	14.707
1938	SBW1-27										Clear dark brown glass with black	Amorphous	Amorphous	2.543				-10.614	19604.0	1157.0	21.673
1939	SBW1-28										Clear brown glass with black spe	Amorphous	BaZr(BO3)2 and AlFe(PO3)6 (0.(	2.638				-10.100	15749.0	1159.7	2.393
1940	SBW1-29										Clear very dark brown glass with	Amorphous	Amorphous	2.576				-9.941	15261.0	1154.7	2.072
1941	SBW1-30										Clear dark brown glass with few t	Amorphous	Amorphous	2.616				-9.866	15126.0	1156.8	1.986
1942	SBW1-31D										Clear dark brown glass with black	Amorphous	Fe2O3 (0.88 vol% crystallinity)	2.532				-10.249	17603.0	1155.4	7.887
1943	SBW1-32										Clear very dark reddish brown gl	Amorphous	Amorphous	2.442				-10.601	17980.0	1155.3	6.968
1944	SBW1-33A										Opaque brownish green glass wil	Ca5(PO4)3F	Ca5(PO4)3(OH) (0.40 vol% cryst	2.551							
1945	SBW1-34										Clear brown glass with some blac	Amorphous	SiO2 (0.13 vol% crystallinity)								
1946	SBW1-35										Clear light brown glass with few	Amorphous	Amorphous	2.516				-9.882	16043.0	1156.6	3.711
1947	SBW1-36										Clear dark reddish brown glass w	Amorphous	Amorphous	2.498				-9.945	18745.0	1157.0	23.670
1948	SBW1-37										Clear brown glass with black spe	Amorphous	Ca2AlSiO7	2.630				-10.942	19060.0	1161.7	10.183
1949	SBW1-38B										Clear very dark black shiny glass	Amorphous	Fe3O4, KFeO2, Ba2FeF6, and N	2.581				-10.922	20392.0	1254.8	11.102
1950	SBW1-39B										Clear dark brown glass with black	Amorphous	Amorphous	2.627				-11.160	20554.0	1260.0	9.175
1951	SBW1-40										Clear dark brown glass with air bu	Amorphous	Fe2O3 (0.53 vol% crystallinity)	2.641				-10.230	16274.0	1157.4	3.062
1952	SBW1-41										Clear brown glass with a few blac	Amorphous	Amorphous	2.606				-10.452	15888.0	1158.9	1.849
1953	SBW1-42										Clear dark brown glass with black	Amorphous	Amorphous	2.652				-10.780	16302.0	1155.9	1.836
1954	SBW1-43										Clear dark black glass with some	Amorphous	Amorphous	2.505				-9.563	14877.0	1157.3	2.277
1955	SBW1-44B										Clear dark brown glass with black	Amorphous	Amorphous	2.665				-9.389	15058.0	1154.7	3.136
1956	SBW1-45										Clear very dark purplish brown gl	Amorphous	Amorphous	2.640				-11.520	17589.0	1154.0	2.129
1957	SBW1-46										Clear dark brown glass with black	Amorphous	Amorphous	2.600				-10.014	16789.0	1156.1	5.561
1958	SBW1-47										Clear dark brown glass with few t	Amorphous	Amorphous	2.597				-10.041	16785.0	1159.1	5.266
1959	SBW1-48										Clear brown glass with few black	Amorphous	Amorphous	2.542				-10.838	19308.0	1154.6	14.841
1960	SBW1-49										Clear reddish brown glass with bl	Amorphous	Amorphous	2.557				-9.582	15609.0	1155.5	3.727
1961	SBW1-50										Clear brown glass with black spe	Amorphous	Amorphous	2.614				-9.684	14557.0	1155.9	1.651
1962	SBW1-51										Clear brown glass with black spe	Amorphous	Amorphous	2.639				-10.371	18767.0	1155.6	16.027
1963	SBW1-52										Clear brown glass with black spe	Amorphous	Amorphous	2.541				-11.090	19320.0	1157.9	10.749
1964	SBW1-53										Clear brown glass with black spe	Amorphous	Amorphous	2.583				-9.384	16003.0	1154.5	6.118
1965	SBW1-54										Clear light brown glass with very	Amorphous	Amorphous	2.597				-10.144	16445.0	1155.6	3.889
1966	SBW1-55										Clear brown glass with black spe	Amorphous	Amorphous	2.605				-10.031	15968.0	1157.5	3.021
1967	SBW1-56										Clear dark brown glass with black	Amorphous	Amorphous	2.609				-9.767	15266.0	1154.0	2.542
1968	SBW1-57										Clear light brown glass with black	Amorphous	Amorphous	2.629				-9.859	16260.0	1156.5	4.499

#	Glass ID	T2 (°C)	V2 (Pa·s)	T3 (°C)	V3 (Pa·s)	T4 (°C)	V4 (Pa·s)	T5 (°C)	V5 (Pa·s)	T6 (°C)	V6 (Pa·s)	T7 (°C)	V7 (Pa·s)	T8 (°C)	V8 (Pa·s)	T9 (°C)	V9 (Pa·s)	T10 (°C)	V10 (Pa·s)	TCLP Ag	TCLP As	TCLP Ba	TCLP Cd	TCLP Cr	TCLP Ni	TCLP Pb
1887	LRM-912	1237	35.300	1286	21.8	1336.0	14.0	1336.0	14.2	1386.0	9.6	1386.0	9.7	1386.0	9.7	1436.0	6.6	1487.0	4.7							
1888	LRM-1	1192	38.300	1242	22.6	1291.0	14.2	1292.0	14.0	1341.0	9.2	1341.0	9.5	1342.0	9.5	1392.0	6.3	1442.0	4.3							
1889	LRM-2	1241	33.000	1291	20.9	1291.0	21.0	1340.0	13.7	1340.0	13.9	1342.0	13.6	1392.0	9.4	1441.0	6.2	1492.0	4.3							
1890	LRM-3	1237	51.900	1286	31.3	1336.0	17.9	1386.0	11.7	1386.0	12.2	1435.0	7.6	1436.0	8.2	1436.0	8.5	1485.0	6.0							
1891	LRM-4	990	89.400	1040	41.9	1089.0	22.4	1090.0	21.3	1139.0	12.7	1140.0	12.8	1140.0	13.1	1189.0	7.9	1240.0	5.4							
1892	LRM-5412	1237	23.600	1286	15.8	1287.0	15.3	1336.0	10.3	1336.0	11.1	1337.0	11.9	1386.0	8.0	1437.0	5.9	1488.0	4.8							
1893	LRMS-1	1192	38.500	1243	22.5	1292.0	14.1	1293.0	14.0	1341.0	9.4	1342.0	9.6	1343.0	9.8	1392.0	6.6	1443.0	4.6							
1894	SSHTM-3	1245	22.400	1294	14.2	1295.0	13.7	1344.0	8.6	1345.0	9.1	1345.0	9.0	1395.0	5.8	1446.0	3.9									
1895	B1G9-0IIC4																									
1896	B1G9-013C5																									
1897	B1G9-014C																									
1898	D1G4-022P2																									
1899	D1G4-023P3																									
1900	Duratek	992	35.000	1041	17.3	1091.0	9.8	1091.0	9.9	1140.0	6.0	1141.0	5.9	1141.0	6.2	1190.0	3.9	1241.0	2.9							
1901	PEI	1140	64.700	1188	35.0	1238.0	21.3	1238.0	21.4	1287.0	13.6	1287.0	13.7	1288.0	13.9	1337.0	9.1	1387.0	6.3							
1902	M1G1-008P																									
1903	M1G1-011P																									
1904	V1M2 6 32 011 P1																									
1905	V1M2 6 32 040 P2																									
1906	V1M3 6 32 059 P1																									
1907	V1M3 6 32 075 P2																									
1908	V1M4 6 32 088 P1																									
1909	V1M4 6 32 096 P2																									
1910	Vectra	1144	20.600	1190	12.6	1240.0	8.4	1240.0	8.4	1289.0	5.9	1290.0	6.0	1291.0	6.4	1344.0	4.4	1390.0	3.2							
1911	WSTC	1090	30.800	1090	31.3	1139.0	18.6	1139.0	18.8	1140.0	20.1	1188.0	12.1	1237.0	8.2	1238.0	8.6	1287.0	5.8							
1912	SBW1-01	1079.5	9.915	1004.245	21.0	954.5	37.2	1252.6	2.7	1153.2	5.5															
1913	SBW1-02	1081.345	10.474	1006.43	22.1	956.8	39.3	1255.0	2.7	1155.9	5.7															
1914	SBW1-03	1080	24.098	1004.62	54.2	954.8	101.3	1253.7	5.9	1153.9	12.6															
1915	SBW1-04	1081.585	7.193	1006.76	14.8	957.2	26.0	1255.3	2.0	1156.1	4.0															
1916	SBW1-05	1079.895	14.474	1004.635	31.0	955.0	55.6	1252.9	3.9	1153.6	7.9															
1917	SBW1-06	1080.345	19.455	1005.29	42.7	955.5	78.3	1253.6	4.9	1154.2	10.2															
1918	SBW1-07	1083.05	13.227	1007.38	29.1	960.7	53.4	1254.6	3.3	1158.4	7.1															
1919	SBW1-08	1081.1	21.495	1006.28	48.8	956.6	91.1	1255.2	5.0	1155.5	11.1															
1920	SBW1-09	1079.255	8.670	1003.655	18.3	954.1	32.4	1252.0	2.4	1152.6	4.8															
1921	SBW1-10	1080.855	7.254	1006.075	14.9	956.5	26.2	1253.3	2.0	1154.3	4.1															
1922	SBW1-11	1081.135	11.872	1005.995	25.9	956.2	47.4	1255.2	3.1	1156.3	6.4															
1923	SBW1-12	1082.765	15.535	1007.765	34.3	958.2	63.4	1255.9	3.9	1156.7	8.2															
1924	SBW1-13	1078.835	9.339	1004.105	19.4	954.5	34.1	1252.6	2.5	1153.3	5.1															
1925	SBW1-14	1079.69	8.393	1005.39	17.4	955.3	30.7	1253.6	2.3	1154.2	4.7															
1926	SBW1-15	1079.735	11.736	1004.87	25.6	955.3	46.9	1253.7	3.0	1154.2	6.3															
1927	SBW1-16	1079.57	14.619	1004.42	32.4	954.6	60.6	1253.2	3.9	1153.8	7.8															
1928	SBW1-17	1080.47	18.767	1005.325	41.6	955.6	76.7	1154.8	9.7																	
1929	SBW1-18	1079.64	15.742	1004.67	34.6	954.9	63.1	1154.2	8.0																	
1930	SBW1-19	1079.9	16.231	1004.555	35.5	954.9	64.7	1252.8	4.4	1153.6	9.0															
1931	SBW1-20	1080.435	4.390	1005.435	8.9	955.8	15.1	1253.0	1.2	1153.5	2.5															
1932	SBW1-21	1078.335	21.817	1003.53	49.0	953.9	91.3	1202.7	7.0	1152.9	10.6															
1933	SBW1-22	1080.6	18.791	1005.535	40.5	955.9	72.1	1254.0	4.6	1154.5	10.0															
1934	SBW1-23	1080.01	6.878	1004.95	13.5	955.3	22.4	1253.7	2.0	1154.2	3.9															
1935	SBW1-24	1079.415	60.128	1004.655	147.8	954.8	295.9																			
1936	SBW1-25	1080.985	27.433	1005.8	69.2	956.0	146.3	1254.4	5.9	1154.7	13.3															
1937	SBW1-26	1084.345	29.521	1009.2	68.2	959.4	130.8	1157.7	14.8																	
1938	SBW1-27	1081.845	45.233	1005.935	110.3	956.3	215.5	1254.9	9.7	1155.3	21.8															
1939	SBW1-28	1083.59	4.367	1008.395	8.8	958.8	15.1	1255.4	1.3	1157.6	2.5															
1940	SBW1-29	1078.835	3.726	1003.38	7.4	953.7	12.5	1251.9	1.1	1152.8	2.1															
1941	SBW1-30	1081.915	3.508	1007.205	6.9	957.5	11.8	1255.8	1.1	1156.9	2.0															
1942	SBW1-31D	1080.105	15.421	1004.92	33.6	955.2	60.4	1204.5	5.4	1154.1	8.0															
1943	SBW1-32	1079.78	13.866	1004.685	31.6	955.0	60.2	1253.7	3.5	1154.4	7.3															
1944	SBW1-33A																									
1945	SBW1-34																									
1946	SBW1-35	1080.32	6.891	1004.795	14.2	955.0	25.0	1253.2	1.9	1153.9	3.9															
1947	SBW1-36	1081.19	47.480	1006.3	108.7	956.6	206.7	1254.7	10.4	1155.4	24.0															
1948	SBW1-37	1085.76	20.740	1010.76	48.9	961.2	93.6	1258.1	4.6	1159.9	10.7															
1949	SBW1-38B	1180.25	22.073	1106	47.5	1055.7	85.1	1351.9	5.2	1253.0	11.3															
1950	SBW1-39B	1184.255	18.575	1109.91	40.4	1060.3	71.4	1356.9	4.3	1258.0	9.8															
1951	SBW1-40	1082.48	5.741	1007.43	11.8	957.7	20.5	1256.5	1.6	1157.2	3.2															
1952	SBW1-41	1083.2	3.336	1007.805	6.9	958.0	12.3	1255.6	1.0	1156.9	1.9															
1953	SBW1-42	1079.7	3.400	1004.86	7.1	954.8	12.7	1254.2	0.9	1153.8	1.9															
1954	SBW1-43	1082.58	4.001	1007.635	7.7	958.0	12.8	1255.4	1.2	1157.1	2.3															
1955	SBW1-44B	1079.26	5.604	1004.295	10.9	954.6	18.2	1252.8	1.7	1153.1	3.2															
1956	SBW1-45	1078.9	4.123	1004.31	9.3	954.7	17.7	1252.2	1.1	1152.9	2.3															
1957	SBW1-46	1080.15	10.540	1004.695	22.4	954.8	40.3	1253.3	2.8	1154.0	5.7															
1958	SBW1-47	1083.405	9.956	1008.245	21.0	958.7	37.3	1254.7	2.6	1156.9	5.5															
1959	SBW1-48	1078.805	30.158	1003.95	70.7	954.3	137.8	1202.4	9.7	1152.9	14.7															
1960	SBW1-49	1080.095	6.747	1005.52	13.6	955.8	23.7	1254.1	2.0	1154.6	3.8															
1961	SBW1-50	1079.82	2.868	1004.655	5.4	954.6	9.0	1252.9	0.9	1153.5	1.7															
1962	SBW1-51	1079.635	32.506	1004.485	73.5	954.5	139.4	1154.0	16.2																	
1963	SBW1-52	1082.09	22.229	1006.96	53.6	957.3	107.9	1255.4	5.1	1155.5	11.1															
1964	SBW1-53	1079.005	11.287	1004.05	23.1	954.6	39.5	1252.8	3.1	1153.7	6.2															
1965	SBW1-54	1079.83	7.236	1004.78	15.1	955.2	26.4	1253.6	1.9	1154.0	3.9															
1966	SBW1-55	1082.835	5.532	1008.045	11.2	958.7	19.5	1256.4	1.6	1157.2	3.1															
1967	SBW1-56	1078.04	4.508	1003.085	8.8	953.5	14.9	1251.9	1.3	1152.7	2.5															
1968	SBW1-57	1080.825	8.311	1005.23	17.2	955.7	30.2	1253.4	2.3	1153.9	4.6															

#	Glass ID	TCLP Se	TCLP Zn	TCLP Al	TCLP B	TCLP Sb	TCLP Tl	TCLP V	Q PCT B (g/m²)	Q PCT Li (g/m²)	Q PCT Na (g/m²)	Q PCT Si (g/m²)	Q PCT pH	CCC PCT B (g/m²)	CCC PCT Li (g/m²)	CCC PCT Na (g/m²)	CCC PCT Si (g/m²)	CCC PCT pH	T1 (°C)
1887	LRM-912										1.030	0.185	11.730						
1888	LRM-1								0.205	0.105	0.462	0.154	11.225						
1889	LRM-2										0.762	0.185	11.495						
1890	LRM-3								0.164		0.359	0.118	10.855						
1891	LRM-4								0.287	0.134	0.470	0.149	11.190						
1892	LRM-5412								0.154		0.391	0.134	10.975						
1893	LRMS-1								0.205	0.096	0.445	0.159	11.230						
1894	SSHTM-3								0.174		0.439	0.119	11.325						
1895	B1G9-0IIC4								0.049		0.125	0.050	10.365						
1896	B1G9-013C5								0.065		0.158	0.052	10.620						
1897	B1G9-014C								0.045		0.124	0.049	10.445						
1898	D1G4-022P2								0.538		0.620	0.168	11.455						
1899	D1G4-023P3								0.501		0.608	0.167	11.455						
1900	Duratek																		
1901	PEI										1.696	0.258	12.140						
1902	M1G1-008P								0.080		0.220	0.060	10.535						
1903	M1G1-011P								0.100		0.320	0.080	11.060						
1904	V1M2 6 32 011 P1								0.134		0.213	0.094	10.295						
1905	V1M2 6 32 040 P2								0.129		0.190	0.087	10.215						
1906	V1M3 6 32 059 P1								0.147		0.223	0.096	10.340						
1907	V1M3 6 32 075 P2								0.130		0.262	0.088	10.315						
1908	V1M4 6 32 088 P1								0.142		0.212	0.094	10.375						
1909	V1M4 6 32 096 P2								0.148		0.219	0.096	10.370						
1910	Vectra								0.461		0.549	0.185	11.115						
1911	WSTC								0.151	0.079	0.244	0.085	10.815						
1912	SBW1-01								0.630	0.409	0.591	0.165	11.010						
1913	SBW1-02								0.361	0.353	0.528	0.154	10.510						
1914	SBW1-03								0.247	0.262	0.307	0.122	10.240						
1915	SBW1-04								1.139	0.938	1.007	0.199	11.230						
1916	SBW1-05								0.292	0.309	0.330	0.142	10.440						
1917	SBW1-06								0.238	0.257	0.254	0.111	10.285						
1918	SBW1-07								0.338	0.324	0.383	0.125	10.630						
1919	SBW1-08								0.182	0.209	0.325	0.100	10.005						
1920	SBW1-09								0.738	0.622	0.598	0.164	10.670						
1921	SBW1-10								0.663	0.567	0.770	0.187	11.220						
1922	SBW1-11								0.667	0.526	0.665	0.133	10.220						
1923	SBW1-12								0.315	0.316	0.469	0.135	10.570						
1924	SBW1-13								0.374	0.353	0.411	0.156	10.635						
1925	SBW1-14								0.852	0.578	0.902	0.207	11.370						
1926	SBW1-15								0.442	0.379	0.380	0.138	10.190						
1927	SBW1-16								1.490	1.355	0.950	0.267	9.905						
1928	SBW1-17								0.243	0.389	0.277	0.136	10.165						
1929	SBW1-18								0.180	0.290	0.175	0.099	10.250						
1930	SBW1-19								3.514	2.529	2.952	0.957	11.595						
1931	SBW1-20								1.197	0.804	1.424	0.370	11.695						
1932	SBW1-21								0.229	0.309	0.215	0.161	10.215						
1933	SBW1-22								0.357	0.368	0.613	0.173	10.770						
1934	SBW1-23								1.139	0.832	1.372	0.372	11.575						
1935	SBW1-24								0.409	0.451	0.395	0.120	9.200						
1936	SBW1-25								0.907	0.791	0.815	0.160	9.630						
1937	SBW1-26								0.224	0.333	0.251	0.114	10.330						
1938	SBW1-27								0.339	0.333	0.377	0.099	8.890						
1939	SBW1-28								1.445	1.218	0.949	0.146	10.605						
1940	SBW1-29								1.643	1.428	1.275	0.220	11.235						
1941	SBW1-30								4.192	2.990	3.040	0.412	11.795						
1942	SBW1-31D								0.392	0.514	0.073	0.186	9.340						
1943	SBW1-32								4.141	3.722	3.342	0.695	10.045						
1944	SBW1-33A								1.143		0.761	0.147	8.885						
1945	SBW1-34																		
1946	SBW1-35								1.386		1.256	0.173	11.090						
1947	SBW1-36								0.413		0.674	0.215	11.420						
1948	SBW1-37								1.466		1.366	0.505	11.305						
1949	SBW1-38B								0.116	0.241	0.093	0.044	8.795						
1950	SBW1-39B								0.412	0.172	0.631	0.217	10.945						
1951	SBW1-40								0.799	0.761	0.372	0.122	9.990						
1952	SBW1-41								6.724		5.099	0.917	11.295						
1953	SBW1-42								1.478	1.398	1.066	0.263	9.880						
1954	SBW1-43								3.631	2.568	2.192	0.239	11.715						
1955	SBW1-44B								0.908	0.998	1.078	0.360	11.390						
1956	SBW1-45								15.272		14.267	1.701	10.710						
1957	SBW1-46								0.520	0.422	0.461	0.162	10.525						
1958	SBW1-47								0.516	0.435	0.478	0.131	10.765						
1959	SBW1-48								0.602	0.462	0.392	0.131	9.330						
1960	SBW1-49								2.587	2.233	2.028	0.418	11.360						
1961	SBW1-50								0.961	0.899	0.893	0.240	10.935						
1962	SBW1-51								0.191	0.234	0.289	0.114	10.230						
1963	SBW1-52								0.461	0.508	0.325	0.105	9.890						
1964	SBW1-53								0.402	0.435	0.469	0.222	10.780						
1965	SBW1-54								0.449	0.491	0.389	0.166	10.340						
1966	SBW1-55								0.455	0.461	0.583	0.168	10.880						
1967	SBW1-56								0.569	0.492	0.597	0.203	10.905						
1968	SBW1-57								0.661	0.616	0.458	0.173	10.385						

#	Glass ID	EC1 (S/cm)	T2 (°C)	EC2 (S/cm)	T3 (°C)	EC3 (S/cm)	T4 (°C)	EC4 (S/cm)	T5 (°C)	EC5 (S/cm)	T6 (°C)	EC6 (S/cm)	A	B	To
1887	LRM-912														
1888	LRM-1														
1889	LRM-2														
1890	LRM-3														
1891	LRM-4														
1892	LRM-5412														
1893	LRMS-1														
1894	SSHTM-3														
1895	B1G9-0IIC4														
1896	B1G9-013C5														
1897	B1G9-014C														
1898	D1G4-022P2														
1899	D1G4-023P3														
1900	Duratek														
1901	PEI														
1902	M1G1-008P														
1903	M1G1-011P														
1904	V1M2 6 32 011 P1														
1905	V1M2 6 32 040 P2														
1906	V1M3 6 32 059 P1														
1907	V1M3 6 32 075 P2														
1908	V1M4 6 32 088 P1														
1909	V1M4 6 32 096 P2														
1910	Vectra														
1911	WSTC														
1912	SBW1-01														
1913	SBW1-02														
1914	SBW1-03														
1915	SBW1-04														
1916	SBW1-05														
1917	SBW1-06														
1918	SBW1-07														
1919	SBW1-08														
1920	SBW1-09														
1921	SBW1-10														
1922	SBW1-11														
1923	SBW1-12														
1924	SBW1-13														
1925	SBW1-14														
1926	SBW1-15														
1927	SBW1-16														
1928	SBW1-17														
1929	SBW1-18														
1930	SBW1-19														
1931	SBW1-20														
1932	SBW1-21														
1933	SBW1-22														
1934	SBW1-23														
1935	SBW1-24														
1936	SBW1-25														
1937	SBW1-26														
1938	SBW1-27														
1939	SBW1-28														
1940	SBW1-29														
1941	SBW1-30														
1942	SBW1-31D														
1943	SBW1-32														
1944	SBW1-33A														
1945	SBW1-34														
1946	SBW1-35														
1947	SBW1-36														
1948	SBW1-37														
1949	SBW1-38B														
1950	SBW1-39B														
1951	SBW1-40														
1952	SBW1-41														
1953	SBW1-42														
1954	SBW1-43														
1955	SBW1-44B														
1956	SBW1-45														
1957	SBW1-46														
1958	SBW1-47														
1959	SBW1-48														
1960	SBW1-49														
1961	SBW1-50														
1962	SBW1-51														
1963	SBW1-52														
1964	SBW1-53														
1965	SBW1-54														
1966	SBW1-55														
1967	SBW1-56														
1968	SBW1-57														

#	Glass ID	Study	Reference	Al2O3-t	B2O3-t	CaO-t	Fe2O3-t	FeO-t	K2O-t	Li2O-t	MgO-t	Na2O-t	NiO-t	P2O5-t	SiO2-t	ZrO2-t	Ag2O-t	As2O3-t	As2O5-t	BaO-t	BeO-t	Bi2O3-t	Br-t	CdO-t	Ce2O3-t	CeO2-t	Cl-t
1969	SBW1-58	SBW CVS Phase 1	Scholes et al. 2002	0.0870	0.1050	0.0103	0.0754		0.0269	0.0350	0.0000	0.1403	0.0007	0.0062	0.4549	0.0056				0.0350				0.0014			0.0014
1970	SBW1-59	SBW CVS Phase 1	Scholes et al. 2002	0.1014	0.0975	0.0120	0.0713		0.0314	0.0325	0.0000	0.1637	0.0009	0.0073	0.4224	0.0065				0.0325				0.0017			0.0016
1971	SBW1-60	SBW CVS Phase 1	Scholes et al. 2002	0.0725	0.1125	0.0273	0.0795		0.0224	0.0375	0.0000	0.1169	0.0006	0.0052	0.4873	0.0047				0.0188				0.0012			0.0011
1972	SBW1-61	SBW CVS Phase 1	Scholes et al. 2002	0.0870	0.1050	0.0278	0.0754		0.0269	0.0350	0.0000	0.1403	0.0007	0.0062	0.4549	0.0056				0.0175				0.0014			0.0014
1973	SBW1-62	SBW CVS Phase 1	Scholes et al. 2002	0.1014	0.0975	0.0282	0.0713		0.0314	0.0325	0.0000	0.1637	0.0009	0.0073	0.4224	0.0065				0.0163				0.0017			0.0016
1974	SBW1-63	SBW CVS Phase 1	Scholes et al. 2002	0.1501	0.1501	0.0008	0.0005			0.0845		0.0500			0.5307	0.0301				0.0000							
1975	SBW1-64	SBW CVS Phase 1	Scholes et al. 2002	0.0375	0.1250	0.0009	0.0005		0.0250	0.0631		0.0875		0.0125	0.5391	0.1050				0.0000							
1976	SBW-11-18.5	SBW Melter Glass Formulatio	Vienna et al. 2002	0.0510	0.0997	0.0449	0.0150		0.0140	0.0498	0.0150	0.1117	0.0002	0.0015	0.5235	0.0199				0.0000				0.0001			0.0016
1977	SBW-11-30	SBW Melter Glass Formulatio	Vienna et al. 2002	0.0827	0.0861	0.0416	0.0149		0.0226	0.0428	0.0134	0.1693	0.0003	0.0024	0.4496	0.0171				0.0000				0.0002			0.0026
1978	SBW-12-18.5	SBW Melter Glass Formulatio	Vienna et al. 2002	0.0510	0.0498	0.0449	0.0150		0.0140	0.0498	0.0150	0.1531	0.0002	0.0015	0.5320	0.0199				0.0000				0.0001			0.0016
1979	SBW-13-18.5	SBW Melter Glass Formulatio	Vienna et al. 2002	0.0510	0.0997	0.0040	0.0150		0.0804	0.0498	0.0007	0.1117	0.0002	0.0015	0.5122	0.0199				0.0000				0.0001			0.0016
1980	SBW-14-18.5	SBW Melter Glass Formulatio	Vienna et al. 2002	0.0510	0.1184	0.0449	0.0150		0.0140	0.0498	0.0150	0.1117	0.0002	0.0015	0.5445	0.0199				0.0000				0.0001			0.0016
1981	SBW-15-18.5	SBW Melter Glass Formulatio	Vienna et al. 2002	0.0510	0.0577	0.0692	0.0678		0.0140	0.0489	0.0007	0.1532	0.0002	0.0015	0.5216	0.0000				0.0000				0.0001			0.0016
1982	SBW-16-18.5	SBW Melter Glass Formulatio	Vienna et al. 2002	0.0510	0.0498	0.0449	0.0150		0.0140	0.0498	0.0150	0.1312	0.0002	0.0015	0.5538	0.0199				0.0000				0.0001			0.0016
1983	SBW-17-18.5	SBW Melter Glass Formulatio	Vienna et al. 2002	0.0510	0.0984	0.0203	0.1004		0.0140	0.0326	0.0007	0.0962	0.0002	0.0015	0.5705	0.0000				0.0000				0.0001			0.0016
1984	SBW-18-18.5	SBW Melter Glass Formulatio	Vienna et al. 2002	0.0510	0.0984	0.0203	0.1004		0.0140	0.0245	0.0007	0.1288	0.0002	0.0015	0.5216	0.0082				0.0000				0.0001			0.0016
1985	SBW-19-18.5	SBW Melter Glass Formulatio	Vienna et al. 2002	0.0510	0.0984	0.0203	0.1004		0.0140	0.0245	0.0007	0.1288	0.0002	0.0015	0.5053	0.0082				0.0000				0.0001			0.0016
1986	SBW-20-18.5	SBW Melter Glass Formulatio	Vienna et al. 2002	0.0510	0.0984	0.0366	0.1004		0.0140	0.0245	0.0007	0.1288	0.0002	0.0015	0.4890	0.0082				0.0000				0.0001			0.0016
1987	SBW-21-18.5	SBW Melter Glass Formulatio	Vienna et al. 2002	0.0510	0.0821	0.0366	0.1004		0.0140	0.0245	0.0007	0.1288	0.0002	0.0015	0.5053	0.0082				0.0000				0.0001			0.0016
1988	SBW-22-15	SBW Melter Glass Formulatio	Vienna et al. 2002	0.0414	0.0518	0.0459	0.0150		0.0113	0.0519	0.0155	0.1145	0.0001	0.0012	0.5776	0.0208				0.0000				0.0001			0.0013
1989	SBW-22-18.5	SBW Melter Glass Formulatio	Vienna et al. 2002	0.0510	0.0498	0.0449	0.0150		0.0140	0.0498	0.0150	0.1312	0.0002	0.0015	0.5538	0.0199				0.0000				0.0001			0.0016
1990	SBW-22-20	SBW Melter Glass Formulatio	Vienna et al. 2002	0.0551	0.0490	0.0445	0.0150		0.0151	0.0489	0.0148	0.1384	0.0002	0.0016	0.5436	0.0195				0.0000				0.0002			0.0017
1991	SBW-22-25	SBW Melter Glass Formulatio	Vienna et al. 2002	0.0689	0.0461	0.0430	0.0149		0.0189	0.0458	0.0141	0.1622	0.0002	0.0020	0.5096	0.0183				0.0000				0.0002			0.0022
1992	SBW-23-15	SBW Melter Glass Formulatio	Vienna et al. 2002	0.0414	0.1038	0.0032	0.0150		0.0480	0.0519	0.0006	0.0941	0.0001	0.0012	0.5668	0.0208				0.0000				0.0001			0.0013
1993	SBW-23-18.5	SBW Melter Glass Formulatio	Vienna et al. 2002	0.0510	0.0997	0.0040	0.0150		0.0492	0.0498	0.0007	0.1117	0.0002	0.0015	0.5435	0.0199				0.0000				0.0001			0.0016
1994	SBW-23-20	SBW Melter Glass Formulatio	Vienna et al. 2002	0.0551	0.0979	0.0043	0.0150		0.0496	0.0489	0.0008	0.1192	0.0002	0.0016	0.5335	0.0195				0.0000				0.0002			0.0017
1995	SBW-23-25	SBW Melter Glass Formulatio	Vienna et al. 2002	0.0689	0.0920	0.0054	0.0149		0.0512	0.0458	0.0010	0.1442	0.0002	0.0020	0.5001	0.0183				0.0000				0.0002			0.0022
1996	SBW-24-18.5	SBW Melter Glass Formulatio	Vienna et al. 2002	0.0510	0.0911	0.0449	0.0150		0.0140	0.0498	0.0150	0.1117	0.0002	0.0015	0.5718	0.0199				0.0000				0.0001			0.0016
1997	SBW-25-15	SBW Melter Glass Formulatio	Vienna et al. 2002	0.0414	0.1038	0.0459	0.1041		0.0113	0.0292	0.0155	0.0780	0.0001	0.0012	0.4958	0.0208				0.0000				0.0001			0.0013
1998	SBW-25-18.5	SBW Melter Glass Formulatio	Vienna et al. 2002	0.0510	0.0997	0.0449	0.1004		0.0140	0.0280	0.0150	0.0962	0.0002	0.0015	0.4753	0.0199				0.0000				0.0001			0.0016
1999	SBW-25-20	SBW Melter Glass Formulatio	Vienna et al. 2002	0.0551	0.0979	0.0445	0.0988		0.0151	0.0275	0.0148	0.1040	0.0002	0.0016	0.4666	0.0195				0.0000				0.0002			0.0017
2000	SBW-25-25	SBW Melter Glass Formulatio	Vienna et al. 2002	0.0689	0.0920	0.0430	0.0935		0.0189	0.0258	0.0141	0.1300	0.0002	0.0020	0.4374	0.0183				0.0000				0.0002			0.0022
2001	SBW-26-18.5	SBW Melter Glass Formulatio	Vienna et al. 2002	0.0510	0.0498	0.1196	0.0150		0.0140	0.0287	0.0150	0.1117	0.0002	0.0015	0.5197	0.0199				0.0000				0.0001			0.0016
2002	SBW-27-18.5	SBW Melter Glass Formulatio	Vienna et al. 2002	0.0510	0.0498	0.0997	0.0150		0.0140	0.0333	0.0150	0.1117	0.0002	0.0015	0.5152	0.0199				0.0000				0.0001			0.0016
2003	HTB651	Waste Loading Maximization	Bailey et al. 1995	0.0904	0.0005	0.0143	0.0765		0.0016		0.0005	0.1759	0.0158	0.0327	0.4185	0.0492						0.0136	0.0000	0.0007		0.0190	
2004	HTB651Cr0.6	Waste Loading Maximization	Bailey et al. 1995	0.0901	0.0005	0.0143	0.0763		0.0016		0.0005	0.1754	0.0157	0.0327	0.4173	0.0491						0.0136	0.0000	0.0006		0.0190	
2005	HTB651Cr0.8	Waste Loading Maximization	Bailey et al. 1995	0.0899	0.0005	0.0143	0.0761		0.0016		0.0005	0.1750	0.0157	0.0326	0.4165	0.0490						0.0135	0.0000	0.0006		0.0189	
2006	HTB651P5	Waste Loading Maximization	Bailey et al. 1995	0.0887	0.0005	0.0141	0.0751		0.0015		0.0005	0.1728	0.0155	0.0500	0.4111	0.0483						0.0134	0.0000	0.0006		0.0187	
2007	HTB651P7	Waste Loading Maximization	Bailey et al. 1995	0.0869	0.0005	0.0138	0.0735		0.0015		0.0005	0.1691	0.0151	0.0700	0.4024	0.0473						0.0131	0.0000	0.0006		0.0183	
2008	HTB651P9	Waste Loading Maximization	Bailey et al. 1995	0.0869	0.0005	0.0138	0.0735		0.0015		0.0005	0.1691	0.0151	0.0700	0.4024	0.0473						0.0131	0.0000	0.0006		0.0183	
2009	HTB651Ti1	Waste Loading Maximization	Bailey et al. 1995	0.0895	0.0005	0.0142	0.0757		0.0015		0.0005	0.1741	0.0156	0.0324	0.4143	0.0487						0.0135	0.0000	0.0006		0.0188	
2010	HTB651Ti3	Waste Loading Maximization	Bailey et al. 1995	0.0876	0.0005	0.0139	0.0742		0.0015		0.0005	0.1706	0.0153	0.0318	0.4060	0.0477						0.0132	0.0000	0.0006		0.0184	
2011	HTB651Ti5	Waste Loading Maximization	Bailey et al. 1995	0.0858	0.0005	0.0136	0.0727		0.0015		0.0005	0.1671	0.0150	0.0311	0.3976	0.0468						0.0129	0.0000	0.0006		0.0181	
2012	NP-BL	Nepheline Precipitation Study	Li et al 1997	0.1376	0.0800	0.0112	0.0994		0.0010	0.0450	0.0068	0.2028	0.0007	0.0100	0.3838	0.0029	0.0014	0.0002		0.0034				0.0002			
2013	NP-Si-3	Nepheline Precipitation Study	Li et al 1997	0.1221	0.0710	0.0099	0.0882		0.0009	0.0399	0.0060	0.1800	0.0006	0.0089	0.4531	0.0026	0.0012	0.0002		0.0030				0.0002			
2014	NP-Si-4	Nepheline Precipitation Study	Li et al 1997	0.1175	0.0683	0.0096	0.0849		0.0009	0.0384	0.0058	0.1731	0.0006	0.0085	0.4740	0.0025	0.0012	0.0002		0.0029				0.0002			
2015	NP-Al-1	Nepheline Precipitation Study	Li et al 1997	0.0630	0.0869	0.0122	0.1080		0.0011	0.0489	0.0074	0.2203	0.0008	0.0108	0.4170	0.0032	0.0015	0.0002		0.0037				0.0002			
2016	NP-Al-2	Nepheline Precipitation Study	Li et al 1997	0.0775	0.0856	0.0120	0.1063		0.0011	0.0481	0.0073	0.2169	0.0007	0.0107	0.4106	0.0031	0.0015	0.0002		0.0036				0.0002			
2017	NP-Al-3	Nepheline Precipitation Study	Li et al 1997	0.1768	0.0764	0.0107	0.0949		0.0010	0.0430	0.0065	0.1936	0.0007	0.0095	0.3664	0.0028	0.0013	0.0002		0.0032				0.0002			
2018	NP-Al-4	Nepheline Precipitation Study	Li et al 1997	0.1929	0.0749	0.0105	0.0930		0.0009	0.0421	0.0064	0.1898	0.0007	0.0094	0.3592	0.0027	0.0013	0.0002		0.0032				0.0002			
2019	NP-Na-1	Nepheline Precipitation Study	Li et al 1997	0.1496	0.0870	0.0122	0.1081		0.0011	0.0489	0.0074	0.1330	0.0008	0.0109	0.4174	0.0032	0.0015	0.0002		0.0037				0.0002			
2020	NP-Na-2	Nepheline Precipitation Study	Li et al 1997	0.1470	0.0855	0.0120	0.1062		0.0011	0.0481	0.0073	0.1481	0.0007	0.0107	0.4101	0.0031	0.0015	0.0002		0.0036				0.0002			
2021	NP-Li-1	Nepheline Precipitation Study	Li et al 1997	0.1441	0.0838	0.0117	0.1041		0.0010	0.0000	0.0071	0.2123	0.0007	0.0105	0.4019	0.0030	0.0015	0.0002		0.0036				0.0002			
2022	NP-Li-2	Nepheline Precipitation Study	Li et al 1997	0.1326	0.0771	0.0108	0.0958		0.0010	0.0800	0.0066	0.1953	0.0007	0.0096	0.3698	0.0028	0.0013	0.0002		0.0033				0.0002			
2023	NP-B-1	Nepheline Precipitation Study	Li et al 1997	0.1496	0.0000	0.0122	0.1080		0.0011	0.0489	0.0074	0.2204	0.0008	0.0108	0.4172	0.0032	0.0015	0.0002		0.0037				0.0002			
2024	NP-B-2	Nepheline Precipitation Study	Li et al 1997	0.1197	0.2000	0.0097	0.0864		0.0009	0.0391	0.0059	0.1763	0.0006	0.0087	0.3338	0.0025	0.0012	0.0002		0.0030				0.0002			
2025	NP-K-1	Nepheline Precipitation Study	Li et al 1997	0.1336	0.0777	0.0109	0.0965		0.0300	0.0437	0.0066	0.1969	0.0007	0.0097	0.3727	0.0028	0.0014	0.0002		0.0033				0.0002			
2026	NP-K-2	Nepheline Precipitation Study	Li et al 1997	0.1295	0.0753	0.0105	0.0935		0.0600	0.0423	0.0064	0.1908	0.0007	0.0094	0.3612	0.0027	0.0013	0.0002		0.0032				0.0002			
2027	NP-Ca-1	Nepheline Precipitation Study	Li et al 1997	0.1392	0.0809	0.0000	0.1005		0.0010	0.0455	0.0069	0.2051	0.0007	0.0101	0.3882	0.0029	0.0014	0.0002		0.0034				0.0002			
2028	NP-Ca-2	Nepheline Precipitation Study	Li et al 1997	0.1252	0.0728	0.1000	0.0905		0.0009	0.0410	0.0062	0.1846	0.0006	0.0091	0.3494	0.0026	0.0013	0.0002		0.0031				0.0002			
2029	NP-Fe-1	Nepheline Precipitation Study	Li et al 1997	0.1438	0.0836	0.0117	0.0595		0.0010	0.0470	0.0071	0.2120	0.0007	0.0102	0.4012	0.0030	0.0014	0.0002		0.0035				0.0002			
2030	NP-Fe-2	Nepheline Precipitation Study	Li et al 1997	0.1408	0.0819	0.0115	0.0795		0.0010	0.0460	0.0070	0.2075	0.0007	0.0099	0.3927	0.0030	0.0014	0.0002		0.0034				0.0002			
2031	NP-Fe-3	Nepheline Precipitation Study	Li et al 1997	0.1331	0.0774	0.0108	0.1295		0.0010	0.0435	0.0066	0.1962	0.0007	0.0094	0.3714	0.0028	0.0013	0.0002		0.0032				0.0002			
2032	WVCM30	CUA data	Peters et al. 2003																								
2033	WVCM32	CUA data	Peters et al. 2003																								
2034	WVCM34	CUA data	Peters et al. 2003																								
2035	WVCM39	CUA data	Peters et al. 2003																								
2036	WVCM40	CUA data	Peters et al. 2003																								
2037	WVCM41	CUA data	Peters et al. 2003																								
2038	WVCM51	CUA data	Peters et al. 2003																								
2039	WVCM52	CUA data	Peters et al. 2003																								
2040	WVCM54	CUA data	Peters et al. 2003																								
2041	WVCM62	CUA data	Peters et al. 2003																								
2042	WVUTH9	CUA data	Peters et al. 2003																								
2043	WVUTH16	CUA data	Peters et al. 2003																								
2044	WVUTH20	CUA data	Peters et al. 2003																								
2045	WVUTH27	CUA data	Peters et al. 2003																								
2046	WVUTH29	CUA data	Peters et al. 2003																								
2047	WVUTH50	CUA data	Peters et al. 2003																								
2048	WVUTH 60	CUA data	Peters et al. 2003																								
2049	WVUTH 76	CUA data	Peters et al. 2003																								
2050	WVUTH 85	CUA data	Peters et al. 2003																								

#	Glass ID	CoO-t	Co2O3-t	Cr2O3-t	Cs2O-t	CuO-t	Dy2O3-t	Eu2O3-t	F-t	Ga2O3-t	Gd2O3-t	HfO2-t	HgO-t	I-t	La2O3-t	MnO2-t	MnO-t	MoO-t	MoO2-t	MoO3-t	Nb2O5-t	Nd2O3-t	NpO2-t	PbO-t	PdO2-t	PdO-t	Pr2O3-t	Pr6O11-t	Rb2O-t	ReO-t
1969	SBW1-58			0.0012					0.0037					0.0001	0.0003		0.0043			0.0002				0.0006						
1970	SBW1-59			0.0014					0.0043					0.0001	0.0003		0.0050			0.0002				0.0007						
1971	SBW1-60			0.0010					0.0031					0.0001	0.0002		0.0036			0.0001				0.0005						
1972	SBW1-61			0.0012					0.0037					0.0001	0.0003		0.0043			0.0002				0.0006						
1973	SBW1-62			0.0014					0.0043					0.0001	0.0003		0.0050			0.0002				0.0007						
1974	SBW1-63				0.0009	0.0007					0.0007									0.0001				0.0000						
1975	SBW1-64				0.0010	0.0007			0.0005		0.0007									0.0001				0.0000						
1976	SBW-11-18.5			0.0004		0.0001			0.0014		0.0001						0.0015			0.0000				0.0004						
1977	SBW-11-30			0.0006		0.0002			0.0022		0.0001						0.0024			0.0001				0.0007						
1978	SBW-12-18.5			0.0004		0.0001			0.0014		0.0001						0.0015			0.0000				0.0004						
1979	SBW-13-18.5			0.0004		0.0001			0.0014		0.0001						0.0015			0.0000				0.0004						
1980	SBW-14-18.5			0.0004		0.0001			0.0014		0.0001						0.0015			0.0000				0.0004						
1981	SBW-15-18.5			0.0004		0.0001			0.0014		0.0001						0.0015			0.0000				0.0004						
1982	SBW-16-18.5			0.0004		0.0001			0.0014		0.0001						0.0015			0.0000				0.0004						
1983	SBW-17-18.5			0.0004		0.0001			0.0014		0.0001						0.0015			0.0000				0.0004						
1984	SBW-18-18.5			0.0004		0.0001			0.0014		0.0001						0.0015			0.0000				0.0004						
1985	SBW-19-18.5			0.0004		0.0001			0.0014		0.0001						0.0015			0.0000				0.0004						
1986	SBW-20-18.5			0.0004		0.0001			0.0014		0.0001						0.0015			0.0000				0.0004						
1987	SBW-21-18.5			0.0004		0.0001			0.0014		0.0001						0.0015			0.0000				0.0004						
1988	SBW-22-15			0.0003		0.0001			0.0011		0.0000						0.0012			0.0000				0.0004						
1989	SBW-22-18.5			0.0004		0.0001			0.0014		0.0001						0.0015			0.0000				0.0004						
1990	SBW-22-20			0.0004		0.0001			0.0015		0.0001						0.0016			0.0000				0.0005						
1991	SBW-22-25			0.0005		0.0001			0.0018		0.0001						0.0020			0.0001				0.0006						
1992	SBW-23-15			0.0003		0.0001			0.0011		0.0000						0.0012			0.0000				0.0004						
1993	SBW-23-18.5			0.0004		0.0001			0.0014		0.0001						0.0015			0.0000				0.0004						
1994	SBW-23-20			0.0004		0.0001			0.0015		0.0001						0.0016			0.0000				0.0005						
1995	SBW-23-25			0.0005		0.0001			0.0018		0.0001						0.0020			0.0001				0.0006						
1996	SBW-24-18.5			0.0004		0.0001			0.0014		0.0001						0.0015			0.0000				0.0004						
1997	SBW-25-15			0.0003		0.0001			0.0011		0.0000						0.0012			0.0000				0.0004						
1998	SBW-25-18.5			0.0004		0.0001			0.0014		0.0001						0.0015			0.0000				0.0004						
1999	SBW-25-20			0.0004		0.0001			0.0015		0.0001						0.0016			0.0000				0.0005						
2000	SBW-25-25			0.0005		0.0001			0.0018		0.0001						0.0020			0.0001				0.0006						
2001	SBW-26-18.5			0.0004		0.0001			0.0014		0.0001						0.0015			0.0000				0.0004						
2002	SBW-27-18.5			0.0004		0.0001			0.0014		0.0001						0.0015			0.0000				0.0004						
2003	HTB651			0.0031					0.0038						0.0030		0.0104			0.0005		0.0607		0.0025						
2004	HTB651Cr0.6			0.0060					0.0038						0.0030		0.0103			0.0005		0.0606		0.0025						
2005	HTB651Cr0.8			0.0080					0.0038						0.0030		0.0103			0.0005		0.0604		0.0025						
2006	HTB651P5			0.0031					0.0038						0.0029		0.0102			0.0005		0.0597		0.0024						
2007	HTB651P7			0.0030					0.0037						0.0029		0.0100			0.0005		0.0584		0.0024						
2008	HTB651P9			0.0030					0.0037						0.0029		0.0100			0.0005		0.0584		0.0024						
2009	HTB651Ti1			0.0031					0.0038						0.0030		0.0102			0.0005		0.0601		0.0024						
2010	HTB651Ti3			0.0030					0.0037						0.0029		0.0100			0.0005		0.0589		0.0024						
2011	HTB651Ti5			0.0030					0.0036						0.0028		0.0098			0.0005		0.0577		0.0024						
2012	NP-BL			0.0020		0.0003											0.0042							0.0028						
2013	NP-Si-3			0.0018		0.0003											0.0037							0.0025						
2014	NP-Si-4			0.0017		0.0003											0.0036							0.0024						
2015	NP-Al-1			0.0022		0.0003											0.0046							0.0030						
2016	NP-Al-2			0.0021		0.0003											0.0045							0.0030						
2017	NP-Al-3			0.0019		0.0003											0.0040							0.0026						
2018	NP-Al-4			0.0019		0.0003											0.0039							0.0026						
2019	NP-Na-1			0.0022		0.0003											0.0046							0.0030						
2020	NP-Na-2			0.0021		0.0003											0.0045							0.0030						
2021	NP-Li-1			0.0021		0.0003											0.0044							0.0029						
2022	NP-Li-2			0.0019		0.0003											0.0040							0.0027						
2023	NP-B-1			0.0022		0.0003											0.0046							0.0030						
2024	NP-B-2			0.0017		0.0003											0.0037							0.0024						
2025	NP-K-1			0.0019		0.0003											0.0041							0.0027						
2026	NP-K-2			0.0019		0.0003											0.0040							0.0026						
2027	NP-Ca-1			0.0020		0.0003											0.0042							0.0028						
2028	NP-Ca-2			0.0018		0.0003											0.0038							0.0025						
2029	NP-Fe-1			0.0020		0.0003											0.0043							0.0029						
2030	NP-Fe-2			0.0020		0.0003											0.0041							0.0028						
2031	NP-Fe-3			0.0019		0.0003											0.0039							0.0026						
2032	WVCM30																												
2033	WVCM32																												
2034	WVCM34																												
2035	WVCM39																												
2036	WVCM40																												
2037	WVCM41																												
2038	WVCM51																												
2039	WVCM52																												
2040	WVCM54																												
2041	WVCM62																												
2042	WVUTH9																												
2043	WVUTH16																												
2044	WVUTH20																												
2045	WVUTH27																												
2046	WVUTH29																												
2047	WVUTH50																												
2048	WVUTH 60																												
2049	WVUTH 76																												
2050	WVUTH 85																												

#	Glass ID	ReO2-t	Re2O7-t	Rh2O3-t	RhO2-t	RuO2-t	Ru2O3-t	Sb2O3-t	Sb2O5-t	SeO2-t	Sm2O3-t	SnO-t	SnO2-t	SO3-t	SrO-t	Tc2O7-t	TeO2-t	ThO2-t	TiO2-t	Tl2O-t	Tl2O3-t	U3O8-t	UO2-t	UO3-t	V2O5-t	WO3-t	Y2O3-t	ZnO-t	Sum-t	Al2O3-a
1969	SBW1-58					0.0000								0.0045														1.0000	0.0832
1970	SBW1-59					0.0000								0.0053														1.0000	0.1056
1971	SBW1-60					0.0000								0.0038														1.0000	0.0744
1972	SBW1-61					0.0000								0.0045														1.0000	0.0896
1973	SBW1-62					0.0000								0.0053														1.0000	0.1067
1974	SBW1-63														0.0002							0.0006						1.0000	0.1496
1975	SBW1-64														0.0002							0.0007						1.0000	0.0389
1976	SBW-11-18.5													0.0084										0.0399			0.0000	1.0000	0.0533
1977	SBW-11-30													0.0137										0.0344			0.0000	1.0000	
1978	SBW-12-18.5													0.0084										0.0399			0.0000	1.0000	0.0516
1979	SBW-13-18.5													0.0084										0.0399			0.0000	1.0000	0.0505
1980	SBW-14-18.5													0.0084										0.0001			0.0000	1.0000	0.0512
1981	SBW-15-18.5													0.0084										0.0001			0.0000	1.0000	0.0508
1982	SBW-16-18.5													0.0084										0.0399			0.0000	1.0000	0.0512
1983	SBW-17-18.5													0.0084										0.0001			0.0000	1.0000	0.0523
1984	SBW-18-18.5													0.0084										0.0164			0.0000	1.0000	0.0524
1985	SBW-19-18.5													0.0084										0.0327			0.0000	1.0000	0.0533
1986	SBW-20-18.5													0.0084										0.0327			0.0000	1.0000	0.0530
1987	SBW-21-18.5													0.0084										0.0327			0.0000	1.0000	0.0542
1988	SBW-22-15													0.0068										0.0416			0.0000	1.0000	0.0427
1989	SBW-22-18.5													0.0084										0.0399			0.0000	1.0000	0.0518
1990	SBW-22-20													0.0091										0.0392			0.0000	1.0000	0.0563
1991	SBW-22-25													0.0114										0.0368			0.0000	1.0000	0.0703
1992	SBW-23-15													0.0068										0.0416			0.0000	1.0000	0.0412
1993	SBW-23-18.5													0.0084										0.0399			0.0000	1.0000	0.0516
1994	SBW-23-20													0.0091										0.0392			0.0000	1.0000	0.0554
1995	SBW-23-25													0.0114										0.0368			0.0000	1.0000	0.0675
1996	SBW-24-18.5													0.0084										0.0001			0.0000	1.0000	
1997	SBW-25-15													0.0068										0.0416			0.0000	1.0000	0.0418
1998	SBW-25-18.5													0.0084										0.0399			0.0000	1.0000	0.0516
1999	SBW-25-20													0.0091										0.0392			0.0000	1.0000	0.0559
2000	SBW-25-25													0.0114										0.0368			0.0000	1.0000	0.0686
2001	SBW-26-18.5													0.0084										0.0399			0.0000	1.0000	
2002	SBW-27-18.5													0.0084										0.0598			0.0000	1.0000	
2003	HTB651					0.0003								0.0023	0.0029										0.0012			1.0000	
2004	HTB651Cr0.6					0.0003								0.0023	0.0029										0.0012			1.0000	
2005	HTB651Cr0.8					0.0003								0.0023	0.0029										0.0012			1.0000	
2006	HTB651P5					0.0003								0.0023	0.0028										0.0012			1.0000	
2007	HTB651P7					0.0003								0.0023	0.0028										0.0012			1.0000	
2008	HTB651P9					0.0003								0.0023	0.0028										0.0012			1.0000	
2009	HTB651Ti1					0.0003								0.0023	0.0028				0.0100						0.0012			1.0000	
2010	HTB651Ti3					0.0003								0.0023	0.0028				0.0300						0.0012			1.0000	
2011	HTB651Ti5					0.0003								0.0022	0.0027				0.0500						0.0012			1.0000	
2012	NP-BL							0.0016		0.0008					0.0001				0.0017								0.0001	1.0000	
2013	NP-Si-3							0.0014		0.0007					0.0001				0.0015								0.0001	1.0000	
2014	NP-Si-4							0.0014		0.0007					0.0001				0.0014								0.0001	1.0000	
2015	NP-Al-1							0.0017		0.0009					0.0001				0.0018								0.0001	1.0000	
2016	NP-Al-2							0.0017		0.0009					0.0001				0.0018								0.0001	1.0000	
2017	NP-Al-3							0.0015		0.0008					0.0001				0.0016								0.0001	1.0000	
2018	NP-Al-4							0.0015		0.0007					0.0001				0.0016								0.0001	1.0000	
2019	NP-Na-1							0.0017		0.0009					0.0001				0.0018								0.0001	1.0000	
2020	NP-Na-2							0.0017		0.0009					0.0001				0.0018								0.0001	1.0000	
2021	NP-Li-1							0.0017		0.0008					0.0001				0.0018								0.0001	1.0000	
2022	NP-Li-2							0.0015		0.0008					0.0001				0.0016								0.0001	1.0000	
2023	NP-B-1							0.0017		0.0009					0.0001				0.0018								0.0001	1.0000	
2024	NP-B-2							0.0014		0.0007					0.0001				0.0015								0.0001	1.0000	
2025	NP-K-1							0.0016		0.0008					0.0001				0.0016								0.0001	1.0000	
2026	NP-K-2							0.0015		0.0008					0.0001				0.0016								0.0001	1.0000	
2027	NP-Ca-1							0.0016		0.0008					0.0001				0.0017								0.0001	1.0000	
2028	NP-Ca-2							0.0015		0.0007					0.0001				0.0015								0.0001	1.0000	
2029	NP-Fe-1							0.0016		0.0008					0.0001				0.0017								0.0001	1.0000	
2030	NP-Fe-2							0.0016		0.0008					0.0001				0.0017								0.0001	1.0000	
2031	NP-Fe-3							0.0015		0.0008					0.0001				0.0016								0.0001	1.0000	
2032	WVCM30																											0.0000	0.0289
2033	WVCM32																											0.0000	0.0290
2034	WVCM34																											0.0000	0.0457
2035	WVCM39																											0.0000	0.0306
2036	WVCM40																											0.0000	0.0300
2037	WVCM41																											0.0000	0.0296
2038	WVCM51																											0.0000	0.0988
2039	WVCM52																											0.0000	0.1033
2040	WVCM54																											0.0000	0.1014
2041	WVCM62																											0.0000	0.0645
2042	WVUTH9																											0.0000	0.0294
2043	WVUTH16																											0.0000	0.0998
2044	WVUTH20																											0.0000	0.1004
2045	WVUTH27																											0.0000	0.0976
2046	WVUTH29																											0.0000	0.1162
2047	WVUTH50																											0.0000	0.0992
2048	WVUTH 60																											0.0000	0.0927
2049	WVUTH 76																											0.0000	
2050	WVUTH 85																											0.0000	0.0450

#	Glass ID	B2O3-a	CaO-a	Fe2O3-a	FeO-a	K2O-a	Li2O-a	MgO-a	Na2O-a	NiO-a	P2O5-a	SiO2-a	ZrO2-a	Ag2O-a	As2O3-a	As2O5-a	BaO-a	BeO-a	Bi2O3-a	Br-a	CdO-a	Ce2O3-a	CeO2-a	Cl-a	CoO-a	Co2O3-a	Cr2O3-a	Cs2O-a	CuO-a	F-a
1969	SBW1-58	0.1031	0.0108	0.0761		0.0256	0.0340		0.1379	0.0008	0.0062	0.4444	0.0057				0.0360				0.0017			0.0012			0.0010			0.0032
1970	SBW1-59	0.0986	0.0127	0.0709		0.0313	0.0326		0.1665	0.0009	0.0075	0.4248	0.0066				0.0335				0.0020			0.0014			0.0011			0.0040
1971	SBW1-60	0.1108	0.0274	0.0797		0.0224	0.0366		0.1191	0.0007	0.0054	0.4794	0.0048				0.0194				0.0014			0.0009			0.0008			0.0021
1972	SBW1-61	0.1026	0.0282	0.0744		0.0259	0.0339		0.1399	0.0008	0.0063	0.4371	0.0055				0.0174				0.0016			0.0013			0.0010			0.0035
1973	SBW1-62	0.0979	0.0300	0.0718		0.0306	0.0315		0.1695	0.0009	0.0074	0.4290	0.0069				0.0167				0.0021			0.0012			0.0011			0.0039
1974	SBW1-63	0.1474	0.0010	0.0009		0.0002	0.0811		0.0503	0.0003	0.0001	0.5181	0.0315				0.0001				0.0000			0.0002			0.0001			0.0003
1975	SBW1-64	0.1260	0.0012	0.0008		0.0241	0.0619		0.0881	0.0001	0.0107	0.5323	0.0911				0.0001				0.0000			0.0001			0.0001			0.0006
1976	SBW-11-18.5	0.1060	0.0465	0.0163		0.0121	0.0527	0.0159	0.1100			0.5410	0.0189														0.0004		0.0001	
1977	SBW-11-30																													
1978	SBW-12-18.5	0.0486	0.0456	0.0150		0.0148	0.0488	0.0150	0.1540	0.0003		0.5410	0.0197														0.0004		0.0001	
1979	SBW-13-18.5	0.0921	0.0039	0.0144		0.0822	0.0475	0.0005	0.1110	0.0002		0.5240	0.0196														0.0004		0.0001	
1980	SBW-14-18.5	0.1130	0.0456	0.0150		0.0149	0.0486	0.0150	0.1120	0.0002		0.5430	0.0194														0.0004		0.0001	
1981	SBW-15-18.5	0.0554	0.0701	0.0683		0.0145	0.0477	0.0045	0.1490	0.0002		0.5240	0.0002														0.0004		0.0001	
1982	SBW-16-18.5	0.1080	0.0619	0.0031		0.0145	0.0473	0.0005	0.1130	0.0003		0.5710	0.0001														0.0006		0.0001	
1983	SBW-17-18.5	0.1000	0.0180	0.0959		0.0124	0.0321		0.0987			0.5360	0.0000														0.0003		0.0001	
1984	SBW-18-18.5	0.0989	0.0177	0.0969		0.0127	0.0218		0.1240			0.5140	0.0074														0.0003		0.0001	
1985	SBW-19-18.5	0.0986	0.0180	0.0989		0.0128	0.0214		0.1260			0.5090	0.0076														0.0003		0.0001	
1986	SBW-20-18.5	0.0985	0.0371	0.1000		0.0127	0.0213		0.1260			0.4990	0.0078														0.0004		0.0001	
1987	SBW-21-18.5	0.0829	0.0382	0.1010		0.0127	0.0210		0.1260			0.5170	0.0076														0.0005		0.0001	
1988	SBW-22-15	0.0528	0.0423	0.0176		0.0125	0.0497	0.0161	0.1129	0.0002	0.0013	0.5842	0.0196														0.0003		0.0000	
1989	SBW-22-18.5	0.0489	0.0406	0.0150		0.0149	0.0479	0.0152	0.1281	0.0002	0.0015	0.5393	0.0182														0.0007		0.0001	
1990	SBW-22-20	0.0467	0.0407	0.0147		0.0166	0.0462	0.0151	0.1350	0.0002	0.0017	0.5500	0.0182														0.0006		0.0001	
1991	SBW-22-25	0.0435	0.0400	0.0149		0.0210	0.0430	0.0146	0.1620	0.0002	0.0021	0.5222	0.0176														0.0006		0.0001	
1992	SBW-23-15	0.1020		0.0167		0.0427	0.0544	0.0004	0.0932	0.0002	0.0017	0.5630	0.0201														0.0003		0.0003	
1993	SBW-23-18.5	0.0972	0.0017	0.0163		0.0438	0.0528	0.0006	0.1110	0.0002	0.0020	0.5240	0.0192														0.0004		0.0003	
1994	SBW-23-20	0.0955	0.0015	0.0167		0.0450	0.0522	0.0006	0.1180	0.0002	0.0021	0.5240	0.0190														0.0005		0.0003	
1995	SBW-23-25	0.0884	0.0025	0.0166		0.0446	0.0485	0.0009	0.1410	0.0003	0.0024	0.4990	0.0182														0.0005		0.0003	
1996	SBW-24-18.5																													
1997	SBW-25-15	0.1010	0.0494	0.1030		0.0112	0.0295	0.0155	0.0760	0.0001	0.0017	0.4860	0.0201														0.0003		0.0003	
1998	SBW-25-18.5	0.0959	0.0473	0.0998		0.0145	0.0277	0.0150	0.0952	0.0003	0.0019	0.4580	0.0190														0.0005		0.0010	
1999	SBW-25-20	0.0966	0.0484	0.1000		0.0145	0.0275	0.0149	0.1060	0.0002	0.0021	0.4240	0.0200														0.0014		0.0003	
2000	SBW-25-25	0.0911	0.0473	0.0978		0.0184	0.0258	0.0144	0.1240	0.0002	0.0025	0.4560	0.0178														0.0007		0.0004	
2001	SBW-26-18.5																													
2002	SBW-27-18.5																													
2003	HTB651																													
2004	HTB651Cr0.6																													
2005	HTB651Cr0.8																													
2006	HTB651P5																													
2007	HTB651P7																													
2008	HTB651P9																													
2009	HTB651Ti1																													
2010	HTB651Ti3																													
2011	HTB651Ti5																													
2012	NP-BL																													
2013	NP-Si-3																													
2014	NP-Si-4																													
2015	NP-Al-1																													
2016	NP-Al-2																													
2017	NP-Al-3																													
2018	NP-Al-4																													
2019	NP-Na-1																													
2020	NP-Na-2																													
2021	NP-Li-1																													
2022	NP-Li-2																													
2023	NP-B-1																													
2024	NP-B-2																													
2025	NP-K-1																													
2026	NP-K-2																													
2027	NP-Ca-1																													
2028	NP-Ca-2																													
2029	NP-Fe-1																													
2030	NP-Fe-2																													
2031	NP-Fe-3																													
2032	WVCM30	0.1015	0.0063	0.1241		0.0365	0.0309	0.0107	0.1115	0.0900	0.0256	0.4574	0.0267				0.0000						0.0013		0.0000	0.0032	0.0009	0.0000	
2033	WVCM32	0.1423	0.0063	0.1247		0.0365	0.0309	0.0045	0.1115	0.0920	0.0257	0.4168	0.0377				0.0000						0.0014		0.0000	0.0032	0.0008	0.0000	
2034	WVCM34	0.1012	0.0312	0.0983		0.0188	0.0303	0.0142	0.1147	0.0108	0.0306	0.4430	0.0193				0.0000						0.0011		0.0012	0.0018	0.0000	0.0005	
2035	WVCM39	0.0978	0.0099	0.1247		0.0201	0.0271	0.0096	0.1327	0.0040	0.0268	0.4333	0.0056				0.0023						0.0007		0.0003	0.0014	0.0008	0.0005	
2036	WVCM40	0.0983	0.0097	0.1228		0.0353	0.0298	0.0129	0.1075	0.0035	0.0247	0.4426	0.0046				0.0023						0.0007		0.0003	0.0030	0.0008	0.0005	
2037	WVCM41	0.0887	0.0089	0.1240		0.0354	0.0299	0.0129	0.0980	0.0034	0.0248	0.4635	0.0042				0.0021						0.0007		0.0003	0.0031	0.0008	0.0005	
2038	WVCM51	0.1228	0.0082	0.1193		0.0160	0.0222	0.0079	0.0980	0.0030	0.0248	0.3961	0.0039				0.0019						0.0070		0.0002	0.0014	0.0007	0.0004	
2039	WVCM52	0.1272	0.0084	0.1240		0.0164	0.0236	0.0081	0.1017	0.0031	0.0261	0.3738	0.0040				0.0020						0.0072		0.0002	0.0015	0.0007	0.0004	
2040	WVCM54	0.1247	0.0050	0.1287		0.0016	0.0180	0.0016	0.1142	0.0025	0.0260	0.4077	0.0019										0.0071			0.0014	0.0007			
2041	WVCM62	0.1289	0.0068	0.1202		0.0319	0.0271	0.0089	0.0982	0.0025	0.0237	0.4116	0.0032				0.0016						0.0016		0.0002	0.0014	0.0008	0.0003	
2042	WVUTH9	0.0963	0.0095	0.1203		0.0345	0.0292	0.0126	0.1053	0.0035	0.0242	0.4337	0.0045				0.0022						0.0007		0.0003	0.0030	0.0008	0.0005	
2043	WVUTH16	0.1241	0.0073	0.1234		0.0197	0.0201	0.0182	0.0911	0.0035	0.0255	0.3875	0.0035				0.0017						0.0048		0.0002	0.0032	0.0007	0.0004	
2044	WVUTH20	0.1251	0.0083	0.1216		0.0194	0.0198	0.0128	0.0993	0.0034	0.0251	0.3882	0.0046				0.0017						0.0071		0.0002	0.0031	0.0007	0.0004	
2045	WVUTH27	0.1124	0.0071	0.1356		0.0191	0.0220	0.0126	0.0964	0.0034	0.0247	0.3814	0.0044				0.0017						0.0081		0.0002	0.0031	0.0006	0.0004	
2046	WVUTH29	0.1203	0.0080	0.1169		0.0157	0.0217	0.0078	0.0960	0.0029	0.0242	0.3882	0.0038				0.0019						0.0068		0.0002	0.0014	0.0007	0.0004	
2047	WVUTH50	0.1221	0.0080	0.1191		0.0157	0.0227	0.0078	0.0976	0.0029	0.0250	0.3588	0.0038				0.0019						0.0069		0.0002	0.0014	0.0007	0.0004	
2048	WVUTH 60	0.1154	0.0077	0.1721		0.0150	0.0208	0.0075	0.0920	0.0028	0.0232	0.3722	0.0036				0.0018						0.0065		0.0002	0.0013	0.0007	0.0004	
2049	WVUTH 76																													
2050	WVUTH 85	0.1066	0.0082	0.1506		0.0368	0.0315	0.0090	0.1140	0.0030	0.0236	0.3992	0.0039				0.0020						0.0070		0.0003	0.0014	0.0008	0.0004	

#	Glass ID	Ga2O3-a	Gd2O3-a	I-a	La2O3-a	MnO2-a	MnO-a	MoO-a	MoO3-a	Nb2O5-a	Nd2O3-a	NpO2-a	PbO-a	PdO2-a	PdO-a	Pr2O3-a	Pr6O11-a	PuO2-a	Rb2O-a	ReO-a	ReO2-a	Re2O7-a	Rh2O3-a	RhO2-a	RuO2-a	Sb2O3-a	Sb2O5-a	SeO2-a
1969	SBW1-58						0.0031																					
1970	SBW1-59						0.0037																					
1971	SBW1-60						0.0026																					
1972	SBW1-61						0.0031																					
1973	SBW1-62						0.0038																					
1974	SBW1-63						0.0000																					
1975	SBW1-64						0.0000																					
1976	SBW-11-18.5		0.0001				0.0014																					
1977	SBW-11-30																											
1978	SBW-12-18.5						0.0015						0.0005															
1979	SBW-13-18.5						0.0015						0.0004															
1980	SBW-14-18.5						0.0015						0.0004															
1981	SBW-15-18.5												0.0005															
1982	SBW-16-18.5						0.0015						0.0004															
1983	SBW-17-18.5						0.0014						0.0004															
1984	SBW-18-18.5						0.0014						0.0004															
1985	SBW-19-18.5						0.0014						0.0004															
1986	SBW-20-18.5						0.0014						0.0004															
1987	SBW-21-18.5						0.0014						0.0004															
1988	SBW-22-15		0.0001				0.0012		0.0010				0.0004															
1989	SBW-22-18.5		0.0001				0.0014		0.0010				0.0004															
1990	SBW-22-20		0.0001				0.0015		0.0010				0.0005															
1991	SBW-22-25		0.0001				0.0020		0.0009				0.0006															
1992	SBW-23-15		0.0001				0.0012						0.0003															
1993	SBW-23-18.5		0.0001				0.0015						0.0004															
1994	SBW-23-20		0.0001				0.0016						0.0005															
1995	SBW-23-25		0.0001				0.0020		0.0001				0.0006															
1996	SBW-24-18.5																											
1997	SBW-25-15						0.0012						0.0004															
1998	SBW-25-18.5		0.0001				0.0015		0.0001				0.0007															
1999	SBW-25-20						0.0016		0.0001				0.0005															
2000	SBW-25-25						0.0021		0.0001				0.0006															
2001	SBW-26-18.5																											
2002	SBW-27-18.5																											
2003	HTB651																											
2004	HTB651Cr0.6																											
2005	HTB651Cr0.8																											
2006	HTB651P5																											
2007	HTB651P7																											
2008	HTB651P9																											
2009	HTB651Ti1																											
2010	HTB651Ti3																											
2011	HTB651Ti5																											
2012	NP-BL																											
2013	NP-Si-3																											
2014	NP-Si-4																											
2015	NP-Al-1																											
2016	NP-Al-2																											
2017	NP-Al-3																											
2018	NP-Al-4																											
2019	NP-Na-1																											
2020	NP-Na-2																											
2021	NP-Li-1																											
2022	NP-Li-2																											
2023	NP-B-1																											
2024	NP-B-2																											
2025	NP-K-1																											
2026	NP-K-2																											
2027	NP-Ca-1																											
2028	NP-Ca-2																											
2029	NP-Fe-1																											
2030	NP-Fe-2																											
2031	NP-Fe-3																											
2032	WVCM30		0.0001		0.0006	0.0134					0.0004					0.0001												
2033	WVCM32		0.0002		0.0012	0.0134					0.0009					0.0003												
2034	WVCM34		0.0001		0.0005	0.0233					0.0004					0.0001												
2035	WVCM39				0.0003	0.0147					0.0019					0.0001												
2036	WVCM40				0.0003	0.0144					0.0018					0.0001												
2037	WVCM41				0.0003	0.0132					0.0018					0.0001												
2038	WVCM51				0.0004	0.0121			0.0004		0.0014					0.0004												
2039	WVCM52				0.0004	0.0124			0.0004		0.0010																	
2040	WVCM54				0.0013	0.0100			0.0004		0.0014																	
2041	WVCM62				0.0004	0.0101			0.0004		0.0014				0.0003	0.0004								0.0002	0.0008			
2042	WVUTH9				0.0003	0.0141					0.0018					0.0001												
2043	WVUTH16				0.0002	0.0133					0.0018																	
2044	WVUTH20				0.0002	0.0131					0.0018																	
2045	WVUTH27				0.0002	0.0128					0.0018																	
2046	WVUTH29				0.0004	0.0119			0.0004		0.0014				0.0002	0.0004								0.0002	0.0003			
2047	WVUTH50				0.0004	0.0119			0.0004		0.0010																	
2048	WVUTH 60				0.0004	0.0114			0.0004		0.0013				0.0002	0.0004								0.0002	0.0003			
2049	WVUTH 76																											
2050	WVUTH 85				0.0005	0.0122			0.0004		0.0014					0.0004												

#	Glass ID	Sm2O3-a	SnO-a	SnO2-a	SO3-a	SrO-a	Tc2O7-a	TeO2-a	ThO2-a	TiO2-a	Tl2O-a	Tl2O3-a	U3O8-a	UO2-a	UO3-a	V2O5-a	WO3-a	Y2O3-a	ZnO-a	Sum-a	T_M (°C)	$T_{L,G}$ (°C)	$T_{L,U}$ (°C)	$T_{1\%}$ (°C)	Primary Phase	$C_{650°C}$	$C_{700°C}$	$C_{750°C}$
1969	SBW1-58				0.0049											0.0396				0.9789	1150		748		K(Si3Al)O8			
1970	SBW1-59				0.0059															1.0096	1150		793		Na6(AlSiO4)6			
1971	SBW1-60				0.0047															0.9927	1150		773		(Na,K)(Si3Al)O8			
1972	SBW1-61				0.0050															0.9772	1150		766		K(Si3Al)O8			
1973	SBW1-62				0.0058															1.0171	1150		828		Na6(AlSiO4)6			
1974	SBW1-63				0.0001															0.9813	1150		878		LiAlSi2O6			
1975	SBW1-64				0.0001															0.9763	1150		888		NaLiZrSi6O15			
1976	SBW-11-18.5				0.0075											0.0396				1.0217								
1977	SBW-11-30																			0.0000								
1978	SBW-12-18.5				0.0082															0.9651								
1979	SBW-13-18.5				0.0082															0.9565								
1980	SBW-14-18.5				0.0072															0.9876								
1981	SBW-15-18.5				0.0084															0.9941								
1982	SBW-16-18.5				0.0074															0.9808								
1983	SBW-17-18.5				0.0048											0.0009				0.9532								
1984	SBW-18-18.5				0.0060											0.0164				0.9704								
1985	SBW-19-18.5				0.0057											0.0324				0.9860								
1986	SBW-20-18.5				0.0059											0.0331				0.9966								
1987	SBW-21-18.5				0.0058											0.0329				1.0017								
1988	SBW-22-15				0.0060											0.0401			0.0000	1.0009								
1989	SBW-22-18.5				0.0074											0.0374			0.0000	0.9701								
1990	SBW-22-20				0.0081											0.0369			0.0000	0.9901								
1991	SBW-22-25				0.0107											0.0349			0.0000	1.0012								
1992	SBW-23-15				0.0061											0.0377			0.0002	0.9818								
1993	SBW-23-18.5				0.0078											0.0357			0.0001	0.9668								
1994	SBW-23-20				0.0084											0.0357			0.0001	0.9774								
1995	SBW-23-25				0.0112											0.0325			0.0001	0.9773								
1996	SBW-24-18.5																			0.0000								
1997	SBW-25-15				0.0051											0.0381			0.0002	0.9809								
1998	SBW-25-18.5				0.0058											0.0357			0.0004	0.9720								
1999	SBW-25-20				0.0059											0.0359			0.0001	0.9560								
2000	SBW-25-25				0.0085											0.0340			0.0002	1.0104								
2001	SBW-26-18.5																			0.0000								
2002	SBW-27-18.5																			0.0000								
2003	HTB651																			0.0000								
2004	HTB651Cr0.6																			0.0000								
2005	HTB651Cr0.8																			0.0000								
2006	HTB651P5																			0.0000								
2007	HTB651P7																			0.0000								
2008	HTB651P9																			0.0000								
2009	HTB651Ti1																			0.0000								
2010	HTB651Ti3																			0.0000								
2011	HTB651Ti5																			0.0000								
2012	NP-BL																			0.0000								
2013	NP-Si-3																			0.0000								
2014	NP-Si-4																			0.0000								
2015	NP-Al-1																			0.0000								
2016	NP-Al-2																			0.0000								
2017	NP-Al-3																			0.0000								
2018	NP-Al-4																			0.0000								
2019	NP-Na-1																			0.0000								
2020	NP-Na-2																			0.0000								
2021	NP-Li-1																			0.0000								
2022	NP-Li-2																			0.0000								
2023	NP-B-1																			0.0000								
2024	NP-B-2																			0.0000								
2025	NP-K-1																			0.0000								
2026	NP-K-2																			0.0000								
2027	NP-Ca-1																			0.0000								
2028	NP-Ca-2																			0.0000								
2029	NP-Fe-1																			0.0000								
2030	NP-Fe-2																			0.0000								
2031	NP-Fe-3																			0.0000								
2032	WVCM30	0.0001			0.0031	0.0003			0.0000	0.0073				0.0000				0.0002	0.0000	1.0811								
2033	WVCM32	0.0002			0.0032	0.0004			0.0000	0.0000				0.0000					0.0000	1.0831								
2034	WVCM34	0.0001			0.0026				0.0000	0.0098				0.0000					0.0005	1.0001								
2035	WVCM39	0.0001			0.0022				0.0363	0.0099				0.0060					0.0004	1.0001								
2036	WVCM40	0.0001			0.0022				0.0357	0.0098				0.0059					0.0004	1.0000								
2037	WVCM41	0.0001			0.0022				0.0355	0.0097				0.0059					0.0003	0.9999								
2038	WVCM51	0.0003			0.0022	0.0002			0.0352	0.0082				0.0061				0.0002	0.0003	1.0000								
2039	WVCM52	0.0002			0.0023	0.0002			0.0366	0.0084				0.0060					0.0003	0.9999								
2040	WVCM54				0.0023				0.0360					0.0059						0.9998								
2041	WVCM62	0.0003			0.0023	0.0002			0.0356	0.0080				0.0059				0.0002	0.0002	1.0001								
2042	WVUTH9	0.0001			0.0021				0.0350	0.0298				0.0058					0.0003	0.9999								
2043	WVUTH16								0.0364	0.0074				0.0060					0.0003	1.0001								
2044	WVUTH20								0.0358	0.0073				0.0059					0.0003	1.0056								
2045	WVUTH27								0.0404	0.0072				0.0067					0.0003	1.0002								
2046	WVUTH29	0.0002			0.0022	0.0002			0.0345	0.0081				0.0060				0.0002	0.0003	1.0000								
2047	WVUTH50	0.0002			0.0022	0.0002			0.0352	0.0481				0.0058					0.0003	0.9999								
2048	WVUTH 60	0.0002			0.0021	0.0002			0.0331	0.0077				0.0057				0.0002	0.0003	1.0000								
2049	WVUTH 76																			0.0000								
2050	WVUTH 85	0.0003			0.0023	0.0002			0.0356	0.0083				0.0058					0.0003	1.0110								

#	Glass ID	$C_{800°C}$	$C_{850°C}$	$C_{900°C}$	$C_{950°C}$	$C_{1000°C}$	$C_{1050°C}$	$C_{1100°C}$	$C_{1150°C}$	$C_{1200°C}$	Quenched Visual/OM	Quenched XRD	CCC XRD	ρ (g/cm³)	Fulc Visc A	Fulc Visc B	Fulc Visc To	Arrh Visc E	Arrh Visc F	T1 (°C)	V1 (Pa·s)
1969	SBW1-58										Clear brown glass with black spe	Amorphous	Amorphous	2.637				-9.647	15607.0	1156.8	3.472
1970	SBW1-59										Clear dark brown glass with blacl	Amorphous	Amorphous	2.639				-9.504	15071.0	1155.4	2.793
1971	SBW1-60										Clear brown glass with black spe	Amorphous	Amorphous	2.610				-10.036	16410.0	1157.5	4.137
1972	SBW1-61										Clear brown glass with black spe	Amorphous	Amorphous	2.618				-9.804	15716.0	1155.4	3.247
1973	SBW1-62										Clear dark brown glass with blacl	Amorphous	Amorphous	2.624				-9.638	15230.0	1155.2	2.777
1974	SBW1-63										Clear blue glass with lots of air bu	Amorphous	Amorphous	2.430				-10.113	17680.0	1157.6	9.186
1975	SBW1-64										Clear blue glass with lots of air bu	Amorphous	Amorphous	2.570				-12.395	20569.0	1157.5	7.029
1976	SBW-11-18.5																	-8.682	14283.8	1150.0	3.920
1977	SBW-11-30																				
1978	SBW-12-18.5																				
1979	SBW-13-18.5																				
1980	SBW-14-18.5																				
1981	SBW-15-18.5																				
1982	SBW-16-18.5																				
1983	SBW-17-18.5																	-8.353	15801.1	1150.0	16.392
1984	SBW-18-18.5																				
1985	SBW-19-18.5																				
1986	SBW-20-18.5																	-8.934	15147.9	1154.5	5.352
1987	SBW-21-18.5																	-8.488	14810.3	1148.5	6.986
1988	SBW-22-15																	-10.123	17398.0	1150.0	8.255
1989	SBW-22-18.5																	-10.122	17137.9	1151.5	6.711
1990	SBW-22-20																	-9.986	16871.6	1154.0	6.201
1991	SBW-22-25																	-9.954	16499.6	1145.5	5.303
1992	SBW-23-15																				
1993	SBW-23-18.5																	-9.350	15767.2	1150.0	5.638
1994	SBW-23-20																				
1995	SBW-23-25																				
1996	SBW-24-18.5																				
1997	SBW-25-15																				
1998	SBW-25-18.5																	-10.796	17984.2	1145.0	6.521
1999	SBW-25-20																	-10.215	17032.8	1151.1	5.596
2000	SBW-25-25																	-9.426	15478.7	1150.5	4.206
2001	SBW-26-18.5																	-11.308	18781.8	1149.5	6.578
2002	SBW-27-18.5																	-10.962	18222.3	1151.0	6.386
2003	HTB651																				
2004	HTB651Cr0.6																				
2005	HTB651Cr0.8																				
2006	HTB651P5																				
2007	HTB651P7																				
2008	HTB651P9																				
2009	HTB651Ti1																				
2010	HTB651Ti3																				
2011	HTB651Ti5																				
2012	NP-BL												0.4 vol% crystalline (85% nepheline, 5% Na(Si3Al)O8, 10% Mn3B2O6)								
2013	NP-Si-3												0.01 vol% crystalline								
2014	NP-Si-4												0.01 vol% crystalline								
2015	NP-Al-1												0.01 vol% crystalline (Ag)								
2016	NP-Al-2												0.01 vol% crystalline (Ag)								
2017	NP-Al-3												0.5 vol% crystalline (85% nepheline, 5% Na(Si3Al)O8, 10% Mn3B2O6)								
2018	NP-Al-4												0.5 vol% crystalline (80% nepheline, 10% Na(Si3Al)O8, 10% Mn3B2O6)								
2019	NP-Na-1												0.2 vol% crystalline (75% nepheline, 5% SiO2, 15% spinel, 5% Mn3B2O6)								
2020	NP-Na-2												0.4 vol% crystalline (90% nepheline, 1% SiO2, <5% spinel, <5% Mn3B2O6)								
2021	NP-Li-1												0.01 vol% crystalline (45% nepheline, 55% Ag)								
2022	NP-Li-2												0.6 vol% crystalline (55% nepheline, 35% Li2SiO3, <5% Li8SiO6, 10% spinel)								
2023	NP-B-1												0.6 vol% crystalline (10% nepheline, 90% NaAlSiO4)								
2024	NP-B-2												0.01 vol% crystalline (Ag)								
2025	NP-K-1												0.45 vol% crystalline (>95% nepheline, <5% SiO2, 1% Li2SiO3)								
2026	NP-K-2												0.5 vol% crystalline (95% nepheline, 5% Li2SiO3)								
2027	NP-Ca-1												0.45 vol% crystalline (90% nepheline, 10% Li2SiO3)								
2028	NP-Ca-2												0.35 vol% crystalline (75% nepheline, 25% spinel)								
2029	NP-Fe-1												0.35 vol% crystalline (90% nepheline, 5% Li2SiO3, 5% unknown)								
2030	NP-Fe-2												0.3 vol% crystalline (90% nepheline, 5% Li2SiO3, 5% unknown)								
2031	NP-Fe-3												0.45 vol% crystalline (70% nepheline, 5% Li2SiO3, 15% spinel, 10% Fe2O3)								
2032	WVCM30																			1150.0	8.700
2033	WVCM32																			1150.0	3.200
2034	WVCM34																			1150.0	5.000
2035	WVCM39																			1150.0	3.700
2036	WVCM40																			1150.0	4.500
2037	WVCM41																			1150.0	7.300
2038	WVCM51																				
2039	WVCM52																				
2040	WVCM54																				
2041	WVCM62																			1150.0	4.023
2042	WVUTH9																				
2043	WVUTH16																				
2044	WVUTH20																				
2045	WVUTH27																				
2046	WVUTH29																				
2047	WVUTH50																				
2048	WVUTH 60																				
2049	WVUTH 76																				
2050	WVUTH 85																				

#	Glass ID	T2 (°C)	V2 (Pa·s)	T3 (°C)	V3 (Pa·s)	T4 (°C)	V4 (Pa·s)	T5 (°C)	V5 (Pa·s)	T6 (°C)	V6 (Pa·s)	T7 (°C)	V7 (Pa·s)	T8 (°C)	V8 (Pa·s)	T9 (°C)	V9 (Pa·s)	T10 (°C)	V10 (Pa·s)	TCLP Ag	TCLP As	TCLP Ba	TCLP Cd	TCLP Cr	TCLP Ni	TCLP Pb
1969	SBW1-58	1081.225	6.313	1006.37	12.6	956.7	21.7	1254.6	1.8	1155.3	3.6															
1970	SBW1-59	1080.51	4.972	1005.885	9.7	956.3	16.1	1254.3	1.5	1155.2	2.9															
1971	SBW1-60	1082.38	7.662	1007.505	15.9	957.8	28.0	1255.9	2.1	1156.5	4.1															
1972	SBW1-61	1080.095	5.893	1005.125	11.9	955.4	20.6	1254.4	1.7	1155.5	3.3															
1973	SBW1-62	1079.43	4.936	1004.53	9.7	954.9	16.3	1252.8	1.4	1153.4	2.8															
1974	SBW1-63	1082.59	17.959	1007.66	39.5	958.0	73.0	1256.1	4.5	1157.1	9.4															
1975	SBW1-64	1082.645	15.251	1007.69	38.4	958.1	78.7	1256.0	3.1	1156.4	7.2															
1976	SBW-11-18.5	1095.5	5.776	1043	8.7	1150.5	3.9	1206.0	2.6	1151.1	3.9															
1977	SBW-11-30																									
1978	SBW-12-18.5																									
1979	SBW-13-18.5																									
1980	SBW-14-18.5																									
1981	SBW-15-18.5																									
1982	SBW-16-18.5																									
1983	SBW-17-18.5	1089	25.515	1046	37.4	1147.0	15.8	1199.5	10.5	1150.0	15.7															
1984	SBW-18-18.5																									
1985	SBW-19-18.5																									
1986	SBW-20-18.5	1100.5	8.435	1046	12.5	1150.5	5.5	1201.0	3.8	1150.0	5.6															
1987	SBW-21-18.5	1090	11.477	1052.5	13.9	1147.0	7.0	1201.0	4.6	1152.0	6.7															
1988	SBW-22-15	1094.5	13.366	1048	21.2	1152.0	8.0	1200.5	5.4	1151.0	8.1															
1989	SBW-22-18.5	1098.5	10.681	1050	17.1	1152.0	6.7	1201.0	4.5	1150.0	6.8															
1990	SBW-22-20	1098	10.098	1052	15.7	1151.5	6.4	1207.0	4.1	1150.0	6.5															
1991	SBW-22-25	1091.5	8.395	1044.5	13.2	1151.0	5.1	1201.0	3.5	1150.0	5.2															
1992	SBW-23-15																									
1993	SBW-23-18.5	1099	8.622	1043	13.8	1149.5	5.6	1204.0	3.7	1151.0	5.7															
1994	SBW-23-20																									
1995	SBW-23-25																									
1996	SBW-24-18.5																									
1997	SBW-25-15																									
1998	SBW-25-18.5	1094.5	10.507	1045.5	17.3	1150.0	6.3	1207.0	3.9	1151.5	6.2															
1999	SBW-25-20	1094.5	9.345	1043.5	15.5	1150.0	5.7	1216.0	3.5																	
2000	SBW-25-25	1097	6.399	1037	10.9	1152.0	4.3	1208.0	2.7	1149.5	4.4															
2001	SBW-26-18.5	1082	12.804	1047.5	18.7	1151.0	6.5	1202.5	4.3	1150.0	6.5															
2002	SBW-27-18.5	1096	10.561	1047.5	17.0	1149.0	6.3	1200.0	4.1	1148.0	6.4															
2003	HTB651																									
2004	HTB651Cr0.6																									
2005	HTB651Cr0.8																									
2006	HTB651P5																									
2007	HTB651P7																									
2008	HTB651P9																									
2009	HTB651Ti1																									
2010	HTB651Ti3																									
2011	HTB651Ti5																									
2012	NP-BL																									
2013	NP-Si-3																									
2014	NP-Si-4																									
2015	NP-Al-1																									
2016	NP-Al-2																									
2017	NP-Al-3																									
2018	NP-Al-4																									
2019	NP-Na-1																									
2020	NP-Na-2																									
2021	NP-Li-1																									
2022	NP-Li-2																									
2023	NP-B-1																									
2024	NP-B-2																									
2025	NP-K-1																									
2026	NP-K-2																									
2027	NP-Ca-1																									
2028	NP-Ca-2																									
2029	NP-Fe-1																									
2030	NP-Fe-2																									
2031	NP-Fe-3																									
2032	WVCM30	1100	12.500																							
2033	WVCM32	1100	4.600																							
2034	WVCM34	1100	7.600																							
2035	WVCM39	1100	5.500																							
2036	WVCM40	1100	6.700																							
2037	WVCM41	1100	11.000																							
2038	WVCM51																									
2039	WVCM52																									
2040	WVCM54																									
2041	WVCM62	1100	6.205																							
2042	WVUTH9																									
2043	WVUTH16																									
2044	WVUTH20																									
2045	WVUTH27																									
2046	WVUTH29																									
2047	WVUTH50																									
2048	WVUTH 60																									
2049	WVUTH 76																									
2050	WVUTH 85																									

#	Glass ID	TCLP Se	TCLP Zn	TCLP Al	TCLP B	TCLP Sb	TCLP Tl	TCLP V	Q PCT B (g/m²)	Q PCT Li (g/m²)	Q PCT Na (g/m²)	Q PCT Si (g/m²)	Q PCT pH	CCC PCT B (g/m²)	CCC PCT Li (g/m²)	CCC PCT Na (g/m²)	CCC PCT Si (g/m²)	CCC PCT pH	T1 (°C)
1969	SBW1-58								0.859	0.715	0.810	0.203	10.990						
1970	SBW1-59								1.295	0.983	1.158	0.263	11.480						
1971	SBW1-60								0.415	0.434	0.319	0.149	10.335						
1972	SBW1-61								0.604	0.538	0.660	0.184	10.560						
1973	SBW1-62								1.033	0.768	1.019	0.253	11.240						
1974	SBW1-63								0.576	0.646	0.165	0.355	9.845						
1975	SBW1-64								1.868	1.618	0.891	0.340	10.395						
1976	SBW-11-18.5								1.428	1.468	1.307	0.496		1.257	1.305	1.177	0.465		
1977	SBW-11-30								0.598	0.558	0.720	0.251		0.494	0.514	0.604	0.226		
1978	SBW-12-18.5								0.541	0.836	0.911	0.357		0.526	0.804	0.830	0.344		
1979	SBW-13-18.5								14.883	13.479	13.341	4.165		14.928	13.467	13.334	4.177		
1980	SBW-14-18.5								1.051	1.009	0.948	0.397		0.913	0.902	0.844	0.369		
1981	SBW-15-18.5								0.298	0.614	0.691	0.165		0.232	0.546	0.564	0.142		
1982	SBW-16-18.5								0.186	0.306	0.293	0.126		0.135	0.248	0.226	0.105		
1983	SBW-17-18.5								0.176	0.299	0.194	0.136		0.124	0.212	0.143	0.109		
1984	SBW-18-18.5								0.191	0.275	0.223	0.127		0.290	0.359	0.310	0.161		
1985	SBW-19-18.5								0.454	0.509	0.421	0.186		0.437	0.499	0.406	0.187		
1986	SBW-20-18.5								0.341	0.417	0.367	0.162		0.290	0.378	0.325	0.149		
1987	SBW-21-18.5								0.230	0.344	0.301	0.144		0.240	0.349	0.315	0.149		
1988	SBW-22-15								0.824	0.939	0.858	0.427		0.569	0.724	0.649	0.343		
1989	SBW-22-18.5								0.350	0.578	0.558	0.258		0.365	0.596	0.548	0.265		
1990	SBW-22-20								0.388	0.617	0.611	0.267		0.299	0.547	0.516	0.236		
1991	SBW-22-25								0.376	0.721	0.803	0.302		0.341	0.694	0.714	0.285		
1992	SBW-23-15								7.049	7.020	4.338	1.677		6.754	6.647	4.160	1.629		
1993	SBW-23-18.5								7.500	6.998	6.318	1.894		7.013	7.080	5.234	1.894		
1994	SBW-23-20								8.285	7.128	6.893	2.076		7.694	6.671	6.440	1.980		
1995	SBW-23-25								8.841	7.368	9.441	2.298		7.730	6.503	8.155	2.067		
1996	SBW-24-18.5								0.722	0.760	0.719	0.328		0.664	0.668	0.625	0.311		
1997	SBW-25-15								0.750	0.654	0.429	0.200		0.516	0.472	0.303	0.169		
1998	SBW-25-18.5								0.363	0.450	0.371	0.150		0.329		0.309	0.142		
1999	SBW-25-20								0.389	0.367	0.351	0.139		0.374	0.356	0.351	0.139		
2000	SBW-25-25								0.357	0.337	0.489	0.135		0.339	0.335	0.467	0.135		
2001	SBW-26-18.5																		
2002	SBW-27-18.5																		
2003	HTB651										0.485	0.150							
2004	HTB651Cr0.6										0.480	0.150							
2005	HTB651Cr0.8										0.515	0.160							
2006	HTB651P5										0.405	0.160							
2007	HTB651P7										0.290	0.140							
2008	HTB651P9										0.265	0.140							
2009	HTB651Ti1										0.460	0.150							
2010	HTB651Ti3										0.440	0.150							
2011	HTB651Ti5										0.435	0.150							
2012	NP-BL								0.540	0.320	0.780	0.320	11.550	43.240	12.480	21.010	2.910	12.470	
2013	NP-Si-3													0.360	0.340	0.490	0.240	11.230	
2014	NP-Si-4													0.280	0.290	0.410	0.210	11.080	
2015	NP-Al-1													1.640	1.210	1.790	0.580	12.010	
2016	NP-Al-2													0.660	0.980	1.440	0.480	11.920	
2017	NP-Al-3								0.380	0.270	0.610	0.270	11.450	44.730	12.190	16.860	0.590	12.350	
2018	NP-Al-4								0.370	0.280	0.600	0.260	11.390	44.940	17.590	15.410	0.930	12.340	
2019	NP-Na-1													1.600	0.940	0.400	0.050	11.430	
2020	NP-Na-2													22.040	12.110	5.970	0.850	11.720	
2021	NP-Li-1								0.290		0.430	0.190	11.120	0.760		0.590	0.200	10.940	
2022	NP-Li-2								1.130	0.910	1.560	0.510	12.020	1.780	0.570	1.540	0.110	12.530	
2023	NP-B-1									0.750	1.900	0.470	12.200		6.840	1.170	1.040	12.530	
2024	NP-B-2								4.270	3.630	2.850	0.190	10.980	4.350	3.620	2.940	0.230	10.830	
2025	NP-K-1								1.060	0.830	1.230	0.450	11.840	48.190	12.100	27.060	3.560	12.570	
2026	NP-K-2								1.760	1.610	1.810	0.480	12.100	45.220	10.960	28.010	3.440	12.670	
2027	NP-Ca-1								0.810	0.450	0.980	0.390	11.700	46.680	8.760	21.220	3.020	12.450	
2028	NP-Ca-2								0.700	1.070	1.320	0.270	12.050	1.310	2.480	1.660	0.320	12.150	
2029	NP-Fe-1																		
2030	NP-Fe-2																		
2031	NP-Fe-3																		
2032	WVCM30																		
2033	WVCM32																		
2034	WVCM34																		
2035	WVCM39																		
2036	WVCM40																		
2037	WVCM41																		
2038	WVCM51																		
2039	WVCM52																		
2040	WVCM54																		
2041	WVCM62								0.275										
2042	WVUTH9																		
2043	WVUTH16																		
2044	WVUTH20																		
2045	WVUTH27																		
2046	WVUTH29																		
2047	WVUTH50																		
2048	WVUTH 60																		
2049	WVUTH 76																		
2050	WVUTH 85																		

#	Glass ID	EC1 (S/cm)	T2 (°C)	EC2 (S/cm)	T3 (°C)	EC3 (S/cm)	T4 (°C)	EC4 (S/cm)	T5 (°C)	EC5 (S/cm)	T6 (°C)	EC6 (S/cm)	A	B	To
1969	SBW1-58														
1970	SBW1-59														
1971	SBW1-60														
1972	SBW1-61														
1973	SBW1-62														
1974	SBW1-63														
1975	SBW1-64														
1976	SBW-11-18.5														
1977	SBW-11-30														
1978	SBW-12-18.5														
1979	SBW-13-18.5														
1980	SBW-14-18.5														
1981	SBW-15-18.5														
1982	SBW-16-18.5														
1983	SBW-17-18.5														
1984	SBW-18-18.5														
1985	SBW-19-18.5														
1986	SBW-20-18.5														
1987	SBW-21-18.5														
1988	SBW-22-15														
1989	SBW-22-18.5														
1990	SBW-22-20														
1991	SBW-22-25														
1992	SBW-23-15														
1993	SBW-23-18.5														
1994	SBW-23-20														
1995	SBW-23-25														
1996	SBW-24-18.5														
1997	SBW-25-15														
1998	SBW-25-18.5														
1999	SBW-25-20														
2000	SBW-25-25														
2001	SBW-26-18.5														
2002	SBW-27-18.5														
2003	HTB651														
2004	HTB651Cr0.6														
2005	HTB651Cr0.8														
2006	HTB651P5														
2007	HTB651P7														
2008	HTB651P9														
2009	HTB651Ti1														
2010	HTB651Ti3														
2011	HTB651Ti5														
2012	NP-BL														
2013	NP-Si-3														
2014	NP-Si-4														
2015	NP-Al-1														
2016	NP-Al-2														
2017	NP-Al-3														
2018	NP-Al-4														
2019	NP-Na-1														
2020	NP-Na-2														
2021	NP-Li-1														
2022	NP-Li-2														
2023	NP-B-1														
2024	NP-B-2														
2025	NP-K-1														
2026	NP-K-2														
2027	NP-Ca-1														
2028	NP-Ca-2														
2029	NP-Fe-1														
2030	NP-Fe-2														
2031	NP-Fe-3														
2032	WVCM30														
2033	WVCM32														
2034	WVCM34														
2035	WVCM39														
2036	WVCM40														
2037	WVCM41														
2038	WVCM51														
2039	WVCM52														
2040	WVCM54														
2041	WVCM62														
2042	WVUTH9														
2043	WVUTH16														
2044	WVUTH20														
2045	WVUTH27														
2046	WVUTH29														
2047	WVUTH50														
2048	WVUTH 60														
2049	WVUTH 76														
2050	WVUTH 85														

#	Glass ID	Study	Reference	Al2O3-t	B2O3-t	CaO-t	Fe2O3-t	FeO-t	K2O-t	Li2O-t	MgO-t	Na2O-t	NiO-t	P2O5-t	SiO2-t	ZrO2-t	Ag2O-t	As2O3-t	As2O5-t	BaO-t	BeO-t	Bi2O3-t	Br-t	CdO-t	Ce2O3-t	CeO2-t	Cl-t
2051	WVUTH 88	CUA data	Peters et al. 2003																								
2052	WVUTH 106	CUA data	Peters et al. 2003																								
2053	WVUTH 107	CUA data	Peters et al. 2003																								
2054	WVUTH 108	CUA data	Peters et al. 2003																								
2055	WVUTH 109	CUA data	Peters et al. 2003																								
2056	WVUTH110	CUA data	Peters et al. 2003																								
2057	WVUTH111	CUA data	Peters et al. 2003																								
2058	WVUTH112	CUA data	Peters et al. 2003																								
2059	WVUTH113	CUA data	Peters et al. 2003																								
2060	WVUTH114	CUA data	Peters et al. 2003																								
2061	WVUTH115	CUA data	Peters et al. 2003																								
2062	WVUTH116	CUA data	Peters et al. 2003																								
2063	WVUTH117	CUA data	Peters et al. 2003																								
2064	WVUTH118	CUA data	Peters et al. 2003																								
2065	WVUTH119	CUA data	Peters et al. 2003																								
2066	WVUTH120	CUA data	Peters et al. 2003																								
2067	WVUTH121	CUA data	Peters et al. 2003																								
2068	WVUTH122	CUA data	Peters et al. 2003																								
2069	WVUTH123	CUA data	Peters et al. 2003																								
2070	WVUTH124	CUA data	Peters et al. 2003																								
2071	WVUTH125	CUA data	Peters et al. 2003																								
2072	WVUTH126	CUA data	Peters et al. 2003																								
2073	WVUTH127	CUA data	Peters et al. 2003																								
2074	WVUTH128	CUA data	Peters et al. 2003																								
2075	WVUTH129	CUA data	Peters et al. 2003																								
2076	WVUTH130	CUA data	Peters et al. 2003																								
2077	WVUTH131	CUA data	Peters et al. 2003																								
2078	WVUTH132	CUA data	Peters et al. 2003																								
2079	WVUTH133	CUA data	Peters et al. 2003																								
2080	WVUTH134	CUA data	Peters et al. 2003																								
2081	WVUTH135	CUA data	Peters et al. 2003																								
2082	WVUTH136	CUA data	Peters et al. 2003																								
2083	WVUTH137	CUA data	Peters et al. 2003																								
2084	WVUTH138	CUA data	Peters et al. 2003																								
2085	WVUTH139	CUA data	Peters et al. 2003																								
2086	WVUTH140	CUA data	Peters et al. 2003																								
2087	WVUTH141	CUA data	Peters et al. 2003																								
2088	WVUTH142	CUA data	Peters et al. 2003																								
2089	WVUTH143	CUA data	Peters et al. 2003																								
2090	WVUTH144	CUA data	Peters et al. 2003																								
2091	WVUTH145	CUA data	Peters et al. 2003																								
2092	WVUTH146	CUA data	Peters et al. 2003																								
2093	WVUTH147	CUA data	Peters et al. 2003																								
2094	WVUTH148	CUA data	Peters et al. 2003																								
2095	WVUTH149	CUA data	Peters et al. 2003																								
2096	WVUTH150	CUA data	Peters et al. 2003																								
2097	WVUTH151	CUA data	Peters et al. 2003																								
2098	WVUTH152	CUA data	Peters et al. 2003																								
2099	WVUTH153	CUA data	Peters et al. 2003																								
2100	WVUTH154	CUA data	Peters et al. 2003																								
2101	WVUTH155	CUA data	Peters et al. 2003																								
2102	WVUTH156	CUA data	Peters et al. 2003																								
2103	WVUTH157	CUA data	Peters et al. 2003																								
2104	WVUTH158	CUA data	Peters et al. 2003																								
2105	WVUTH159	CUA data	Peters et al. 2003																								
2106	WVUTH160	CUA data	Peters et al. 2003																								
2107	WVUTH161	CUA data	Peters et al. 2003																								
2108	WVUTH162	CUA data	Peters et al. 2003																								
2109	WVUTH163	CUA data	Peters et al. 2003																								
2110	WVUTH164	CUA data	Peters et al. 2003																								
2111	1	HWVP	Bates March 1987	0.0000	0.1084	0.0319	0.0000		0.0000	0.0425	0.0085	0.0871	0.0000		0.5716	0.1500				0.0000						0.0000	
2112	2	HWVP	Bates March 1987	0.0266	0.1084	0.0323	0.0687		0.0000	0.0425	0.0090	0.1037	0.0037		0.5763	0.0000				0.0006						0.0011	
2113	3	HWVP	Bates March 1987	0.0266	0.0893	0.0267	0.0687		0.0000	0.0350	0.0075	0.0883	0.0037		0.4754	0.1500				0.0006						0.0011	
2114	4	HWVP	Bates March 1987	0.0533	0.0893	0.0272	0.1375		0.0000	0.0350	0.0079	0.1049	0.0074		0.4800	0.0000				0.0012						0.0022	
2115	5	HWVP	Bates March 1987	0.0266	0.0988	0.0295	0.0687		0.0000	0.0388	0.0082	0.0960	0.0037		0.5258	0.0750				0.0006						0.0011	
2116	6	HWVP	Bates March 1987	0.0399	0.0893	0.0269	0.1031		0.0000	0.0350	0.0077	0.0966	0.0056		0.4777	0.0750				0.0009						0.0016	
2117	7	HWVP	Bates March 1987	0.0133	0.1084	0.0321	0.0344		0.0000	0.0425	0.0087	0.0954	0.0019		0.5739	0.0750				0.0003						0.0005	
2118	8	HWVP	Bates March 1987	0.0399	0.0988	0.0298	0.1031		0.0000	0.0388	0.0084	0.1043	0.0056		0.5282	0.0000				0.0009						0.0016	
2119	9	HWVP	Bates March 1987	0.0133	0.0988	0.0293	0.0344		0.0000	0.0388	0.0080	0.0877	0.0019		0.5235	0.1500				0.0003						0.0005	
2120	1	HWVP	Bates March 1987																								
2121	2	HWVP	Bates March 1987																								
2122	3	HWVP	Bates March 1987																								
2123	4	HWVP	Bates March 1987																								
2124	5	HWVP	Bates March 1987																								
2125	6	HWVP	Bates March 1987																								
2126	7	HWVP	Bates March 1987																								
2127	1	HWVP	Bates March 1987																								
2128	2	HWVP	Bates March 1987																								
2129	3	HWVP	Bates March 1987																								
2130	4	HWVP	Bates March 1987																								
2131	5	HWVP	Bates March 1987																								
2132	6	HWVP	Bates March 1987																								

#	Glass ID	CoO-t	Co2O3-t	Cr2O3-t	Cs2O-t	CuO-t	Dy2O3-t	Eu2O3-t	F-t	Ga2O3-t	Gd2O3-t	HfO2-t	HgO-t	I-t	La2O3-t	MnO2-t	MnO-t	MoO-t	MoO2-t	MoO3-t	Nb2O5-t	Nd2O3-t	NpO2-t	PbO-t	PdO2-t	PdO-t	Pr2O3-t	Pr6O11-t	Rb2O-t	ReO-t
2051	WVUTH 88																												
2052	WVUTH 106																												
2053	WVUTH 107																												
2054	WVUTH 108																												
2055	WVUTH 109																												
2056	WVUTH110																												
2057	WVUTH111																												
2058	WVUTH112																												
2059	WVUTH113																												
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2061	WVUTH115																												
2062	WVUTH116																												
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2064	WVUTH118																												
2065	WVUTH119																												
2066	WVUTH120																												
2067	WVUTH121																												
2068	WVUTH122																												
2069	WVUTH123																												
2070	WVUTH124																												
2071	WVUTH125																												
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2074	WVUTH128																												
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2078	WVUTH132																												
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2083	WVUTH137																												
2084	WVUTH138																												
2085	WVUTH139																												
2086	WVUTH140																												
2087	WVUTH141																												
2088	WVUTH142																												
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2092	WVUTH146																												
2093	WVUTH147																												
2094	WVUTH148																												
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2099	WVUTH153																												
2100	WVUTH154																												
2101	WVUTH155																												
2102	WVUTH156																												
2103	WVUTH157																												
2104	WVUTH158																												
2105	WVUTH159																												
2106	WVUTH160																												
2107	WVUTH161																												
2108	WVUTH162																												
2109	WVUTH163																												
2110	WVUTH164																												
2111	1			0.0000	0.0000	0.0000			0.0000					0.0000	0.0000		0.0000		0.0000		0.0000							0.0000	
2112	2			0.0082	0.0015	0.0009			0.0019					0.0034	0.0011		0.0019		0.0033		0.0000							0.0000	
2113	3			0.0082	0.0015	0.0009			0.0019					0.0034	0.0011		0.0019		0.0033		0.0000							0.0000	
2114	4			0.0164	0.0031	0.0019			0.0037					0.0068	0.0022		0.0037		0.0065		0.0000							0.0000	
2115	5			0.0082	0.0015	0.0009			0.0019					0.0034	0.0011		0.0019		0.0033		0.0000							0.0000	
2116	6			0.0123	0.0023	0.0014			0.0028					0.0051	0.0016		0.0028		0.0049		0.0000							0.0000	
2117	7			0.0041	0.0008	0.0005			0.0009					0.0017	0.0005		0.0009		0.0016		0.0000							0.0000	
2118	8			0.0123	0.0023	0.0014			0.0028					0.0051	0.0016		0.0028		0.0049		0.0000							0.0000	
2119	9			0.0041	0.0008	0.0005			0.0009					0.0017	0.0005		0.0009		0.0016		0.0000							0.0000	
2120	1																												
2121	2																												
2122	3																												
2123	4																												
2124	5																												
2125	6																												
2126	7																												
2127	1																												
2128	2																												
2129	3																												
2130	4																												
2131	5																												
2132	6																												

#	Glass ID	ReO2-t	Re2O7-t	Rh2O3-t	RhO2-t	RuO2-t	Ru2O3-t	Sb2O3-t	Sb2O5-t	SeO2-t	Sm2O3-t	SnO-t	SnO2-t	SO3-t	SrO-t	Tc2O7-t	TeO2-t	ThO2-t	TiO2-t	Tl2O-t	Tl2O3-t	U3O8-t	UO2-t	UO3-t	V2O5-t	WO3-t	Y2O3-t	ZnO-t	Sum-t	Al2O3-a
2051	WVUTH 88																											0.0000	0.0450
2052	WVUTH 106																											0.0000	0.0646
2053	WVUTH 107																											0.0000	0.0648
2054	WVUTH 108																											0.0000	0.0648
2055	WVUTH 109																											0.0000	0.0648
2056	WVUTH110																											0.0000	0.0631
2057	WVUTH111																											0.0000	0.0634
2058	WVUTH112																											0.0000	0.0646
2059	WVUTH113																											0.0000	0.0446
2060	WVUTH114																											0.0000	0.0648
2061	WVUTH115																											0.0000	0.0630
2062	WVUTH116																											0.0000	0.0299
2063	WVUTH117																											0.0000	0.0438
2064	WVUTH118																											0.0000	0.0647
2065	WVUTH119																											0.0000	0.0825
2066	WVUTH120																											0.0000	0.0299
2067	WVUTH121																											0.0000	0.0438
2068	WVUTH122																											0.0000	0.0825
2069	WVUTH123																											0.0000	0.0289
2070	WVUTH124																											0.0000	0.0438
2071	WVUTH125																											0.0000	0.0528
2072	WVUTH126																											0.0000	0.0449
2073	WVUTH127																											0.0000	0.0450
2074	WVUTH128																											0.0000	0.0449
2075	WVUTH129																											0.0000	0.0550
2076	WVUTH130																											0.0000	0.0651
2077	WVUTH131																											0.0000	0.0550
2078	WVUTH132																											0.0000	0.0636
2079	WVUTH133																											0.0000	0.0639
2080	WVUTH134																											0.0000	0.0630
2081	WVUTH135																											0.0000	0.0616
2082	WVUTH136																											0.0000	0.0640
2083	WVUTH137																											0.0000	0.0640
2084	WVUTH138																											0.0000	0.0645
2085	WVUTH139																											0.0000	0.0299
2086	WVUTH140																											0.0000	0.0438
2087	WVUTH141																											0.0000	0.0646
2088	WVUTH142																											0.0000	0.0825
2089	WVUTH143																											0.0000	0.0299
2090	WVUTH144																											0.0000	0.0438
2091	WVUTH145																											0.0000	0.0825
2092	WVUTH146																											0.0000	0.0299
2093	WVUTH147																											0.0000	0.0438
2094	WVUTH148																											0.0000	0.0527
2095	WVUTH149																											0.0000	0.0640
2096	WVUTH150																											0.0000	0.0616
2097	WVUTH151																											0.0000	0.0299
2098	WVUTH152																											0.0000	0.0438
2099	WVUTH153																											0.0000	0.0647
2100	WVUTH154																											0.0000	0.0825
2101	WVUTH155																											0.0000	0.0299
2102	WVUTH156																											0.0000	0.0446
2103	WVUTH157																											0.0000	0.0296
2104	WVUTH158																											0.0000	0.0296
2105	WVUTH159																											0.0000	0.0449
2106	WVUTH160																											0.0000	0.0438
2107	WVUTH161																											0.0000	0.0646
2108	WVUTH162																											0.0000	0.0825
2109	WVUTH163																											0.0000	0.0446
2110	WVUTH164																											0.0000	0.0296
2111	1					0.0000					0.0000			0.0000	0.0000								0.0000				0.0000	1.0000	
2112	2					0.0009					0.0003			0.0028	0.0006								0.0000				0.0003	1.0000	
2113	3					0.0009					0.0003			0.0028	0.0006								0.0000				0.0003	1.0000	
2114	4					0.0019					0.0006			0.0056	0.0012								0.0000				0.0006	1.0001	
2115	5					0.0009					0.0003			0.0028	0.0006								0.0000				0.0003	0.9999	
2116	6					0.0014					0.0005			0.0042	0.0009								0.0000				0.0005	0.9999	
2117	7					0.0005					0.0002			0.0014	0.0003								0.0000				0.0002	0.9999	
2118	8					0.0014					0.0005			0.0042	0.0009								0.0000				0.0005	1.0000	
2119	9					0.0005					0.0002			0.0014	0.0003								0.0000				0.0002	1.0000	
2120	1																											0.0000	0.0412
2121	2																											0.0000	0.0445
2122	3																											0.0000	0.0381
2123	4																											0.0000	0.0409
2124	5																											0.0000	0.0393
2125	6																											0.0000	0.0408
2126	7																											0.0000	0.0430
2127	1																											0.0000	0.0430
2128	2																											0.0000	0.0427
2129	3																											0.0000	0.0396
2130	4																											0.0000	0.0361
2131	5																											0.0000	0.0327
2132	6																											0.0000	0.0292

#	Glass ID	B2O3-a	CaO-a	Fe2O3-a	FeO-a	K2O-a	Li2O-a	MgO-a	Na2O-a	NiO-a	P2O5-a	SiO2-a	ZrO2-a	Ag2O-a	As2O3-a	As2O5-a	BaO-a	BeO-a	Bi2O3-a	Br-a	CdO-a	Ce2O3-a	CeO2-a	Cl-a	CoO-a	Co2O3-a	Cr2O3-a	Cs2O-a	CuO-a	F-a
2051	WVUTH 88	0.1202	0.0082	0.1206		0.0408	0.0625	0.0090	0.0981	0.0030	0.0236	0.3992	0.0039				0.0020						0.0070			0.0003	0.0014	0.0008	0.0004	
2052	WVUTH 106	0.1247	0.0082	0.1197		0.0312	0.0269	0.0089	0.0974	0.0030	0.0234	0.4092	0.0039				0.0020						0.0070			0.0003	0.0014	0.0007	0.0004	
2053	WVUTH 107	0.1137	0.0068	0.1205		0.0404	0.0349	0.0089	0.1248	0.0025	0.0238	0.3798	0.0032				0.0016						0.0070			0.0002	0.0014	0.0008	0.0004	
2054	WVUTH 108	0.1175	0.0068	0.0905		0.0416	0.0360	0.0089	0.1286	0.0025	0.0238	0.3998	0.0032				0.0016						0.0070			0.0002	0.0014	0.0008	0.0004	
2055	WVUTH 109	0.1102	0.0068	0.0905		0.0390	0.0338	0.0089	0.1207	0.0025	0.0238	0.4199	0.0032				0.0016						0.0070			0.0002	0.0014	0.0008	0.0004	
2056	WVUTH110	0.1003	0.0318	0.1174		0.0353	0.0308	0.0087	0.1089	0.0025	0.0232	0.3990	0.0031				0.0016						0.0068			0.0002	0.0014	0.0008	0.0003	
2057	WVUTH111	0.1009	0.0067	0.1180		0.0355	0.0310	0.0087	0.1095	0.0025	0.0233	0.4012	0.0031				0.0016						0.0069			0.0002	0.0014	0.0008	0.0003	
2058	WVUTH112	0.1247	0.0082	0.1197		0.0312	0.0269	0.0089	0.0974	0.0025	0.0234	0.3962	0.0169				0.0020						0.0070			0.0003	0.0014	0.0007	0.0004	
2059	WVUTH113	0.1247	0.0082	0.1197		0.0312	0.0269	0.0089	0.0974	0.0025	0.0234	0.4092	0.0239				0.0020						0.0070			0.0003	0.0014	0.0007	0.0004	
2060	WVUTH114	0.1017	0.0080	0.1202		0.0329	0.0278	0.0087	0.1006	0.0025	0.0229	0.4087	0.0238				0.0019						0.0068			0.0003	0.0014	0.0007	0.0004	
2061	WVUTH115	0.1002	0.0066	0.1172		0.0352	0.0308	0.0087	0.1087	0.0025	0.0497	0.3985	0.0031				0.0016						0.0068			0.0002	0.0014	0.0008	0.0003	
2062	WVUTH116	0.1201	0.0068	0.1202		0.0424	0.0367	0.0089	0.1318	0.0025	0.0238	0.3960	0.0032				0.0016						0.0070			0.0002	0.0014	0.0008	0.0004	
2063	WVUTH117	0.1150	0.0068	0.1202		0.0407	0.0352	0.0089	0.1263	0.0025	0.0238	0.3960	0.0032				0.0016						0.0070			0.0002	0.0014	0.0008	0.0004	
2064	WVUTH118	0.1074	0.0068	0.1202		0.0382	0.0329	0.0089	0.1179	0.0025	0.0238	0.3959	0.0032				0.0016						0.0070			0.0002	0.0014	0.0008	0.0004	
2065	WVUTH119	0.1009	0.0068	0.1202		0.0360	0.0309	0.0089	0.1108	0.0025	0.0237	0.3959	0.0032				0.0016						0.0070			0.0002	0.0014	0.0008	0.0004	
2066	WVUTH120	0.1128	0.0068	0.1202		0.0400	0.0345	0.0089	0.1239	0.0025	0.0238	0.4159	0.0032				0.0016						0.0070			0.0002	0.0014	0.0008	0.0004	
2067	WVUTH121	0.1078	0.0068	0.1202		0.0383	0.0330	0.0089	0.1183	0.0025	0.0237	0.4158	0.0032				0.0016						0.0070			0.0002	0.0014	0.0008	0.0004	
2068	WVUTH122	0.0937	0.0068	0.1201		0.0336	0.0287	0.0089	0.1029	0.0025	0.0237	0.4158	0.0032				0.0016						0.0070			0.0002	0.0014	0.0008	0.0004	
2069	WVUTH123	0.1020	0.0068	0.1202		0.0364	0.0312	0.0089	0.1120	0.0025	0.0237	0.4457	0.0032				0.0016						0.0070			0.0002	0.0014	0.0008	0.0004	
2070	WVUTH124	0.0969	0.0068	0.1202		0.0347	0.0296	0.0089	0.1064	0.0025	0.0237	0.4456	0.0032				0.0016						0.0070			0.0002	0.0014	0.0008	0.0004	
2071	WVUTH125	0.0937	0.0068	0.1201		0.0336	0.0287	0.0089	0.1029	0.0025	0.0237	0.4457	0.0032				0.0016						0.0070			0.0002	0.0014	0.0008	0.0004	
2072	WVUTH126	0.1258	0.0066	0.1212		0.0271	0.0236	0.0089	0.0856	0.0025	0.0236	0.4127	0.0443				0.0016						0.0016			0.0002	0.0014	0.0008	0.0003	
2073	WVUTH127	0.1258	0.0066	0.1208		0.0234	0.0202	0.0089	0.0731	0.0025	0.0236	0.4129	0.0645				0.0015						0.0016			0.0002	0.0014	0.0008	0.0003	
2074	WVUTH128	0.1258	0.0066	0.1207		0.0234	0.0202	0.0294	0.0731	0.0025	0.0236	0.4128	0.0443				0.0015						0.0016			0.0002	0.0014	0.0008	0.0003	
2075	WVUTH129	0.1258	0.0066	0.1212		0.0290	0.0254	0.0089	0.0920	0.0025	0.0236	0.4127	0.0241				0.0016						0.0016			0.0002	0.0014	0.0008	0.0003	
2076	WVUTH130	0.1258	0.0066	0.1212		0.0271	0.0236	0.0089	0.0856	0.0025	0.0236	0.4126	0.0242				0.0016						0.0016			0.0002	0.0014	0.0008	0.0003	
2077	WVUTH131	0.1258	0.0066	0.1212		0.0271	0.0236	0.0089	0.0856	0.0025	0.0236	0.4126	0.0342				0.0016						0.0016			0.0002	0.0014	0.0008	0.0003	
2078	WVUTH132	0.1272	0.0200	0.1186		0.0314	0.0267	0.0088	0.0969	0.0025	0.0234	0.4061	0.0032				0.0016						0.0016			0.0002	0.0014	0.0008	0.0003	
2079	WVUTH133	0.1278	0.0068	0.1192		0.0316	0.0269	0.0088	0.0973	0.0025	0.0235	0.4081	0.0032				0.0016						0.0016			0.0002	0.0100	0.0008	0.0003	
2080	WVUTH134	0.1260	0.0067	0.1400		0.0311	0.0265	0.0087	0.0960	0.0025	0.0232	0.4023	0.0032				0.0016						0.0016			0.0002	0.0014	0.0007	0.0003	
2081	WVUTH135	0.1231	0.0065	0.1600		0.0304	0.0259	0.0085	0.0937	0.0024	0.0227	0.3930	0.0031				0.0015						0.0015			0.0002	0.0014	0.0007	0.0003	
2082	WVUTH136	0.1279	0.0068	0.1193		0.0316	0.0269	0.0088	0.0974	0.0025	0.0235	0.4084	0.0032				0.0016						0.0016			0.0002	0.0014	0.0008	0.0003	
2083	WVUTH137	0.1279	0.0068	0.1193		0.0316	0.0269	0.0088	0.0974	0.0100	0.0235	0.4085	0.0032				0.0016						0.0016			0.0002	0.0014	0.0008	0.0003	
2084	WVUTH138	0.1289	0.0068	0.1202		0.0318	0.0271	0.0089	0.0982	0.0025	0.0237	0.4116	0.0032				0.0016						0.0016			0.0002	0.0014	0.0008	0.0003	
2085	WVUTH139	0.1504	0.0068	0.1197		0.0367	0.0316	0.0089	0.1146	0.0025	0.0238	0.3988	0.0032				0.0016						0.0016			0.0002	0.0014	0.0008	0.0003	
2086	WVUTH140	0.1439	0.0069	0.1201		0.0352	0.0302	0.0089	0.1097	0.0025	0.0238	0.3983	0.0033				0.0016						0.0016			0.0002	0.0014	0.0008	0.0004	
2087	WVUTH141	0.1345	0.0069	0.1201		0.0331	0.0282	0.0089	0.1025	0.0025	0.0238	0.3983	0.0033				0.0016						0.0016			0.0002	0.0014	0.0008	0.0004	
2088	WVUTH142	0.1264	0.0069	0.1201		0.0312	0.0265	0.0089	0.0964	0.0025	0.0238	0.3983	0.0033				0.0016						0.0016			0.0002	0.0014	0.0008	0.0004	
2089	WVUTH143	0.1414	0.0068	0.1197		0.0347	0.0297	0.0089	0.1077	0.0025	0.0238	0.4186	0.0032				0.0016						0.0016			0.0002	0.0014	0.0008	0.0003	
2090	WVUTH144	0.1349	0.0069	0.1201		0.0332	0.0283	0.0089	0.1029	0.0025	0.0238	0.4181	0.0033				0.0016						0.0016			0.0002	0.0014	0.0008	0.0004	
2091	WVUTH145	0.1174	0.0069	0.1201		0.0291	0.0246	0.0089	0.0895	0.0025	0.0238	0.4181	0.0033				0.0016						0.0016			0.0002	0.0014	0.0008	0.0004	
2092	WVUTH146	0.1278	0.0068	0.1197		0.0316	0.0268	0.0089	0.0975	0.0025	0.0238	0.4485	0.0032				0.0016						0.0016			0.0002	0.0014	0.0008	0.0003	
2093	WVUTH147	0.1214	0.0069	0.1201		0.0301	0.0255	0.0089	0.0926	0.0025	0.0238	0.4479	0.0033				0.0016						0.0016			0.0002	0.0014	0.0008	0.0004	
2094	WVUTH148	0.1173	0.0069	0.1201		0.0291	0.0246	0.0089	0.0895	0.0025	0.0238	0.4480	0.0033				0.0016						0.0016			0.0002	0.0014	0.0008	0.0004	
2095	WVUTH149	0.1279	0.0068	0.1193		0.0316	0.0269	0.0088	0.0974	0.0025	0.0238	0.4084	0.0032				0.0016						0.0016			0.0002	0.0014	0.0008	0.0003	
2096	WVUTH150	0.1231	0.0065	0.1600		0.0304	0.0259	0.0085	0.0937	0.0024	0.0227	0.3930	0.0031				0.0015						0.0015			0.0002	0.0014	0.0007	0.0003	
2097	WVUTH151	0.1201	0.0068	0.1202		0.0424	0.0367	0.0089	0.1318	0.0025	0.0238	0.3960	0.0032				0.0016						0.0070			0.0002	0.0014	0.0008	0.0004	
2098	WVUTH152	0.1150	0.0068	0.1202		0.0407	0.0352	0.0089	0.1263	0.0025	0.0238	0.3960	0.0032				0.0016						0.0070			0.0002	0.0014	0.0008	0.0004	
2099	WVUTH153	0.1074	0.0068	0.1202		0.0382	0.0329	0.0089	0.1179	0.0025	0.0238	0.3959	0.0032				0.0016						0.0070			0.0002	0.0014	0.0008	0.0004	
2100	WVUTH154	0.1009	0.0068	0.1202		0.0360	0.0309	0.0089	0.1108	0.0025	0.0237	0.3959	0.0032				0.0016						0.0070			0.0002	0.0014	0.0008	0.0004	
2101	WVUTH155	0.1504	0.0068	0.1197		0.0367	0.0316	0.0089	0.1146	0.0025	0.0238	0.3988	0.0032				0.0016						0.0016			0.0002	0.0014	0.0008	0.0003	
2102	WVUTH156	0.1247	0.0062	0.1202		0.0352	0.0304	0.0089	0.1099	0.0030	0.0234	0.4092	0.0039				0.0000						0.0016			0.0003	0.0014	0.0007	0.0004	
2103	WVUTH157	0.1247	0.0082	0.1197		0.0382	0.0330	0.0089	0.1193	0.0030	0.0234	0.4092	0.0039				0.0020						0.0016			0.0003	0.0014	0.0007	0.0004	
2104	WVUTH158	0.1247	0.0082	0.1197		0.0342	0.0295	0.0089	0.1068	0.0030	0.0234	0.4092	0.0239				0.0020						0.0016			0.0003	0.0014	0.0007	0.0004	
2105	WVUTH159	0.1257	0.0066	0.1212		0.0271	0.0236	0.0089	0.0856	0.0025	0.0236	0.4127	0.0443				0.0016						0.0016			0.0002	0.0014	0.0008	0.0003	
2106	WVUTH160	0.1439	0.0069	0.1201		0.0352	0.0302	0.0089	0.1097	0.0025	0.0238	0.3983	0.0033				0.0016						0.0016			0.0002	0.0014	0.0008	0.0004	
2107	WVUTH161	0.1345	0.0069	0.1201		0.0331	0.0282	0.0089	0.1025	0.0025	0.0238	0.3983	0.0033				0.0016						0.0016			0.0002	0.0014	0.0008	0.0004	
2108	WVUTH162	0.1264	0.0069	0.1201		0.0312	0.0265	0.0089	0.0964	0.0025	0.0238	0.3983	0.0033				0.0016						0.0016			0.0002	0.0014	0.0008	0.0004	
2109	WVUTH163	0.1247	0.0082	0.1197		0.0312	0.0269	0.0089	0.0974	0.0030	0.0234	0.4092	0.0239				0.0020						0.0070			0.0003	0.0014	0.0007	0.0004	
2110	WVUTH164	0.1247	0.0082	0.1197		0.0342	0.0295	0.0089	0.1068	0.0030	0.0234	0.4092	0.0239				0.0020						0.0016			0.0003	0.0014	0.0007	0.0004	
2111	1																													
2112	2																													
2113	3																													
2114	4																													
2115	5																													
2116	6																													
2117	7																													
2118	8																													
2119	9																													
2120	1	0.0919	0.0278	0.1063		0.0085	0.0000	0.0077	0.1698	0.0057		0.4903	0.0057				0.0010						0.0017			0.0124	0.0019	0.0015	0.0029	
2121	2	0.0994	0.0300	0.1150		0.0165	0.0934	0.0083	0.0015	0.0062		0.5303	0.0062				0.0010						0.0019			0.0135	0.0021	0.0017	0.0031	
2122	3	0.0850	0.0257	0.0983		0.2385	0.0000	0.0071	0.0015	0.0053		0.4535	0.0053				0.0009						0.0016			0.0115	0.0018	0.0014	0.0027	
2123	4	0.0913	0.0276	0.1056		0.0973	0.0275	0.0076	0.0589	0.0057		0.4871	0.0057				0.0010						0.0017			0.0124	0.0019	0.0015	0.0029	
2124	5	0.0878	0.0265	0.1015		0.1317	0.0000	0.0073	0.0838	0.0055		0.4681	0.0055				0.0009						0.0016			0.0119	0.0018	0.0015	0.0027	
2125	6	0.0911	0.0275	0.1054		0.1401	0.0440	0.0076	0.0015	0.0057		0.4860	0.0057				0.0009						0.0017			0.0123	0.0019	0.0015	0.0028	
2126	7	0.0961	0.0290	0.1111		0.0000	0.0386	0.0080	0.1025	0.0060		0.5125	0.0060				0.0010						0.0018			0.0130	0.0020	0.0016	0.0030	
2127	1	0.0956	0.0289	0.1110		0.0000	0.0375	0.0083	0.1036	0.0060		0.5119	0.0015				0.0010						0.0018			0.0133	0.0025	0.0015	0.0030	
2128	2	0.0956	0.0289	0.1103		0.0000	0.0375	0.0082	0.1035	0.0060		0.5118	0.0015				0.0010						0.0170			0.0132	0.0025	0.0015	0.0030	
2129	3	0.0956	0.0288	0.1021		0.0000	0.0375	0.0082	0.1015	0.0055		0.5113	0.0014				0.0009						0.0016			0.0122	0.0023	0.0014	0.0028	
2130	4	0.0956	0.0288	0.0932		0.0000	0.0375	0.0081	0.0993	0.0050		0.5107	0.0013				0.0008						0.0015			0.0111	0.0021	0.0013	0.0025	
2131	5	0.0956	0.0287	0.0844		0.0000	0.0375	0.0081	0.0972	0.0046		0.5101	0.0011				0.0008						0.0013			0.0101	0.0019	0.0011	0.0023	
2132	6	0.0956	0.0286	0.0755		0.0000	0.0375	0.0080	0.0951	0.0041		0.5095	0.0010				0.0007						0.0012			0.0090	0.0017	0.0010	0.0020	

#	Glass ID	Ga2O3-a	Gd2O3-a	I-a	La2O3-a	MnO2-a	MnO-a	MoO-a	MoO3-a	Nb2O5-a	Nd2O3-a	NpO2-a	PbO-a	PdO2-a	PdO-a	Pr2O3-a	Pr6O11-a	PuO2-a	Rb2O-a	ReO-a	ReO2-a	Re2O7-a	Rh2O3-a	RhO2-a	RuO2-a	Sb2O3-a	Sb2O5-a	SeO2-a
2051	WVUTH 88				0.0005	0.0122			0.0004		0.0014					0.0004												
2052	WVUTH 106				0.0005	0.0121			0.0004		0.0014				0.0003	0.0004								0.0002	0.0008			
2053	WVUTH 107				0.0005	0.0102			0.0005		0.0014				0.0003	0.0004								0.0002	0.0008			
2054	WVUTH 108				0.0005	0.0102			0.0005		0.0014				0.0003	0.0004								0.0002	0.0008			
2055	WVUTH 109				0.0005	0.0102			0.0005		0.0014				0.0003	0.0004								0.0002	0.0008			
2056	WVUTH110				0.0004	0.0098			0.0004		0.0014				0.0003	0.0004								0.0002	0.0008			
2057	WVUTH111				0.0004	0.0099			0.0004		0.0014				0.0003	0.0004								0.0002	0.0008			
2058	WVUTH112				0.0005	0.0121			0.0004		0.0014				0.0003	0.0004								0.0002	0.0008			
2059	WVUTH113				0.0005	0.0121			0.0004		0.0014				0.0003	0.0004								0.0002	0.0008			
2060	WVUTH114				0.0005	0.0118			0.0004		0.0014				0.0003	0.0004								0.0002	0.0008			
2061	WVUTH115				0.0004	0.0098			0.0004		0.0014				0.0003	0.0004								0.0002	0.0008			
2062	WVUTH116				0.0004	0.0101			0.0004		0.0014				0.0003	0.0004								0.0002	0.0006			
2063	WVUTH117				0.0004	0.0101			0.0004		0.0014				0.0003	0.0004								0.0002	0.0006			
2064	WVUTH118				0.0004	0.0101			0.0004		0.0014				0.0003	0.0004								0.0002	0.0006			
2065	WVUTH119				0.0004	0.0101			0.0004		0.0014				0.0003	0.0004								0.0002	0.0006			
2066	WVUTH120				0.0004	0.0101			0.0004		0.0014				0.0003	0.0004								0.0002	0.0006			
2067	WVUTH121				0.0004	0.0101			0.0004		0.0014				0.0003	0.0004								0.0002	0.0006			
2068	WVUTH122				0.0004	0.0101			0.0004		0.0014				0.0003	0.0004								0.0002	0.0006			
2069	WVUTH123				0.0004	0.0101			0.0004		0.0014				0.0003	0.0004								0.0002	0.0006			
2070	WVUTH124				0.0004	0.0101			0.0004		0.0014				0.0003	0.0004								0.0002	0.0006			
2071	WVUTH125				0.0004	0.0101			0.0004		0.0014				0.0003	0.0004								0.0002	0.0006			
2072	WVUTH126				0.0004	0.0100			0.0004		0.0014				0.0003	0.0004								0.0002	0.0008			
2073	WVUTH127				0.0004	0.0099			0.0004		0.0014				0.0003	0.0004								0.0002	0.0008			
2074	WVUTH128				0.0004	0.0099			0.0004		0.0014				0.0003	0.0004								0.0002	0.0008			
2075	WVUTH129				0.0400	0.0100			0.0004		0.0014				0.0003	0.0004								0.0002	0.0008			
2076	WVUTH130				0.0004	0.0100			0.0004		0.0014				0.0003	0.0004								0.0002	0.0008			
2077	WVUTH131				0.0004	0.0100			0.0004		0.0014				0.0003	0.0004								0.0002	0.0008			
2078	WVUTH132				0.0004	0.0100			0.0004		0.0014				0.0003	0.0004								0.0002	0.0008			
2079	WVUTH133				0.0004	0.0100			0.0004		0.0014				0.0003	0.0004								0.0002	0.0008			
2080	WVUTH134				0.0004	0.0099			0.0004		0.0014				0.0003	0.0004								0.0002	0.0008			
2081	WVUTH135				0.0004	0.0097			0.0004		0.0013				0.0003	0.0004								0.0002	0.0007			
2082	WVUTH136				0.0004	0.0100			0.0004		0.0014				0.0003	0.0004								0.0002	0.0008			
2083	WVUTH137				0.0004	0.0100			0.0004		0.0014				0.0003	0.0004								0.0002	0.0008			
2084	WVUTH138				0.0004	0.0306			0.0004		0.0014				0.0003	0.0004								0.0002	0.0008			
2085	WVUTH139				0.0004	0.0101			0.0004		0.0014				0.0003	0.0004								0.0002	0.0008			
2086	WVUTH140				0.0004	0.0102			0.0004		0.0014				0.0003	0.0004								0.0002	0.0008			
2087	WVUTH141				0.0004	0.0102			0.0004		0.0014				0.0003	0.0004								0.0002	0.0008			
2088	WVUTH142				0.0004	0.0102			0.0004		0.0014				0.0003	0.0004								0.0002	0.0008			
2089	WVUTH143				0.0004	0.0101			0.0004		0.0014				0.0003	0.0004								0.0002	0.0008			
2090	WVUTH144				0.0004	0.0102			0.0004		0.0014				0.0003	0.0004								0.0002	0.0008			
2091	WVUTH145				0.0004	0.0102			0.0004		0.0014				0.0003	0.0004								0.0002	0.0008			
2092	WVUTH146				0.0004	0.0101			0.0004		0.0014				0.0003	0.0004								0.0002	0.0008			
2093	WVUTH147				0.0004	0.0102			0.0004		0.0014				0.0003	0.0004								0.0002	0.0008			
2094	WVUTH148				0.0004	0.0102			0.0004		0.0014				0.0003	0.0004								0.0002	0.0008			
2095	WVUTH149				0.0004	0.0100			0.0004		0.0014				0.0003	0.0004								0.0002	0.0008			
2096	WVUTH150				0.0004	0.0097			0.0004		0.0013				0.0003	0.0004								0.0002	0.0007			
2097	WVUTH151				0.0004	0.0101			0.0004		0.0014				0.0003	0.0004								0.0002	0.0006			
2098	WVUTH152				0.0004	0.0101			0.0004		0.0014				0.0003	0.0004								0.0002	0.0006			
2099	WVUTH153				0.0004	0.0101			0.0004		0.0014				0.0003	0.0004								0.0002	0.0006			
2100	WVUTH154				0.0004	0.0101			0.0004		0.0014				0.0003	0.0004								0.0002	0.0006			
2101	WVUTH155				0.0004	0.0101			0.0004		0.0014				0.0003	0.0004								0.0002	0.0008			
2102	WVUTH156				0.0005	0.0121			0.0004		0.0014				0.0003	0.0004								0.0002	0.0008			
2103	WVUTH157				0.0005	0.0121			0.0004		0.0014				0.0003	0.0004								0.0002	0.0008			
2104	WVUTH158				0.0005	0.0121			0.0004		0.0014				0.0003	0.0004								0.0002	0.0008			
2105	WVUTH159				0.0004	0.0100			0.0004		0.0014				0.0003	0.0004								0.0002	0.0008			
2106	WVUTH160				0.0004	0.0102			0.0004		0.0014				0.0003	0.0004								0.0002	0.0008			
2107	WVUTH161				0.0004	0.0102			0.0004		0.0014				0.0003	0.0004								0.0002	0.0008			
2108	WVUTH162				0.0004	0.0102			0.0004		0.0014				0.0003	0.0004								0.0002	0.0008			
2109	WVUTH163				0.0005	0.0121			0.0004		0.0014				0.0003	0.0004								0.0002	0.0008			
2110	WVUTH164				0.0005	0.0121			0.0004		0.0014				0.0003	0.0004								0.0002	0.0008			
2111	1																											
2112	2																											
2113	3																											
2114	4																											
2115	5																											
2116	6																											
2117	7																											
2118	8																											
2119	9																											
2120	1				0.0057		0.0017		0.0031		0.0048						0.0010								0.0015			
2121	2				0.0062		0.0019		0.0033		0.0052						0.0010								0.0017			
2122	3				0.0053		0.0016		0.0028		0.0044						0.0009								0.0014			
2123	4				0.0057		0.0017		0.0030		0.0048						0.0010								0.0015			
2124	5				0.0055		0.0016		0.0029		0.0046						0.0009								0.0015			
2125	6				0.0057		0.0017		0.0030		0.0047						0.0009								0.0015			
2126	7				0.0060		0.0018		0.0032		0.0050						0.0010								0.0016			
2127	1				0.0055		0.0018		0.0030		0.0053						0.0000								0.0015			
2128	2				0.0055		0.0017		0.0030		0.0052						0.0000								0.0015			
2129	3				0.0051		0.0016		0.0028		0.0048						0.0000								0.0014			
2130	4				0.0046		0.0015		0.0025		0.0044						0.0000								0.0013			
2131	5				0.0042		0.0013		0.0023		0.0040						0.0000								0.0011			
2132	6				0.0037		0.0012		0.0020		0.0036						0.0000								0.0010			

#	Glass ID	Sm2O3-a	SnO-a	SnO2-a	SO3-a	SrO-a	Tc2O7-a	TeO2-a	ThO2-a	TiO2-a	Tl2O-a	Tl2O3-a	U3O8-a	UO2-a	UO3-a	V2O5-a	WO3-a	Y2O3-a	ZnO-a	Sum-a	T_M (°C)	$T_{L,G}$ (°C)	$T_{L,U}$ (°C)	$T_{1\%}$ (°C)	Primary Phase	$C_{650°C}$	$C_{700°C}$	$C_{750°C}$
2051	WVUTH 88	0.0003			0.0023	0.0002			0.0356	0.0083				0.0058					0.0003	1.0137								
2052	WVUTH 106	0.0003			0.0022	0.0002			0.0353	0.0082				0.0058				0.0002	0.0003	1.0015								
2053	WVUTH 107	0.0003			0.0023	0.0002			0.0351	0.0077				0.0058				0.0002	0.0003	1.0017								
2054	WVUTH 108	0.0003			0.0023	0.0002			0.0351	0.0077				0.0058				0.0002	0.0003	1.0016								
2055	WVUTH 109	0.0003			0.0023	0.0002			0.0351	0.0077				0.0058				0.0002	0.0003	1.0017								
2056	WVUTH110	0.0003			0.0022	0.0002			0.0351	0.0075				0.0057				0.0002	0.0002	1.0003								
2057	WVUTH111	0.0003			0.0023	0.0002			0.0551	0.0075				0.0057				0.0002	0.0002	1.0003								
2058	WVUTH112	0.0003			0.0022	0.0002			0.0353	0.0082				0.0058				0.0002	0.0003	1.0010								
2059	WVUTH113	0.0003			0.0022	0.0002			0.0353	0.0082				0.0058				0.0002	0.0003	1.0010								
2060	WVUTH114	0.0003			0.0022	0.0002			0.0346	0.0080				0.0056				0.0000	0.0003	1.0011								
2061	WVUTH115	0.0003			0.0022	0.0002			0.0350	0.0075				0.0056				0.0002	0.0002	1.0002								
2062	WVUTH116	0.0003			0.0022	0.0002			0.0355	0.0076				0.0058				0.0002	0.0003	0.9996								
2063	WVUTH117	0.0003			0.0022	0.0002			0.0355	0.0076				0.0058				0.0002	0.0003	0.9997								
2064	WVUTH118	0.0003			0.0022	0.0002			0.0355	0.0076				0.0058				0.0002	0.0003	0.9997								
2065	WVUTH119	0.0003			0.0022	0.0002			0.0355	0.0076				0.0058				0.0002	0.0003	0.9996								
2066	WVUTH120	0.0003			0.0022	0.0002			0.0355	0.0076				0.0058				0.0002	0.0003	0.9997								
2067	WVUTH121	0.0003			0.0022	0.0002			0.0355	0.0076				0.0058				0.0002	0.0003	0.9996								
2068	WVUTH122	0.0003			0.0022	0.0002			0.0355	0.0076				0.0058				0.0002	0.0003	0.9997								
2069	WVUTH123	0.0003			0.0022	0.0002			0.0355	0.0076				0.0058				0.0002	0.0003	0.9988								
2070	WVUTH124	0.0003			0.0022	0.0002			0.0355	0.0076				0.0058				0.0002	0.0003	0.9996								
2071	WVUTH125	0.0003			0.0022	0.0002			0.0355	0.0076				0.0058				0.0002	0.0003	0.9999								
2072	WVUTH126	0.0003			0.0023	0.0002			0.0358	0.0080				0.0062				0.0002	0.0002	0.9998								
2073	WVUTH127	0.0003			0.0023	0.0002			0.0357	0.0080				0.0061				0.0002	0.0002	0.9999								
2074	WVUTH128	0.0003			0.0023	0.0002			0.0357	0.0080				0.0061				0.0002	0.0002	0.9999								
2075	WVUTH129	0.0003			0.0023	0.0002			0.0358	0.0080				0.0062				0.0002	0.0002	1.0394								
2076	WVUTH130	0.0003			0.0023	0.0002			0.0358	0.0080				0.0062				0.0002	0.0002	0.9998								
2077	WVUTH131	0.0003			0.0023	0.0002			0.0358	0.0080				0.0062				0.0002	0.0002	0.9997								
2078	WVUTH132	0.0002			0.0022	0.0002			0.0351	0.0079				0.0058				0.0002	0.0002	1.0000								
2079	WVUTH133	0.0002			0.0022	0.0002			0.0352	0.0079				0.0058				0.0002	0.0002	0.9999								
2080	WVUTH134	0.0002			0.0022	0.0002			0.0348	0.0078				0.0057				0.0002	0.0002	1.0001								
2081	WVUTH135	0.0002			0.0022	0.0002			0.0339	0.0076				0.0056				0.0002	0.0002	1.0000								
2082	WVUTH136	0.0002			0.0100	0.0002			0.0353	0.0079				0.0058				0.0002	0.0002	0.9999								
2083	WVUTH137	0.0002			0.0022	0.0002			0.0353	0.0079				0.0058				0.0002	0.0002	0.9997								
2084	WVUTH138	0.0003			0.0023	0.0002			0.0356	0.0080				0.0059				0.0002	0.0002	1.0205								
2085	WVUTH139	0.0003			0.0023	0.0002			0.0356	0.0080				0.0063				0.0002	0.0002	0.9999								
2086	WVUTH140	0.0003			0.0023	0.0002			0.0357	0.0080				0.0063				0.0002	0.0003	1.0000								
2087	WVUTH141	0.0003			0.0023	0.0002			0.0357	0.0080				0.0063				0.0002	0.0003	1.0001								
2088	WVUTH142	0.0003			0.0023	0.0002			0.0357	0.0080				0.0063				0.0002	0.0003	1.0002								
2089	WVUTH143	0.0003			0.0023	0.0002			0.0356	0.0080				0.0063				0.0002	0.0002	0.9999								
2090	WVUTH144	0.0003			0.0023	0.0002			0.0357	0.0080				0.0063				0.0002	0.0003	1.0001								
2091	WVUTH145	0.0003			0.0023	0.0002			0.0357	0.0080				0.0063				0.0002	0.0003	1.0001								
2092	WVUTH146	0.0003			0.0023	0.0002			0.0356	0.0080				0.0063				0.0002	0.0002	1.0000								
2093	WVUTH147	0.0003			0.0023	0.0002			0.0357	0.0080				0.0063				0.0002	0.0003	1.0002								
2094	WVUTH148	0.0003			0.0023	0.0002			0.0357	0.0080				0.0063				0.0002	0.0003	1.0001								
2095	WVUTH149	0.0002			0.0100	0.0002			0.0353	0.0079				0.0058				0.0002	0.0002	1.0002								
2096	WVUTH150	0.0002			0.0022	0.0002			0.0339	0.0076				0.0056				0.0002	0.0002	1.0000								
2097	WVUTH151	0.0003			0.0022	0.0002			0.0355	0.0076				0.0058				0.0002	0.0003	0.9996								
2098	WVUTH152	0.0003			0.0022	0.0002			0.0355	0.0076				0.0058				0.0002	0.0003	0.9997								
2099	WVUTH153	0.0003			0.0022	0.0002			0.0355	0.0076				0.0058				0.0002	0.0003	0.9997								
2100	WVUTH154	0.0003			0.0022	0.0002			0.0355	0.0076				0.0058				0.0002	0.0003	0.9996								
2101	WVUTH155	0.0003			0.0023	0.0002			0.0356	0.0080				0.0063				0.0002	0.0002	0.9999								
2102	WVUTH156	0.0003			0.0022	0.0003			0.0355	0.0082				0.0058				0.0002	0.0003	0.9929								
2103	WVUTH157	0.0003			0.0022	0.0003			0.0353	0.0082				0.0058				0.0002	0.0003	0.9962								
2104	WVUTH158	0.0003			0.0022	0.0003			0.0353	0.0082				0.0058				0.0002	0.0003	0.9962								
2105	WVUTH159	0.0003			0.0023	0.0002			0.0358	0.0080				0.0062				0.0002	0.0002	0.9997								
2106	WVUTH160	0.0003			0.0023	0.0002			0.0357	0.0080				0.0063				0.0002	0.0003	1.0000								
2107	WVUTH161	0.0003			0.0023	0.0002			0.0357	0.0080				0.0063				0.0002	0.0003	1.0001								
2108	WVUTH162	0.0003			0.0023	0.0002			0.0357	0.0080				0.0063				0.0002	0.0003	1.0002								
2109	WVUTH163	0.0003			0.0022	0.0002			0.0353	0.0082				0.0058				0.0002	0.0003	1.0015								
2110	WVUTH164	0.0003			0.0022	0.0003			0.0353	0.0082				0.0058				0.0002	0.0003	0.9962								
2111	1																			0.0000								
2112	2																			0.0000								
2113	3																			0.0000								
2114	4																			0.0000								
2115	5																			0.0000								
2116	6																			0.0000								
2117	7																			0.0000								
2118	8																			0.0000								
2119	9																			0.0000								
2120	1	0.0005			0.0038	0.0010									0.0000			0.0005		1.0000								
2121	2	0.0005			0.0041	0.0010									0.0000			0.0005		1.0000								
2122	3	0.0004			0.0035	0.0009									0.0000			0.0004		1.0000								
2123	4	0.0005			0.0038	0.0010									0.0000			0.0005		1.0000								
2124	5	0.0005			0.0037	0.0009									0.0000			0.0005		0.9999								
2125	6	0.0005			0.0038	0.0009									0.0000			0.0005		0.9999								
2126	7	0.0005			0.0040	0.0010									0.0000			0.0005		0.9999								
2127	1	0.0005			0.0045	0.0010									0.0000			0.0005		0.9939								
2128	2	0.0005			0.0045	0.0010									0.0015			0.0005		1.0090								
2129	3	0.0005			0.0041	0.0009									0.0200			0.0005		0.9943								
2130	4	0.0004			0.0038	0.0008									0.0400			0.0004		0.9947								
2131	5	0.0004			0.0034	0.0008									0.0600			0.0004		0.9954								
2132	6	0.0003			0.0031	0.0007									0.0800			0.0003		0.9958								

#	Glass ID	$C_{800°C}$	$C_{850°C}$	$C_{900°C}$	$C_{950°C}$	$C_{1000°C}$	$C_{1050°C}$	$C_{1100°C}$	$C_{1150°C}$	$C_{1200°C}$	Quenched Visual/OM	Quenched XRD	CCC XRD	ρ (g/cm³)	Fulc Visc A	Fulc Visc B	Fulc Visc To	Arrh Visc E	Arrh Visc F	T1 (°C)	V1 (Pa·s)
2051	WVUTH 88																			1150.0	1.116
2052	WVUTH 106																				
2053	WVUTH 107																			1150.0	1.402
2054	WVUTH 108																			1150.0	1.621
2055	WVUTH 109																			1150.0	2.452
2056	WVUTH110																			1150.0	2.916
2057	WVUTH111																				
2058	WVUTH112																			1150.0	3.974
2059	WVUTH113																			1150.0	3.129
2060	WVUTH114																			1150.0	3.853
2061	WVUTH115																			1150.0	2.490
2062	WVUTH116																			1150.0	1.258
2063	WVUTH117																				
2064	WVUTH118																				
2065	WVUTH119																				
2066	WVUTH120																				
2067	WVUTH121																				
2068	WVUTH122																				
2069	WVUTH123																				
2070	WVUTH124																				
2071	WVUTH125																				
2072	WVUTH126																			1150.0	4.861
2073	WVUTH127																			1150.0	7.000
2074	WVUTH128																			1150.0	5.664
2075	WVUTH129																			1150.0	3.445
2076	WVUTH130																			1150.0	4.977
2077	WVUTH131																			1150.0	4.911
2078	WVUTH132																			1150.0	3.752
2079	WVUTH133																			1150.0	4.472
2080	WVUTH134																			1150.0	4.036
2081	WVUTH135																			1150.0	4.142
2082	WVUTH136																			1150.0	4.461
2083	WVUTH137																			1150.0	3.944
2084	WVUTH138																			1150.0	3.915
2085	WVUTH139																			1150.0	1.350
2086	WVUTH140																			1150.0	2.025
2087	WVUTH141																			1150.0	3.132
2088	WVUTH142																			1150.0	3.924
2089	WVUTH143																			1150.0	2.153
2090	WVUTH144																			1150.0	2.848
2091	WVUTH145																			1150.0	7.116
2092	WVUTH146																			1150.0	3.438
2093	WVUTH147																			1150.0	4.875
2094	WVUTH148																			1150.0	5.281
2095	WVUTH149																				
2096	WVUTH150																				
2097	WVUTH151																				
2098	WVUTH152																				
2099	WVUTH153																				
2100	WVUTH154																				
2101	WVUTH155																				
2102	WVUTH156																			1150.0	2.919
2103	WVUTH157																			1150.0	1.837
2104	WVUTH158																			1150.0	2.501
2105	WVUTH159																				
2106	WVUTH160																				
2107	WVUTH161																				
2108	WVUTH162																				
2109	WVUTH163																				
2110	WVUTH164																				
2111	1																				
2112	2																				
2113	3																				
2114	4																				
2115	5																				
2116	6																				
2117	7																				
2118	8																				
2119	9																				
2120	1																				
2121	2																				
2122	3																				
2123	4																				
2124	5																				
2125	6																				
2126	7																				
2127	1																				
2128	2																				
2129	3																				
2130	4																				
2131	5																				
2132	6																				

#	Glass ID	T2 (°C)	V2 (Pa·s)	T3 (°C)	V3 (Pa·s)	T4 (°C)	V4 (Pa·s)	T5 (°C)	V5 (Pa·s)	T6 (°C)	V6 (Pa·s)	T7 (°C)	V7 (Pa·s)	T8 (°C)	V8 (Pa·s)	T9 (°C)	V9 (Pa·s)	T10 (°C)	V10 (Pa·s)	TCLP Ag	TCLP As	TCLP Ba	TCLP Cd	TCLP Cr	TCLP Ni	TCLP Pb
2051	WVUTH 88	1100	1.527																							
2052	WVUTH 106																									
2053	WVUTH 107	1100	2.079																							
2054	WVUTH 108	1100	2.360																							
2055	WVUTH 109	1100	3.637																							
2056	WVUTH110	1100	4.431																							
2057	WVUTH111																									
2058	WVUTH112	1100	5.930																							
2059	WVUTH113	1100	4.629																							
2060	WVUTH114	1100	6.131																							
2061	WVUTH115	1100	3.623																							
2062	WVUTH116	1100	1.755																							
2063	WVUTH117																									
2064	WVUTH118																									
2065	WVUTH119																									
2066	WVUTH120																									
2067	WVUTH121																									
2068	WVUTH122																									
2069	WVUTH123																									
2070	WVUTH124																									
2071	WVUTH125																									
2072	WVUTH126	1100	7.250																							
2073	WVUTH127	1100	11.746																							
2074	WVUTH128	1100	9.194																							
2075	WVUTH129	1100	5.457																							
2076	WVUTH130	1100	7.979																							
2077	WVUTH131	1100	7.879																							
2078	WVUTH132	1100	5.872																							
2079	WVUTH133	1100	6.808																							
2080	WVUTH134	1100	6.335																							
2081	WVUTH135	1100	6.544																							
2082	WVUTH136	1100	6.976																							
2083	WVUTH137	1100	6.226																							
2084	WVUTH138	1100	6.105																							
2085	WVUTH139	1100	2.002																							
2086	WVUTH140	1100	2.957																							
2087	WVUTH141	1100	4.754																							
2088	WVUTH142	1100	6.106																							
2089	WVUTH143	1100	3.183																							
2090	WVUTH144	1100	4.322																							
2091	WVUTH145	1100	11.354																							
2092	WVUTH146	1100	5.362																							
2093	WVUTH147	1100	7.523																							
2094	WVUTH148	1100	8.464																							
2095	WVUTH149																									
2096	WVUTH150																									
2097	WVUTH151																									
2098	WVUTH152																									
2099	WVUTH153																									
2100	WVUTH154																									
2101	WVUTH155																									
2102	WVUTH156	1100	4.283																							
2103	WVUTH157	1100	2.712																							
2104	WVUTH158	1100	3.630																							
2105	WVUTH159																									
2106	WVUTH160																									
2107	WVUTH161																									
2108	WVUTH162																									
2109	WVUTH163																									
2110	WVUTH164																									
2111	1																									
2112	2																									
2113	3																									
2114	4																									
2115	5																									
2116	6																									
2117	7																									
2118	8																									
2119	9																									
2120	1																									
2121	2																									
2122	3																									
2123	4																									
2124	5																									
2125	6																									
2126	7																									
2127	1																									
2128	2																									
2129	3																									
2130	4																									
2131	5																									
2132	6																									

#	Glass ID	TCLP Se	TCLP Zn	TCLP Al	TCLP B	TCLP Sb	TCLP Tl	TCLP V	Q PCT B (g/m²)	Q PCT Li (g/m²)	Q PCT Na (g/m²)	Q PCT Si (g/m²)	Q PCT pH	CCC PCT B (g/m²)	CCC PCT Li (g/m²)	CCC PCT Na (g/m²)	CCC PCT Si (g/m²)	CCC PCT pH	T1 (°C)
2051	WVUTH 88																		
2052	WVUTH 106																		
2053	WVUTH 107																		
2054	WVUTH 108																		
2055	WVUTH 109																		
2056	WVUTH110								0.353										
2057	WVUTH111								0.351										
2058	WVUTH112								0.284										
2059	WVUTH113								0.284										
2060	WVUTH114								0.348										
2061	WVUTH115								0.353										
2062	WVUTH116								0.295										
2063	WVUTH117								0.308										
2064	WVUTH118								0.330										
2065	WVUTH119								0.351										
2066	WVUTH120								0.314										
2067	WVUTH121								0.329										
2068	WVUTH122								0.378										
2069	WVUTH123								0.347										
2070	WVUTH124								0.365										
2071	WVUTH125								0.378										
2072	WVUTH126								0.282										
2073	WVUTH127								0.282										
2074	WVUTH128								0.282										
2075	WVUTH129								0.282										
2076	WVUTH130								0.282										
2077	WVUTH131								0.282										
2078	WVUTH132								0.278										
2079	WVUTH133								0.277										
2080	WVUTH134								0.281										
2081	WVUTH135								0.288										
2082	WVUTH136								0.277										
2083	WVUTH137								0.277										
2084	WVUTH138								0.275										
2085	WVUTH139								0.235										
2086	WVUTH140								0.246										
2087	WVUTH141								0.263										
2088	WVUTH142								0.280										
2089	WVUTH143								0.250										
2090	WVUTH144								0.263										
2091	WVUTH145								0.302										
2092	WVUTH146								0.277										
2093	WVUTH147								0.292										
2094	WVUTH148								0.302										
2095	WVUTH149								0.277										
2096	WVUTH150								0.288										
2097	WVUTH151																		
2098	WVUTH152								0.308										
2099	WVUTH153								0.330										
2100	WVUTH154								0.351										
2101	WVUTH155								0.235										
2102	WVUTH156								0.284										
2103	WVUTH157								0.284										
2104	WVUTH158								0.284										
2105	WVUTH159								0.282										
2106	WVUTH160								0.246										
2107	WVUTH161								0.263										
2108	WVUTH162								0.280										
2109	WVUTH163								0.284										
2110	WVUTH164								0.284										
2111	1																		
2112	2																		
2113	3																		
2114	4																		
2115	5																		
2116	6																		
2117	7																		
2118	8																		
2119	9																		
2120	1																		
2121	2																		
2122	3																		
2123	4																		
2124	5																		
2125	6																		
2126	7																		
2127	1																		
2128	2																		
2129	3																		
2130	4																		
2131	5																		
2132	6																		

#	Glass ID	EC1 (S/cm)	T2 (°C)	EC2 (S/cm)	T3 (°C)	EC3 (S/cm)	T4 (°C)	EC4 (S/cm)	T5 (°C)	EC5 (S/cm)	T6 (°C)	EC6 (S/cm)	A	B	To
2051	WVUTH 88														
2052	WVUTH 106														
2053	WVUTH 107														
2054	WVUTH 108														
2055	WVUTH 109														
2056	WVUTH110														
2057	WVUTH111														
2058	WVUTH112														
2059	WVUTH113														
2060	WVUTH114														
2061	WVUTH115														
2062	WVUTH116														
2063	WVUTH117														
2064	WVUTH118														
2065	WVUTH119														
2066	WVUTH120														
2067	WVUTH121														
2068	WVUTH122														
2069	WVUTH123														
2070	WVUTH124														
2071	WVUTH125														
2072	WVUTH126														
2073	WVUTH127														
2074	WVUTH128														
2075	WVUTH129														
2076	WVUTH130														
2077	WVUTH131														
2078	WVUTH132														
2079	WVUTH133														
2080	WVUTH134														
2081	WVUTH135														
2082	WVUTH136														
2083	WVUTH137														
2084	WVUTH138														
2085	WVUTH139														
2086	WVUTH140														
2087	WVUTH141														
2088	WVUTH142														
2089	WVUTH143														
2090	WVUTH144														
2091	WVUTH145														
2092	WVUTH146														
2093	WVUTH147														
2094	WVUTH148														
2095	WVUTH149														
2096	WVUTH150														
2097	WVUTH151														
2098	WVUTH152														
2099	WVUTH153														
2100	WVUTH154														
2101	WVUTH155														
2102	WVUTH156														
2103	WVUTH157														
2104	WVUTH158														
2105	WVUTH159														
2106	WVUTH160														
2107	WVUTH161														
2108	WVUTH162														
2109	WVUTH163														
2110	WVUTH164														
2111	1														
2112	2														
2113	3														
2114	4														
2115	5														
2116	6														
2117	7														
2118	8														
2119	9														
2120	1														
2121	2														
2122	3														
2123	4														
2124	5														
2125	6														
2126	7														
2127	1														
2128	2														
2129	3														
2130	4														
2131	5														
2132	6														

#	Glass ID	Study	Reference	Al2O3-t	B2O3-t	CaO-t	Fe2O3-t	FeO-t	K2O-t	Li2O-t	MgO-t	Na2O-t	NiO-t	P2O5-t	SiO2-t	ZrO2-t	Ag2O-t	As2O3-t	As2O5-t	BaO-t	BeO-t	Bi2O3-t	Br-t	CdO-t	Ce2O3-t	CeO2-t	Cl-t
2133	1	HWVP	Bates March 1987																								
2134	2	HWVP	Bates March 1987																								
2135	3	HWVP	Bates March 1987																								
2136	4	HWVP	Bates March 1987																								
2137	5	HWVP	Bates March 1987																								
2138	Low Al	HWVP	Bates March 1987																								
2139	High Zr	HWVP	Bates March 1987																								
2140	High Na	HWVP	Bates March 1987																								
2141	Low Fe2O3	HWVP	Bates March 1987																								
2142	0.3%F	HWVP	Bates July 1987																								
2143	2%F	HWVP	Bates July 1987																								
2144	3%F	HWVP	Bates July 1987																								
2145	4%F	HWVP	Bates July 1987																								
2146	Table 10;1	HWVP	Bates July 1987																								
2147	Table 10;2	HWVP	Bates July 1987																								
2148	Table 10;3	HWVP	Bates July 1987																								
2149	Table 10;4	HWVP	Bates July 1987																								
2150	Table 10;5	HWVP	Bates July 1987																								
2151	Table 10;6	HWVP	Bates July 1987																								
2152	Table 10;7	HWVP	Bates July 1987																								
2153	Table 10;8	HWVP	Bates July 1987																								
2154	Table 10;9	HWVP	Bates July 1987																								
2155	Table 10;10	HWVP	Bates July 1987																								
2156	HW43	HWVP	Bates Sept. 1987																								
2157	HW44	HWVP	Bates Sept. 1987																								
2158	HW45	HWVP	Bates Sept. 1987																								
2159	Low Al2O3	HWVP	Bates Sept. 1987																								
2160	High ZrO2	HWVP	Bates Sept. 1987																								
2161	High Na2O	HWVP	Bates Sept. 1987																								
2162	Low Fe2O3	HWVP	Bates Sept. 1987																								
2163	AWV-407	West Valley Studies	Bowan et al. 1985																								
2164	AWV-416	West Valley Studies	Bowan et al. 1985																								
2165	AWV-417	West Valley Studies	Bowan et al. 1985																								
2166	AWV-418	West Valley Studies	Bowan et al. 1985																								
2167	AWV-419	West Valley Studies	Bowan et al. 1985																								
2168	AWV-420	West Valley Studies	Bowan et al. 1985																								
2169	AWV-421	West Valley Studies	Bowan et al. 1985																								
2170	5% Ba	HWVP Comp. Variability Scop	Brouns et al. 1988	0.0365	0.0956	0.0288	0.0946			0.0375	0.0083	0.0994	0.0049		0.5106	0.0049				0.0500						0.0013	
2171	5% Mn	HWVP Comp. Variability Scop	Brouns et al. 1988	0.0369	0.0956	0.0288	0.0954			0.0375	0.0083	0.0996	0.0050		0.5107	0.0050				0.0009						0.0013	
2172	2% Mo	HWVP Comp. Variability Scop	Brouns et al. 1988	0.0424	0.0956	0.0289	0.1097			0.0750	0.0084	0.1031	0.0057		0.5116	0.0057				0.0010						0.0015	
2173	2% Ni	HWVP Comp. Variability Scop	Brouns et al. 1988	0.0429	0.0956	0.0289	0.1110			0.0375	0.0084	0.1034	0.0200		0.5117	0.0058				0.0010						0.0015	
2174	DG-WV1	Comp. Variablity Study	Brouns et al., 1988a	0.0805	0.1208	0.0060	0.1220		0.0129	0.0203	0.0133	0.0927	0.0028	0.0252	0.4259	0.0029				0.0005						0.0007	
2175	DG-WV2	Comp. Variablity Study	Brouns et al., 1988a	0.0804	0.1207	0.0060	0.1219		0.0129	0.0203	0.0133	0.0926	0.0028	0.0252	0.4255	0.0029				0.0005						0.0007	
2176	DG-WV3	Comp. Variablity Study	Brouns et al., 1988a	0.0650	0.0925	0.0056	0.1130		0.0333	0.0282	0.0121	0.1016	0.0032	0.0233	0.4487	0.0027				0.0005						0.0007	
2177	DG-WV4	Comp. Variablity Study	Brouns et al., 1988a	0.0779	0.1169	0.0058	0.1181		0.0125	0.0197	0.0129	0.1220	0.0027	0.0244	0.4122	0.0028				0.0005						0.0007	
2178	DG-WV5	Comp. Variablity Study	Brouns et al., 1988a	0.0600	0.1235	0.0061	0.1241		0.0132	0.0208	0.0136	0.0948	0.0029	0.0258	0.4354	0.0030				0.0005						0.0007	
2179	DG-WV6	Comp. Variablity Study	Brouns et al., 1988a	0.0797	0.1196	0.0059	0.1208		0.0128	0.0201	0.0132	0.0918	0.0028	0.0350	0.4216	0.0029				0.0005						0.0007	
2180	DG-WV7	Comp. Variablity Study	Brouns et al., 1988a	0.0790	0.1186	0.0059	0.1198		0.0127	0.0199	0.0131	0.0910	0.0028	0.0248	0.4180	0.0028				0.0005						0.0007	
2181	DG-WV8	Comp. Variablity Study	Brouns et al., 1988a	0.0849	0.0730	0.0063	0.1287		0.0136	0.0214	0.0140	0.0978	0.0030	0.0266	0.4491	0.0031				0.0005						0.0007	
2182	DG-WV15	Comp. Variablity Study	Brouns et al., 1988a	0.0900	0.1297	0.0137	0.0900		0.0172	0.0237	0.0132	0.1046	0.0053	0.0150	0.3900	0.0069				0.0032				0.0118			
2183	DG-WV16	Comp. Variablity Study	Brouns et al., 1988a	0.0900	0.1297	0.0137	0.1500		0.0138	0.0191	0.0132	0.0842	0.0016	0.0350	0.3900	0.0021				0.0032				0.0036			
2184	DG-WV17	Comp. Variablity Study	Brouns et al., 1988a	0.0900	0.1021	0.0137	0.0900		0.0172	0.0237	0.0132	0.1046	0.0058	0.0150	0.3900	0.0075				0.0032				0.0130			
2185	DG-WV18	Comp. Variablity Study	Brouns et al., 1988a	0.0900	0.1095	0.0046	0.1500		0.0184	0.0254	0.0044	0.1122	0.0017	0.0150	0.4248	0.0022				0.0011				0.0037			
2186	DG-WV19	Comp. Variablity Study	Brouns et al., 1988a	0.1200	0.1035	0.0137	0.1500		0.0156	0.0216	0.0132	0.0953	0.0016	0.0150	0.3665	0.0021				0.0032				0.0036			
2187	DG-WV20	Comp. Variablity Study	Brouns et al., 1988a	0.1200	0.1106	0.0137	0.0900		0.0148	0.0204	0.0132	0.0902	0.0058	0.0350	0.3940	0.0075				0.0032				0.0129			
2188	DG-WV21	Comp. Variablity Study	Brouns et al., 1988a	0.1200	0.1032	0.0046	0.1500		0.0173	0.0239	0.0044	0.1056	0.0017	0.0350	0.3649	0.0022				0.0011				0.0037			
2189	DG-WV22	Comp. Variablity Study	Brouns et al., 1988a	0.1200	0.1182	0.0046	0.1500		0.0139	0.0192	0.0044	0.0847	0.0057	0.0150	0.3630	0.0073				0.0011				0.0126			
2190	DG-WV23	Comp. Variablity Study	Brouns et al., 1988a	0.0942	0.1248	0.0050	0.1424		0.0186	0.0180	0.0054	0.0823	0.0018	0.0330	0.3931	0.0024				0.0011				0.0040			
2191	DG-WV24	Comp. Variablity Study	Brouns et al., 1988a	0.1232	0.1322	0.0048	0.0867		0.0252	0.0205	0.0056	0.0956	0.0017	0.0141	0.4210	0.0022				0.0011				0.0038			
2192	DG-WV25	Comp. Variablity Study	Brouns et al., 1988a	0.0930	0.1090	0.0050	0.0867		0.0202	0.0203	0.0053	0.0909	0.0019	0.0313	0.4500	0.0024				0.0010				0.0042			
2193	DG-WV26	Comp. Variablity Study	Brouns et al., 1988a	0.1227	0.1338	0.0134	0.0867		0.0264	0.0200	0.0135	0.0909	0.0019	0.0162	0.4095	0.0025				0.0030				0.0043			
2194	DG-WV27	Comp. Variablity Study	Brouns et al., 1988a	0.1217	0.1258	0.0049	0.0868		0.0245	0.0228	0.0062	0.1014	0.0062	0.0348	0.3672	0.0080				0.0011				0.0137			
2195	DG-WV28	Comp. Variablity Study	Brouns et al., 1988a	0.0968	0.1066	0.0048	0.1211		0.0135	0.0205	0.0062	0.0886	0.0059	0.0153	0.4338	0.0077				0.0011				0.0132			
2196	DG-WV29	Comp. Variablity Study	Brouns et al., 1988a	0.0928	0.1145	0.0133	0.0874		0.0184	0.0257	0.0136	0.1074	0.0019	0.0327	0.4468	0.0024				0.0032				0.0042			
2197	DG-WV30	Comp. Variablity Study	Brouns et al., 1988a	0.1007	0.1188	0.0084	0.1148		0.0181	0.0210	0.0101	0.0963	0.0035	0.0242	0.4006	0.0045				0.0020				0.0076			
2198	BAZ-R	Italian HLW	Cantale et al. 1991																								
2199	BAZ-V40	Italian HLW	Cantale et al. 1991																								
2200	79-339	Low Leach Rate Glasses	Chick 1980	0.0648	0.1133	0.0104	0.0000		0.0000	0.0000		0.1038	0.0000		0.6148	0.0000											
2201	TDS + 79-339	Low Leach Rate Glasses	Chick 1980	0.0562	0.0984	0.0095	0.1422		0.0000	0.0000		0.0885	0.0180		0.5367	0.0000											
2202	TDS/211	Low Leach Rate Glasses	Chick 1980	0.0319	0.0798	0.0501	0.1426		0.0000	0.0316		0.1504	0.0178		0.4453	0.0000											
2203	RHO Purex	Low Leach Rate Glasses	Chick 1980	0.0548	0.1047	0.0086	0.1324		0.0000	0.0500		0.1018	0.0000		0.5294	0.0000											
2204	RHO Res.Liq.	Low Leach Rate Glasses	Chick 1980	0.0682	0.1020	0.0000	0.0000		0.0000	0.0205		0.1076	0.0000		0.6413	0.0000											
2205	76-68	Low Leach Rate Glasses	Chick 1980	0.0000	0.0980	0.0209	0.1018		0.0000	0.0000		0.1292	0.0020		0.4126	0.0180											
2206	77-260	Low Leach Rate Glasses	Chick 1980	0.0202	0.0921	0.0104	0.0119		0.0210	0.0000		0.1150	0.0000		0.3701	0.0168											
2207	79-417	Low Leach Rate Glasses	Chick 1980	0.0459	0.0939	0.0029	0.0144		0.0012	0.0000		0.0844	0.0010		0.4741	0.0348											
2208	79-418	Low Leach Rate Glasses	Chick 1980	0.0567	0.0992	0.0008	0.1408		0.0000	0.0000		0.0959	0.0000		0.5193	0.0100											
2209	Vitreous	Evaluation of HLW Forms	Chick, et al 1986																								
2210	A0	INEL TRU Study	Flinn et al. 1981	0.0740		0.0830	0.3450		0.0240		0.0460	0.0480			0.3800												
2211	A20	INEL TRU Study	Flinn et al. 1981	0.0900		0.0910	0.2640		0.0250		0.0400	0.0390			0.4510												
2212	A40	INEL TRU Study	Flinn et al. 1981	0.1030		0.0970	0.1960		0.0260		0.0350	0.0320			0.5100												
2213	A60a	INEL TRU Study	Flinn et al. 1981	0.1140		0.1030	0.1390		0.0270		0.0310	0.0260			0.5600												
2214	A80a	INEL TRU Study	Flinn et al. 1981	0.1210		0.1000	0.0950		0.0280		0.0280	0.0220			0.6060												

#	Glass ID	CoO-t	Co2O3-t	Cr2O3-t	Cs2O-t	CuO-t	Dy2O3-t	Eu2O3-t	F-t	Ga2O3-t	Gd2O3-t	HfO2-t	HgO-t	I-t	La2O3-t	MnO2-t	MnO-t	MoO-t	MoO2-t	MoO3-t	Nb2O5-t	Nd2O3-t	NpO2-t	PbO-t	PdO2-t	PdO-t	Pr2O3-t	Pr6O11-t	Rb2O-t	ReO-t
2133	1																												
2134	2																												
2135	3																												
2136	4																												
2137	5																												
2138	Low Al																												
2139	High Zr																												
2140	High Na																												
2141	Low Fe2O3																												
2142	0.3%F																												
2143	2%F																												
2144	3%F																												
2145	4%F																												
2146	Table 10;1																												
2147	Table 10;2																												
2148	Table 10;3																												
2149	Table 10;4																												
2150	Table 10;5																												
2151	Table 10;6																												
2152	Table 10;7																												
2153	Table 10;8																												
2154	Table 10;9																												
2155	Table 10;10																												
2156	HW43																												
2157	HW44																												
2158	HW45																												
2159	Low Al2O3																												
2160	High ZrO2																												
2161	High Na2O																												
2162	Low Fe2O3																												
2163	AWV-407																												
2164	AWV-416																												
2165	AWV-417																												
2166	AWV-418																												
2167	AWV-419																												
2168	AWV-420																												
2169	AWV-421																												
2170	5% Ba			0.0011	0.0013	0.0013			0.0026						0.0047	0.0013				0.0026		0.0042				0.0004		0.0009	0.0004	
2171	5% Mn			0.0011	0.0013	0.0013			0.0026						0.0048	0.0500				0.0026		0.0043				0.0004		0.0009	0.0004	
2172	2% Mo			0.0012	0.0015	0.0015			0.0030						0.0055	0.0015				0.0200		0.0049				0.0005		0.0010	0.0005	
2173	2% Ni			0.0013	0.0015	0.0015			0.0030						0.0056	0.0015				0.0030		0.0050				0.0005		0.0010	0.0005	
2174	DG-WV1			0.0020	0.0008										0.0003	0.0131				0.0001		0.0012		0.0000				0.0003		
2175	DG-WV2			0.0020	0.0008										0.0003	0.0131				0.0001		0.0012		0.0001				0.0003		
2176	DG-WV3			0.0029	0.0007										0.0003	0.0122				0.0000		0.0017		0.0001				0.0000		
2177	DG-WV4			0.0019	0.0008										0.0003	0.0127				0.0001		0.0012		0.0000				0.0003		
2178	DG-WV5			0.0020	0.0008										0.0003	0.0134				0.0001		0.0012		0.0000				0.0003		
2179	DG-WV6			0.0020	0.0008										0.0003	0.0130				0.0001		0.0012		0.0000				0.0003		
2180	DG-WV7			0.0020	0.0008										0.0003	0.0129				0.0001		0.0012		0.0000				0.0003		
2181	DG-WV8			0.0021	0.0008										0.0003	0.0138				0.0001		0.0013		0.0000				0.0003		
2182	DG-WV15			0.0024	0.0012	0.0002									0.0007	0.0250				0.0007		0.0024		0.0000				0.0007		
2183	DG-WV16			0.0007	0.0004	0.0008									0.0002	0.0222				0.0002		0.0007		0.0000				0.0002		
2184	DG-WV17			0.0026	0.0013	0.0002									0.0008	0.0250				0.0008		0.0026		0.0000				0.0008		
2185	DG-WV18			0.0008	0.0004	0.0002									0.0002	0.0050				0.0002		0.0008		0.0000				0.0002		
2186	DG-WV19			0.0007	0.0004	0.0007									0.0002	0.0050				0.0002		0.0007		0.0000				0.0002		
2187	DG-WV20			0.0026	0.0013	0.0002									0.0007	0.0050				0.0007		0.0026		0.0000				0.0007		
2188	DG-WV21			0.0008	0.0004	0.0007									0.0002	0.0250				0.0002		0.0008		0.0000				0.0002		
2189	DG-WV22			0.0026	0.0013	0.0002									0.0007	0.0250				0.0007		0.0026		0.0000				0.0007		
2190	DG-WV23			0.0008	0.0004	0.0000									0.0002		0.0042			0.0002		0.0008		0.0000				0.0002		
2191	DG-WV24			0.0008	0.0004	0.0002									0.0002		0.0199			0.0002		0.0008		0.0000				0.0002		
2192	DG-WV25			0.0008	0.0004	0.0002									0.0002		0.0196			0.0002		0.0008		0.0000				0.0002		
2193	DG-WV26			0.0009	0.0004	0.0003									0.0003		0.0045			0.0003		0.0009		0.0000				0.0003		
2194	DG-WV27			0.0028	0.0014	0.0008									0.0008		0.0042			0.0008		0.0028		0.0000				0.0008		
2195	DG-WV28			0.0027	0.0013	0.0008									0.0008		0.0042			0.0008		0.0027		0.0000				0.0008		
2196	DG-WV29			0.0008	0.0004	0.0002									0.0002		0.0041			0.0002		0.0008		0.0000				0.0002		
2197	DG-WV30			0.0016	0.0008	0.0004									0.0004		0.0098			0.0004		0.0016		0.0000				0.0004		
2198	BAZ-R																												
2199	BAZ-V40																												
2200	79-339			0.0000	0.0000	0.0000					0.0000					0.0148				0.0000										
2201	TDS + 79-339			0.0000	0.0080	0.0000					0.0000					0.0381				0.0000										
2202	TDS/211			0.0000	0.0084	0.0000					0.0000					0.0375				0.0000										
2203	RHO Purex			0.0000	0.0000	0.0000					0.0000					0.0120				0.0000										
2204	RHO Res.Liq.			0.0024	0.0045	0.0000					0.0000					0.0000				0.0000										
2205	76-68			0.0040	0.0112	0.0000					0.0000					0.0000				0.0191										
2206	77-260			0.0000	0.0070	0.0315					0.1076					0.0011				0.0160										
2207	79-417			0.0039	0.0181	0.0000					0.0000					0.0011				0.0407										
2208	79-418			0.0021	0.0076	0.0000					0.0000					0.0000				0.0117										
2209	Vitreous																												
2210	A0																												
2211	A20																												
2212	A40																												
2213	A60a																												
2214	A80a																												

#	Glass ID	ReO2-t	Re2O7-t	Rh2O3-t	RhO2-t	RuO2-t	Ru2O3-t	Sb2O3-t	Sb2O5-t	SeO2-t	Sm2O3-t	SnO-t	SnO2-t	SO3-t	SrO-t	Tc2O7-t	TeO2-t	ThO2-t	TiO2-t	Tl2O-t	Tl2O3-t	U3O8-t	UO2-t	UO3-t	V2O5-t	WO3-t	Y2O3-t	ZnO-t	Sum-t	Al2O3-a
2133	1																											0.0000	0.0436
2134	2																											0.0000	0.0433
2135	3																											0.0000	0.0431
2136	4																											0.0000	0.0430
2137	5																											0.0000	0.0427
2138	Low Al																											0.0000	0.0040
2139	High Zr																											0.0000	0.0279
2140	High Na																											0.0000	0.0400
2141	Low Fe2O3																											0.0000	0.0666
2142	0.3%F																											0.0000	0.0454
2143	2%F																											0.0000	0.0448
2144	3%F																											0.0000	0.0447
2145	4%F																											0.0000	0.0441
2146	Table 10;1																											0.0000	0.0136
2147	Table 10;2																											0.0000	0.0503
2148	Table 10;3																											0.0000	0.0272
2149	Table 10;4																											0.0000	0.0000
2150	Table 10;5																											0.0000	0.0194
2151	Table 10;6																											0.0000	0.0000
2152	Table 10;7																											0.0000	0.0252
2153	Table 10;8																											0.0000	0.0194
2154	Table 10;9																											0.0000	0.0136
2155	Table 10;10																											0.0000	0.0000
2156	HW43																											0.0000	0.0258
2157	HW44																											0.0000	0.0310
2158	HW45																											0.0000	0.0362
2159	Low Al2O3																											0.0000	0.0040
2160	High ZrO2																											0.0000	0.0278
2161	High Na2O																											0.0000	0.0398
2162	Low Fe2O3																											0.0000	0.0579
2163	AWV-407																											0.0000	
2164	AWV-416																											0.0000	
2165	AWV-417																											0.0000	
2166	AWV-418																											0.0000	
2167	AWV-419																											0.0000	
2168	AWV-420																											0.0000	
2169	AWV-421																											0.0000	
2170	5% Ba			0.0004		0.0013					0.0004			0.0032	0.0009											0.0004		0.9998	
2171	5% Mn			0.0004		0.0013					0.0004			0.0033	0.0009											0.0004		1.0014	
2172	2% Mo			0.0005		0.0015					0.0005			0.0037	0.0010											0.0005		1.0374	
2173	2% Ni			0.0005		0.0015					0.0005			0.0038	0.0010											0.0005		0.9999	
2174	DG-WV1				0.0000	0.0000					0.0003			0.0030	0.0003			0.0361	0.0099				0.0058			0.0002		0.9999	0.0874
2175	DG-WV2				0.0001	0.0008					0.0003			0.0030	0.0003			0.0361	0.0099				0.0056			0.0002		0.9999	0.0861
2176	DG-WV3				0.0001	0.0007					0.0000			0.0027	0.0003			0.0334	0.0091				0.0052			0.0002		1.0000	0.0716
2177	DG-WV4				0.0000	0.0000					0.0003			0.0029	0.0003			0.0350	0.0096				0.0054			0.0002		1.0001	0.0838
2178	DG-WV5				0.0000	0.0000					0.0003			0.0031	0.0003			0.0369	0.0101				0.0057			0.0002		0.9991	0.0690
2179	DG-WV6				0.0000	0.0000					0.0003			0.0030	0.0003			0.0358	0.0098				0.0056			0.0002		1.0001	0.0855
2180	DG-WV7				0.0000	0.0000					0.0003			0.0029	0.0003			0.0540	0.0097				0.0055			0.0002		1.0001	0.0884
2181	DG-WV8				0.0000	0.0000					0.0003			0.0032	0.0003			0.0381	0.0105				0.0059			0.0002		0.9999	0.0901
2182	DG-WV15				0.0000	0.0000					0.0003			0.0040	0.0003			0.0200	0.0144				0.0100			0.0003	0.0002	0.9971	0.0960
2183	DG-WV16				0.0000	0.0000					0.0001			0.0012	0.0001			0.0200	0.0044			0.0014	0.0010			0.0001	0.0002	1.0031	0.0943
2184	DG-WV17				0.0000	0.0000					0.0004			0.0043	0.0004			0.0514	0.0158			0.0008	0.0010			0.0004	0.0006	0.9982	0.0943
2185	DG-WV18				0.0000	0.0000					0.0001			0.0013	0.0001			0.0237	0.0046			0.0009	0.0010			0.0001	0.0000	1.0026	0.0947
2186	DG-WV19				0.0000	0.0000					0.0001			0.0012	0.0001			0.0525	0.0044			0.0097	0.0100			0.0001	0.0000	1.0111	0.1223
2187	DG-WV20				0.0000	0.0000					0.0004			0.0043	0.0004			0.0200	0.0157			0.0099	0.0100			0.0004	0.0002	1.0064	0.1224
2188	DG-WV21				0.0000	0.0000					0.0001			0.0012	0.0001			0.0200	0.0046			0.0096	0.0100			0.0001	0.0006	1.0122	0.1251
2189	DG-WV22				0.0000	0.0000					0.0004			0.0042	0.0004			0.0200	0.0154			0.0011	0.0010			0.0004	0.0002	0.9966	0.1250
2190	DG-WV23				0.0000	0.0000					0.0001			0.0014	0.0001			0.0495	0.0050			0.0097				0.0001	0.0002	0.9990	
2191	DG-WV24				0.0000	0.0000					0.0001			0.0013	0.0001			0.0188	0.0047			0.0097				0.0001	0.0002	0.9954	
2192	DG-WV25				0.0000	0.0000					0.0001			0.0014	0.0001			0.0436	0.0051			0.0010				0.0001	0.0000	0.9950	
2193	DG-WV26				0.0000	0.0000					0.0001			0.0014	0.0001			0.0380	0.0053			0.0010				0.0001	0.0002	0.9989	
2194	DG-WV27				0.0000	0.0000					0.0004			0.0046	0.0004			0.0346	0.0168			0.0011				0.0004	0.0006	0.9984	
2195	DG-WV28				0.0000	0.0000					0.0004			0.0044	0.0004			0.0172	0.0161			0.0100				0.0004	0.0006	0.9987	
2196	DG-WV29				0.0000	0.0000					0.0001			0.0014	0.0001			0.0193	0.0051			0.0010				0.0001	0.0002	0.9985	
2197	DG-WV30				0.0000	0.0000					0.0002			0.0026	0.0002			0.0326	0.0094			0.0061				0.0002	0.0003	0.9976	
2198	BAZ-R																											0.0000	0.1375
2199	BAZ-V40																											0.0000	0.1347
2200	79-339														0.0000				0.0780								0.0000	0.9999	
2201	TDS + 79-339														0.0044				0.0000								0.0000	1.0000	
2202	TDS/211														0.0046				0.0000								0.0000	1.0000	
2203	RHO Purex														0.0064				0.0000								0.0000	1.0001	
2204	RHO Res.Liq.														0.0000				0.0535								0.0000	1.0000	
2205	76-68														0.0041				0.0308								0.0519	0.9036	
2206	77-260														0.0026				0.0623								0.0000	0.8856	
2207	79-417														0.0080				0.0000								0.0021	0.8265	
2208	79-418														0.0028				0.0000								0.0011	0.9480	
2209	Vitreous																											0.0000	0.0150
2210	A0																											1.0000	
2211	A20																											1.0000	
2212	A40																											0.9990	
2213	A60a																											1.0000	
2214	A80a																											1.0000	

#	Glass ID	B2O3-a	CaO-a	Fe2O3-a	FeO-a	K2O-a	Li2O-a	MgO-a	Na2O-a	NiO-a	P2O5-a	SiO2-a	ZrO2-a	Ag2O-a	As2O3-a	As2O5-a	BaO-a	BeO-a	Bi2O3-a	Br-a	CdO-a	Ce2O3-a	CeO2-a	Cl-a	CoO-a	Co2O3-a	Cr2O3-a	Cs2O-a	CuO-a	F-a
2133	1	0.0973	0.0294	0.1125		0.0000	0.0385	0.0081	0.1054	0.0061		0.5187	0.0061				0.0010						0.0018				0.0000	0.0020	0.0016	0.0030
2134	2	0.0968	0.0292	0.1119		0.0000	0.0383	0.0081	0.1048	0.0060		0.5162	0.0060				0.0010						0.0018				0.0050	0.0020	0.0016	0.0030
2135	3	0.0963	0.0291	0.1113		0.0000	0.0381	0.0080	0.1043	0.0060		0.5136	0.0060				0.0010						0.0018				0.0100	0.0020	0.0016	0.0030
2136	4	0.0960	0.0290	0.1110		0.0000	0.0380	0.0080	0.1040	0.0060		0.5118	0.0060				0.0010						0.0018				0.0134	0.0020	0.0016	0.0030
2137	5	0.0953	0.0288	0.1102		0.0000	0.0377	0.0079	0.1033	0.0060		0.5084	0.0060				0.0010						0.0018				0.0200	0.0020	0.0016	0.0030
2138	Low Al	0.0956	0.0291	0.1408			0.0375	0.0085	0.1110	0.0076		0.5140	0.0076				0.0013						0.0023				0.0016	0.0031	0.0019	0.0038
2139	High Zr	0.0956	0.0286	0.0720			0.0375	0.0080	0.0944	0.0039		0.5093	0.1000				0.0007						0.0012				0.0008	0.0016	0.0010	0.0020
2140	High Na	0.0956	0.0288	0.1030			0.0375	0.0082	0.1319	0.0055		0.5114	0.0055				0.0010						0.0017				0.0011	0.0023	0.0014	0.0028
2141	Low Fe2O3	0.0956	0.0293	0.0550			0.0375	0.0087	0.1185	0.0092		0.5161	0.0092				0.0016						0.0028				0.0019	0.0038	0.0024	0.0047
2142	0.3%F	0.0953	0.0288	0.1173			0.0374	0.0085	0.1047	0.0062		0.5106	0.0062				0.0110						0.0016				0.0013	0.0016	0.0016	0.0031
2143	2%F	0.0942	0.0285	0.1159			0.0369	0.0084	0.1034	0.0061		0.5044	0.0061				0.0011						0.0016				0.0013	0.0016	0.0016	0.0150
2144	3%F	0.0939	0.0284	0.1157			0.0369	0.0084	0.1032	0.0061		0.5032	0.0061				0.0011						0.0016				0.0013	0.0016	0.0016	0.0173
2145	4%F	0.0927	0.0280	0.1142			0.0364	0.0082	0.1019	0.0060		0.4967	0.0060				0.0011						0.0016				0.0013	0.0016	0.0016	0.0300
2146	Table 10;1	0.0921	0.1552	0.1102			0.0361	0.0075	0.0824	0.0019		0.4878	0.0019				0.0003						0.0005				0.0004	0.0005	0.0005	0.0009
2147	Table 10;2	0.0921	0.0279	0.1302			0.0361	0.0082	0.1051	0.0070		0.4942	0.0070				0.0012						0.0017				0.0016	0.0017	0.0017	0.0035
2148	Table 10;3	0.0921	0.1554	0.0703			0.0361	0.0077	0.0908	0.0038		0.4902	0.0038				0.0007						0.0009				0.0008	0.0009	0.0009	0.0019
2149	Table 10;4	0.0920	0.1550	0.1502			0.0361	0.0072	0.0740	0.0000		0.4855	0.0000				0.0000						0.0000				0.0000	0.0000	0.0000	0.0000
2150	Table 10;5	0.0921	0.0914	0.1572			0.0361	0.0076	0.0860	0.0027		0.4888	0.0027				0.0005						0.0007				0.0006	0.0007	0.0007	0.0013
2151	Table 10;6	0.0920	0.0271	0.2781			0.0361	0.0072	0.0740	0.0000		0.4855	0.0000				0.0000						0.0000				0.0000	0.0000	0.0000	0.0000
2152	Table 10;7	0.0921	0.0275	0.2042			0.0361	0.0077	0.0896	0.0035		0.4898	0.0035				0.0006						0.0009				0.0008	0.0009	0.0009	0.0017
2153	Table 10;8	0.0921	0.0914	0.1572			0.0361	0.0076	0.0860	0.0027		0.4888	0.0027				0.0005						0.0007				0.0006	0.0007	0.0007	0.0013
2154	Table 10;9	0.0921	0.1552	0.1102			0.0361	0.0075	0.0824	0.0019		0.4878	0.0019				0.0003						0.0005				0.0004	0.0005	0.0005	0.0009
2155	Table 10;10	0.0921	0.1550	0.1502			0.0361	0.0072	0.0740	0.0000		0.4855	0.0000				0.0000						0.0000				0.0000	0.0000	0.0000	0.0000
2156	HW43	0.0959	0.0289	0.0723			0.0375	0.0084	0.1221	0.0059		0.5276	0.0387				0.0010						0.0015				0.0013	0.0015	0.0015	0.0031
2157	HW44	0.0896	0.0272	0.0868			0.0350	0.0081	0.1260	0.0071		0.4986	0.0465				0.0012						0.0019				0.0015	0.0019	0.0019	0.0037
2158	HW45	0.0832	0.0255	0.1012			0.0325	0.0078	0.1299	0.0083		0.4697	0.0542				0.0014						0.0022				0.0018	0.0022	0.0022	0.0043
2159	Low Al2O3	0.0956	0.0291	0.1408			0.0375	0.0087	0.1105	0.0074		0.5137	0.0074				0.0013						0.0019				0.0017	0.0019	0.0019	0.0038
2160	High ZrO2	0.0956	0.0286	0.0720			0.0375	0.0081	0.0941	0.0038		0.5091	0.1000				0.0007						0.0010				0.0009	0.0010	0.0010	0.0020
2161	High Na2O	0.0956	0.0288	0.1029			0.0375	0.0083	0.1318	0.0054		0.5112	0.0054				0.0009						0.0014				0.0012	0.0014	0.0014	0.0028
2162	Low Fe2O3	0.0956	0.0291	0.0800			0.0375	0.0087	0.1127	0.0078		0.5143	0.0078				0.0014						0.0020				0.0018	0.0020	0.0020	0.0041
2163	AWV-407	0.0765					0.0328		0.1262			0.3938					0.0348													
2164	AWV-416																													
2165	AWV-417																													
2166	AWV-418																													
2167	AWV-419																													
2168	AWV-420																													
2169	AWV-421																													
2170	5% Ba																													
2171	5% Mn																													
2172	2% Mo																													
2173	2% Ni																													
2174	DG-WV1	0.1215	0.0068	0.1174		0.0116	0.0174	0.0132	0.0913	0.0031	0.0258	0.4325	0.0059				0.0005						0.0007				0.0019	0.0005		
2175	DG-WV2	0.1217	0.0083	0.1172		0.0091	0.0176	0.0130	0.0904	0.0027	0.0260	0.4360	0.0056				0.0005						0.0007				0.0020	0.0005		
2176	DG-WV3	0.0933	0.0063	0.1081		0.0192	0.0234	0.0170	0.0982	0.0036	0.0241	0.4546	0.0064				0.0007						0.0010				0.0029	0.0006		
2177	DG-WV4	0.1177	0.0068	0.1106		0.0171	0.0171	0.0129	0.1147	0.0027	0.0254	0.4194	0.0054				0.0005						0.0007				0.0020	0.0005		
2178	DG-WV5	0.1241	0.0068	0.1191		0.0150	0.0176	0.0135	0.0910	0.0030	0.0263	0.4443	0.0060				0.0005						0.0009				0.0021	0.0005		
2179	DG-WV6	0.1215	0.0069	0.1155		0.0070	0.0171	0.0129	0.0913	0.0028	0.0356	0.4342	0.0056				0.0005						0.0005				0.0019	0.0005		
2180	DG-WV7	0.1215	0.0065	0.1155		0.0127	0.0171	0.0128	0.0868	0.0028	0.0251	0.4303	0.0062				0.0005						0.0007				0.0020	0.0004		
2181	DG-WV8	0.0751	0.0067	0.1229		0.0171	0.0184	0.0139	0.0938	0.0030	0.0268	0.4583	0.0057				0.0005						0.0010				0.0019	0.0014		
2182	DG-WV15	0.1258	0.0136	0.0880		0.0164	0.0273	0.0127	0.1017		0.0133	0.3979					0.0033													
2183	DG-WV16	0.1261	0.0137	0.1442		0.0131	0.0191	0.0122	0.0864		0.0323	0.3995					0.0032													
2184	DG-WV17	0.0978	0.0143	0.0887		0.0207	0.0234	0.0129	0.1057		0.0124	0.3957					0.0032													
2185	DG-WV18	0.1062	0.0054	0.1444		0.0175	0.0244	0.0044	0.1114		0.0155	0.4320					0.0011													
2186	DG-WV19	0.1008	0.0131	0.1420		0.0197	0.0207	0.0128	0.0988		0.0135	0.3601					0.0032													
2187	DG-WV20	0.1062	0.0134	0.0875		0.0223	0.0204	0.0142	0.0863		0.0334	0.3995					0.0031													
2188	DG-WV21	0.1005	0.0050	0.1467		0.0123	0.0231	0.0053	0.1046		0.0338	0.3754					0.0011													
2189	DG-WV22	0.1157	0.0050	0.1403		0.0184	0.0182	0.0048	0.0831		0.0143	0.3738					0.0011													
2190	DG-WV23																													
2191	DG-WV24																													
2192	DG-WV25																													
2193	DG-WV26																													
2194	DG-WV27																													
2195	DG-WV28																													
2196	DG-WV29																													
2197	DG-WV30																													
2198	BAZ-R	0.0970	0.0296	0.0443		0.0000	0.0474	0.0029	0.1607	0.0000		0.4678	0.0014				0.0008										0.0000	0.0042		
2199	BAZ-V40	0.1025	0.0266	0.0021		0.0037	0.0485	0.0048	0.1726	0.0001		0.4570	0.0000				0.0007										0.0012	0.0000		
2200	79-339																													
2201	TDS + 79-339																													
2202	TDS/211																													
2203	RHO Purex																													
2204	RHO Res.Liq.																													
2205	76-68																													
2206	77-260																													
2207	79-417																													
2208	79-418																													
2209	Vitreous		0.0058	0.0890					0.0120	0.0095	0.3180	0.0060											0.0019					0.0009		
2210	A0																													
2211	A20																													
2212	A40																													
2213	A60a																													
2214	A80a																													

#	Glass ID	Ga2O3-a	Gd2O3-a	I-a	La2O3-a	MnO2-a	MnO-a	MoO-a	MoO3-a	Nb2O5-a	Nd2O3-a	NpO2-a	PbO-a	PdO2-a	PdO-a	Pr2O3-a	Pr6O11-a	PuO2-a	Rb2O-a	ReO-a	ReO2-a	Re2O7-a	Rh2O3-a	RhO2-a	RuO2-a	Sb2O3-a	Sb2O5-a	SeO2-a
2133	1				0.0061		0.0018		0.0032		0.0051						0.0010								0.0016			
2134	2				0.0060		0.0018		0.0032		0.0050						0.0010								0.0016			
2135	3				0.0060		0.0018		0.0032		0.0050						0.0010								0.0016			
2136	4				0.0060		0.0018		0.0032		0.0050						0.0010								0.0016			
2137	5				0.0060		0.0018		0.0032		0.0050						0.0010								0.0016			
2138	Low Al				0.0070		0.0023		0.0038		0.0067						0.0013											
2139	High Zr				0.0036		0.0012		0.0020		0.0034						0.0007											
2140	High Na				0.0051		0.0017		0.0028		0.0049						0.0010											
2141	Low Fe2O3				0.0085		0.0028		0.0047		0.0082						0.0016											
2142	0.3%F				0.0059		0.0016		0.0032		0.0053				0.0005		0.0011		0.0005				0.0005		0.0016			
2143	2%F				0.0058		0.0016		0.0032		0.0052				0.0005		0.0011		0.0005				0.0005		0.0016			
2144	3%F				0.0058		0.0016		0.0031		0.0052				0.0005		0.0011		0.0005				0.0005		0.0016			
2145	4%F				0.0057		0.0016		0.0031		0.0051				0.0005		0.0011		0.0005				0.0005		0.0016			
2146	Table 10;1				0.0017		0.0005		0.0009		0.0017				0.0001		0.0003		0.0002				0.0001		0.0005			
2147	Table 10;2				0.0064		0.0017		0.0035		0.0061				0.0005		0.0010		0.0007				0.0005		0.0017			
2148	Table 10;3				0.0035		0.0009		0.0019		0.0033				0.0003		0.0006		0.0004				0.0003		0.0009			
2149	Table 10;4				0.0000		0.0000		0.0000		0.0000				0.0000		0.0000		0.0000				0.0000		0.0000			
2150	Table 10;5				0.0025		0.0007		0.0013		0.0024				0.0002		0.0004		0.0003				0.0002		0.0007			
2151	Table 10;6				0.0000		0.0000		0.0000		0.0000				0.0000		0.0000		0.0000				0.0000		0.0000			
2152	Table 10;7				0.0032		0.0009		0.0017		0.0031				0.0003		0.0005		0.0003				0.0003		0.0009			
2153	Table 10;8				0.0025		0.0007		0.0013		0.0024				0.0002		0.0004		0.0003				0.0002		0.0007			
2154	Table 10;9				0.0017		0.0005		0.0009		0.0017				0.0001		0.0003		0.0002				0.0001		0.0005			
2155	Table 10;10				0.0000		0.0000		0.0000		0.0000				0.0000		0.0000		0.0000				0.0000		0.0000			
2156	HW43				0.0052		0.0015		0.0031		0.0061				0.0005		0.0010		0.0005				0.0005		0.0015			
2157	HW44				0.0062		0.0019		0.0037		0.0073				0.0006		0.0012		0.0006				0.0006		0.0019			
2158	HW45				0.0072		0.0022		0.0043		0.0085				0.0007		0.0014		0.0007				0.0007		0.0022			
2159	Low Al2O3				0.0070		0.0019		0.0038		0.0067				0.0006		0.0013		0.0006				0.0006		0.0019			
2160	High ZrO2				0.0036		0.0010		0.0020		0.0034				0.0003		0.0007		0.0003				0.0003		0.0010			
2161	High Na2O				0.0051		0.0014		0.0028		0.0049				0.0005		0.0009		0.0005				0.0005		0.0014			
2162	Low Fe2O3				0.0075		0.0020		0.0041		0.0071				0.0007		0.0014		0.0007				0.0007		0.0020			
2163	AWV-407																											
2164	AWV-416																											
2165	AWV-417																											
2166	AWV-418																											
2167	AWV-419																											
2168	AWV-420																											
2169	AWV-421																											
2170	5% Ba																											
2171	5% Mn																											
2172	2% Mo																											
2173	2% Ni																											
2174	DG-WV1				0.0004	0.0130			0.0001		0.0012			0.0000			0.0003							0.0000	0.0000			
2175	DG-WV2				0.0004	0.0132			0.0001		0.0011			0.0001			0.0003							0.0001	0.0008			
2176	DG-WV3				0.0005	0.0176			0.0000		0.0016			0.0001			0.0000							0.0001	0.0007			
2177	DG-WV4				0.0004	0.0130			0.0001		0.0014			0.0000			0.0003							0.0000	0.0000			
2178	DG-WV5				0.0004	0.0136			0.0001		0.0012			0.0000			0.0003							0.0000	0.0000			
2179	DG-WV6				0.0004	0.0130			0.0001		0.0011			0.0000			0.0003							0.0000	0.0000			
2180	DG-WV7				0.0004	0.0129			0.0001		0.0009			0.0000			0.0003							0.0000	0.0000			
2181	DG-WV8				0.0003	0.0137			0.0001		0.0013			0.0000			0.0003							0.0000	0.0000			
2182	DG-WV15					0.0251																						
2183	DG-WV16					0.0223																						
2184	DG-WV17					0.0249																						
2185	DG-WV18					0.0054																						
2186	DG-WV19					0.0050																						
2187	DG-WV20					0.0052																						
2188	DG-WV21					0.0250																						
2189	DG-WV22					0.0246																						
2190	DG-WV23																											
2191	DG-WV24																											
2192	DG-WV25																											
2193	DG-WV26																											
2194	DG-WV27																											
2195	DG-WV28																											
2196	DG-WV29																											
2197	DG-WV30																											
2198	BAZ-R								0.0008																			
2199	BAZ-V40								0.0000																			
2200	79-339																											
2201	TDS + 79-339																											
2202	TDS/211																											
2203	RHO Purex																											
2204	RHO Res.Liq.																											
2205	76-68																											
2206	77-260																											
2207	79-417																											
2208	79-418																											
2209	Vitreous					0.0210					0.0040		0.5150															
2210	A0																											
2211	A20																											
2212	A40																											
2213	A60a																											
2214	A80a																											

#	Glass ID	Sm2O3-a	SnO-a	SnO2-a	SO3-a	SrO-a	Tc2O7-a	TeO2-a	ThO2-a	TiO2-a	Tl2O-a	Tl2O3-a	U3O8-a	UO2-a	UO3-a	V2O5-a	WO3-a	Y2O3-a	ZnO-a	Sum-a	T_M (°C)	$T_{L,G}$ (°C)	$T_{L,U}$ (°C)	$T_{1\%}$ (°C)	Primary Phase	$C_{650°C}$	$C_{700°C}$	$C_{750°C}$
2133	1	0.0005			0.0041	0.0010									0.0000			0.0005		1.0001								
2134	2	0.0005			0.0040	0.0010									0.0000			0.0005		0.9999								
2135	3	0.0005			0.0040	0.0010									0.0000			0.0005		1.0000								
2136	4	0.0005			0.0040	0.0010									0.0000			0.0005		1.0002								
2137	5	0.0005			0.0040	0.0010									0.0000			0.0005		1.0000								
2138	Low Al	0.0006			0.0048	0.0013												0.0006		0.9981								
2139	High Zr	0.0002			0.0025	0.0007												0.0002		0.9990								
2140	High Na	0.0004			0.0035	0.0010												0.0004		0.9985								
2141	Low Fe2O3	0.0007			0.0059	0.0016												0.0007		0.9976								
2142	0.3%F	0.0005			0.0040	0.0011												0.0005		1.0069								
2143	2%F	0.0005			0.0039	0.0011												0.0005		0.9969								
2144	3%F	0.0005			0.0039	0.0011												0.0005		0.9970								
2145	4%F	0.0005			0.0039	0.0011												0.0005		0.9971								
2146	Table 10;1	0.0001			0.0012	0.0003												0.0001		0.9995								
2147	Table 10;2	0.0005			0.0043	0.0010												0.0005		0.9979								
2148	Table 10;3	0.0003			0.0023	0.0006												0.0003		0.9991								
2149	Table 10;4	0.0000			0.0000	0.0000												0.0000		1.0000								
2150	Table 10;5	0.0002			0.0017	0.0004												0.0002		0.9997								
2151	Table 10;6	0.0000			0.0000	0.0000												0.0000		1.0000								
2152	Table 10;7	0.0003			0.0022	0.0005												0.0003		0.9995								
2153	Table 10;8	0.0002			0.0017	0.0004												0.0002		0.9997								
2154	Table 10;9	0.0001			0.0012	0.0003												0.0001		0.9995								
2155	Table 10;10	0.0000			0.0000	0.0000												0.0000		1.0001								
2156	HW43	0.0005			0.0046	0.0010												0.0005		0.9995								
2157	HW44	0.0006			0.0056	0.0012												0.0006		1.0000								
2158	HW45	0.0007			0.0065	0.0014												0.0007		0.9998								
2159	Low Al2O3	0.0006			0.0058	0.0013												0.0006		0.9999								
2160	High ZrO2	0.0003			0.0029	0.0007												0.0003		1.0000								
2161	High Na2O	0.0005			0.0042	0.0009												0.0005		0.9999								
2162	Low Fe2O3	0.0007			0.0061	0.0014												0.0007		0.9998								
2163	AWV-407																		0.0099	0.6740								
2164	AWV-416																			0.0000								
2165	AWV-417																			0.0000								
2166	AWV-418																			0.0000								
2167	AWV-419																			0.0000								
2168	AWV-420																			0.0000								
2169	AWV-421																			0.0000								
2170	5% Ba																			0.0000								
2171	5% Mn																			0.0000								
2172	2% Mo																			0.0000								
2173	2% Ni																			0.0000								
2174	DG-WV1	0.0003			0.0030	0.0003			0.0286	0.0096				0.0054				0.0002		0.9999								
2175	DG-WV2	0.0003			0.0030	0.0003			0.0280	0.0096				0.0053				0.0002		1.0002								
2176	DG-WV3	0.0000			0.0027	0.0004			0.0273	0.0122				0.0054				0.0003		0.9999								
2177	DG-WV4	0.0003			0.0029	0.0003			0.0294	0.0090				0.0054				0.0002		1.0000								
2178	DG-WV5	0.0003			0.0031	0.0003			0.0311	0.0097				0.0000				0.0002		1.0000								
2179	DG-WV6	0.0003			0.0030	0.0003			0.0275	0.0093				0.0053				0.0002		1.0001								
2180	DG-WV7	0.0003			0.0029	0.0003			0.0383	0.0096				0.0046				0.0002		1.0001								
2181	DG-WV8	0.0003			0.0032	0.0003			0.0275	0.0101				0.0058				0.0002		0.9997								
2182	DG-WV15								0.0166					0.0092						0.9469								
2183	DG-WV16								0.0160					0.0013						0.9837								
2184	DG-WV17								0.0469					0.0008						0.9417								
2185	DG-WV18								0.0196					0.0009						0.9829								
2186	DG-WV19								0.0524					0.0093						0.9737								
2187	DG-WV20								0.0187					0.0095						0.9421								
2188	DG-WV21								0.0159					0.0092						0.9830								
2189	DG-WV22								0.0175					0.0011						0.9429								
2190	DG-WV23																			0.0000								
2191	DG-WV24																			0.0000								
2192	DG-WV25																			0.0000								
2193	DG-WV26																			0.0000								
2194	DG-WV27																			0.0000								
2195	DG-WV28																			0.0000								
2196	DG-WV29																			0.0000								
2197	DG-WV30																			0.0000								
2198	BAZ-R				0.0000	0.0033				0.0004										0.9981								
2199	BAZ-V40				0.0006	0.0008				0.0018										0.9577								
2200	79-339																			0.0000								
2201	TDS + 79-339																			0.0000								
2202	TDS/211																			0.0000								
2203	RHO Purex																			0.0000								
2204	RHO Res.Liq.																			0.0000								
2205	76-68																			0.0000								
2206	77-260																			0.0000								
2207	79-417																			0.0000								
2208	79-418																			0.0000								
2209	Vitreous				0.0020	0.0013														1.0014								
2210	A0																			0.0000								
2211	A20																			0.0000								
2212	A40																			0.0000								
2213	A60a																			0.0000								
2214	A80a																			0.0000								

#	Glass ID	$C_{800°C}$	$C_{850°C}$	$C_{900°C}$	$C_{950°C}$	$C_{1000°C}$	$C_{1050°C}$	$C_{1100°C}$	$C_{1150°C}$	$C_{1200°C}$	Quenched Visual/OM	Quenched XRD	CCC XRD	ρ (g/cm³)	Fulc Visc A	Fulc Visc B	Fulc Visc To	Arrh Visc E	Arrh Visc F	T1 (°C)	V1 (Pa·s)
2133	1																				
2134	2																				
2135	3																				
2136	4																				
2137	5																				
2138	Low Al																				
2139	High Zr																				
2140	High Na																				
2141	Low Fe2O3																				
2142	0.3%F																				
2143	2%F																				
2144	3%F																				
2145	4%F																				
2146	Table 10;1																				
2147	Table 10;2																				
2148	Table 10;3																				
2149	Table 10;4																				
2150	Table 10;5																				
2151	Table 10;6																				
2152	Table 10;7																				
2153	Table 10;8																				
2154	Table 10;9																				
2155	Table 10;10																				
2156	HW43																				
2157	HW44																				
2158	HW45																				
2159	Low Al2O3																				
2160	High ZrO2																				
2161	High Na2O																				
2162	Low Fe2O3																				
2163	AWV-407																			1100.0	30.400
2164	AWV-416																			1100.0	0.649
2165	AWV-417																			1100.0	1.540
2166	AWV-418																			1100.0	0.604
2167	AWV-419																			1100.0	0.750
2168	AWV-420																			1100.0	1.334
2169	AWV-421																			1100.0	0.509
2170	5% Ba										small amounts of noble metal ph	amorphous									
2171	5% Mn										small amounts of noble metal ph	amorphous									
2172	2% Mo										small amounts of noble metal ph	amorphous									
2173	2% Ni										small amounts of noble metal ph	amorphous									
2174	DG-WV1																				
2175	DG-WV2																				
2176	DG-WV3																				
2177	DG-WV4																				
2178	DG-WV5																				
2179	DG-WV6																				
2180	DG-WV7																				
2181	DG-WV8																				
2182	DG-WV15																				
2183	DG-WV16																				
2184	DG-WV17																				
2185	DG-WV18																				
2186	DG-WV19																				
2187	DG-WV20																				
2188	DG-WV21																				
2189	DG-WV22																				
2190	DG-WV23																				
2191	DG-WV24																				
2192	DG-WV25																				
2193	DG-WV26																				
2194	DG-WV27																				
2195	DG-WV28																				
2196	DG-WV29																				
2197	DG-WV30																				
2198	BAZ-R													2.570						645.0	31623.000
2199	BAZ-V40													2.590							
2200	79-339																				
2201	TDS + 79-339																			1200.0	87.900
2202	TDS/211																			1200.0	0.800
2203	RHO Purex																			1200.0	6.400
2204	RHO Res.Liq.																			1200.0	30.000
2205	76-68																			1200.0	2.080
2206	77-260																				
2207	79-417																				
2208	79-418																				
2209	Vitreous																			870.0	31.000
2210	A0																			1450.0	4.500
2211	A20																			1350.0	25.200
2212	A40																			1350.0	41.500
2213	A60a																			1300.0	283.300
2214	A80a																			1350.0	1037.400

#	Glass ID	T2 (°C)	V2 (Pa·s)	T3 (°C)	V3 (Pa·s)	T4 (°C)	V4 (Pa·s)	T5 (°C)	V5 (Pa·s)	T6 (°C)	V6 (Pa·s)	T7 (°C)	V7 (Pa·s)	T8 (°C)	V8 (Pa·s)	T9 (°C)	V9 (Pa·s)	T10 (°C)	V10 (Pa·s)	TCLP Ag	TCLP As	TCLP Ba	TCLP Cd	TCLP Cr	TCLP Ni	TCLP Pb
2133	1																									
2134	2																									
2135	3																									
2136	4																									
2137	5																									
2138	Low Al																									
2139	High Zr																									
2140	High Na																									
2141	Low Fe2O3																									
2142	0.3%F																									
2143	2%F																									
2144	3%F																									
2145	4%F																									
2146	Table 10;1																									
2147	Table 10;2																									
2148	Table 10;3																									
2149	Table 10;4																									
2150	Table 10;5																									
2151	Table 10;6																									
2152	Table 10;7																									
2153	Table 10;8																									
2154	Table 10;9																									
2155	Table 10;10																									
2156	HW43																									
2157	HW44																									
2158	HW45																									
2159	Low Al2O3																									
2160	High ZrO2																									
2161	High Na2O																									
2162	Low Fe2O3																									
2163	AWV-407																									
2164	AWV-416																									
2165	AWV-417																									
2166	AWV-418																									
2167	AWV-419																									
2168	AWV-420																									
2169	AWV-421																									
2170	5% Ba																									
2171	5% Mn																									
2172	2% Mo																									
2173	2% Ni																									
2174	DG-WV1																									
2175	DG-WV2																									
2176	DG-WV3																									
2177	DG-WV4																									
2178	DG-WV5																									
2179	DG-WV6																									
2180	DG-WV7																									
2181	DG-WV8																									
2182	DG-WV15																									
2183	DG-WV16																									
2184	DG-WV17																									
2185	DG-WV18																									
2186	DG-WV19																									
2187	DG-WV20																									
2188	DG-WV21																									
2189	DG-WV22																									
2190	DG-WV23																									
2191	DG-WV24																									
2192	DG-WV25																									
2193	DG-WV26																									
2194	DG-WV27																									
2195	DG-WV28																									
2196	DG-WV29																									
2197	DG-WV30																									
2198	BAZ-R	710	2512.000	785	398.0	860.0	125.9	920.0	50.1	1060.0	10.0	1105.0	6.3													
2199	BAZ-V40																									
2200	79-339																									
2201	TDS + 79-339																									
2202	TDS/211																									
2203	RHO Purex																									
2204	RHO Res.Liq.																									
2205	76-68																									
2206	77-260																									
2207	79-417																									
2208	79-418																									
2209	Vitreous	960	2.600	1060	1.5																					
2210	A0	1500	3.600	1550	2.9																					
2211	A20	1450	12.300	1550	6.5																					
2212	A40	1450	19.000	1550	9.4																					
2213	A60a	1400	107.100	1500	45.2	1550.0	30.4																			
2214	A80a	1450	365.100	1550	144.1																					

#	Glass ID	TCLP Se	TCLP Zn	TCLP Al	TCLP B	TCLP Sb	TCLP Tl	TCLP V	Q PCT B (g/m²)	Q PCT Li (g/m²)	Q PCT Na (g/m²)	Q PCT Si (g/m²)	Q PCT pH	CCC PCT B (g/m²)	CCC PCT Li (g/m²)	CCC PCT Na (g/m²)	CCC PCT Si (g/m²)	CCC PCT pH	T1 (°C)
2133	1																		
2134	2																		
2135	3																		
2136	4																		
2137	5																		
2138	Low Al																		
2139	High Zr																		
2140	High Na																		
2141	Low Fe2O3																		
2142	0.3%F																		
2143	2%F																		
2144	3%F																		
2145	4%F																		
2146	Table 10;1																		
2147	Table 10;2																		
2148	Table 10;3																		
2149	Table 10;4																		
2150	Table 10;5																		
2151	Table 10;6																		
2152	Table 10;7																		
2153	Table 10;8																		
2154	Table 10;9																		
2155	Table 10;10																		
2156	HW43																		
2157	HW44																		
2158	HW45																		
2159	Low Al2O3																		
2160	High ZrO2																		
2161	High Na2O																		
2162	Low Fe2O3																		
2163	AWV-407																		
2164	AWV-416																		
2165	AWV-417																		
2166	AWV-418																		
2167	AWV-419																		
2168	AWV-420																		
2169	AWV-421																		
2170	5% Ba																		
2171	5% Mn																		
2172	2% Mo																		
2173	2% Ni																		
2174	DG-WV1								0.186	0.301	0.158	0.116	9.150						
2175	DG-WV2								0.191	0.305	0.163	0.117	9.270						
2176	DG-WV3								0.237	0.300	0.218	0.129	9.410						
2177	DG-WV4								0.239	0.294	0.239	0.123	9.220						
2178	DG-WV5								0.229	0.328	0.204	0.127	9.370						
2179	DG-WV6								0.188	0.301	0.155	0.123	9.020						
2180	DG-WV7								0.188	0.323	0.170	0.119	8.780						
2181	DG-WV8								0.187	0.319	0.176	0.118	9.330						
2182	DG-WV15								0.296	0.300	0.264	0.115	7.880						
2183	DG-WV16								0.189	0.235	0.165	0.111	8.560						
2184	DG-WV17								0.292	0.292	0.273	0.117	9.260						
2185	DG-WV18								0.225	0.269	0.219	0.126	9.180						
2186	DG-WV19								0.214	0.282	0.207	0.112	9.030						
2187	DG-WV20								0.160	0.242	0.139	0.105	8.570						
2188	DG-WV21								0.225	0.252	0.222	0.136	8.860						
2189	DG-WV22								0.210	0.300	0.179	0.128	8.440						
2190	DG-WV23								0.253	0.307	0.187	0.132	9.290						
2191	DG-WV24								0.213	0.286	0.173	0.117	9.390						
2192	DG-WV25								0.188	0.253	0.164	0.119	9.500						
2193	DG-WV26								0.185	0.257	0.156	0.098	9.430						
2194	DG-WV27								0.309	0.327	0.243	0.133	9.480						
2195	DG-WV28								0.201	0.289	0.169	0.128	9.490						
2196	DG-WV29								0.217	0.018	0.214	0.113	9.800						
2197	DG-WV30								0.209	0.007	0.196	0.122	9.660						
2198	BAZ-R																		
2199	BAZ-V40																		
2200	79-339																		
2201	TDS + 79-339																		
2202	TDS/211																		
2203	RHO Purex																		
2204	RHO Res.Liq.																		
2205	76-68																		
2206	77-260																		
2207	79-417																		
2208	79-418																		
2209	Vitreous																		
2210	A0																		
2211	A20																		
2212	A40																		
2213	A60a																		
2214	A80a																		

#	Glass ID	EC1 (S/cm)	T2 (°C)	EC2 (S/cm)	T3 (°C)	EC3 (S/cm)	T4 (°C)	EC4 (S/cm)	T5 (°C)	EC5 (S/cm)	T6 (°C)	EC6 (S/cm)	A	B	To
2133	1														
2134	2														
2135	3														
2136	4														
2137	5														
2138	Low Al														
2139	High Zr														
2140	High Na														
2141	Low Fe2O3														
2142	0.3%F														
2143	2%F														
2144	3%F														
2145	4%F														
2146	Table 10;1														
2147	Table 10;2														
2148	Table 10;3														
2149	Table 10;4														
2150	Table 10;5														
2151	Table 10;6														
2152	Table 10;7														
2153	Table 10;8														
2154	Table 10;9														
2155	Table 10;10														
2156	HW43														
2157	HW44														
2158	HW45														
2159	Low Al2O3														
2160	High ZrO2														
2161	High Na2O														
2162	Low Fe2O3														
2163	AWV-407														
2164	AWV-416														
2165	AWV-417														
2166	AWV-418														
2167	AWV-419														
2168	AWV-420														
2169	AWV-421														
2170	5% Ba														
2171	5% Mn														
2172	2% Mo														
2173	2% Ni														
2174	DG-WV1														
2175	DG-WV2														
2176	DG-WV3														
2177	DG-WV4														
2178	DG-WV5														
2179	DG-WV6														
2180	DG-WV7														
2181	DG-WV8														
2182	DG-WV15														
2183	DG-WV16														
2184	DG-WV17														
2185	DG-WV18														
2186	DG-WV19														
2187	DG-WV20														
2188	DG-WV21														
2189	DG-WV22														
2190	DG-WV23														
2191	DG-WV24														
2192	DG-WV25														
2193	DG-WV26														
2194	DG-WV27														
2195	DG-WV28														
2196	DG-WV29														
2197	DG-WV30														
2198	BAZ-R														
2199	BAZ-V40														
2200	79-339														
2201	TDS + 79-339														
2202	TDS/211														
2203	RHO Purex														
2204	RHO Res.Liq.														
2205	76-68														
2206	77-260														
2207	79-417														
2208	79-418														
2209	Vitreous														
2210	A0														
2211	A20														
2212	A40														
2213	A60a														
2214	A80a														

#	Glass ID	Study	Reference	Al2O3-t	B2O3-t	CaO-t	Fe2O3-t	FeO-t	K2O-t	Li2O-t	MgO-t	Na2O-t	NiO-t	P2O5-t	SiO2-t	ZrO2-t	Ag2O-t	As2O3-t	As2O5-t	BaO-t	BeO-t	Bi2O3-t	Br-t	CdO-t	Ce2O3-t	CeO2-t	Cl-t
2215	A40-13a	INEL TRU Study	Flinn et al. 1981	0.0960		0.0900	0.1820		0.0560		0.0320	0.0710			0.4730												
2216	A40-17a	INEL TRU Study	Flinn et al. 1981	0.0910		0.0860	0.1740		0.0720		0.0310	0.0930			0.4520												
2217	NBS-710	INEL TRU Study	Flinn et al. 1981			0.1160			0.0770			0.0870			0.7050												
2218	SF 1	West Valley	Jain 1990																								
2219	SF 2	West Valley	Jain 1990																								
2220	SF 3	West Valley	Jain 1990																								
2221	SF 4	West Valley	Jain 1990																								
2222	SF 5	West Valley	Jain 1990																								
2223	SF 6	West Valley	Jain 1990																								
2224	SF 7	West Valley	Jain 1990																								
2225	SF 8	West Valley	Jain 1990																								
2226	SF 9	West Valley	Jain 1990																								
2227	SF 10A #1	West Valley	Jain 1990																								
2228	SF 10A #2	West Valley	Jain 1990																								
2229	SF 10B CFMUT	West Valley	Jain 1990																								
2230	SF 10B MFHT	West Valley	Jain 1990																								
2231	FRTI-III #1(CHI-VIT)	West Valley	Jain 1990																								
2232	FRTI-III #2, (CHI-VIT)	West Valley	Jain 1990																								
2233	SF 10C CFMUT	West Valley	Jain 1990																								
2234	SF 10C MFHT	West Valley	Jain 1990																								
2235	SF 11 CFMUT	West Valley	Jain 1990																								
2236	SF 12 BATCH#1	West Valley	Jain 1990																								
2237	SF 12 BATCH#2	West Valley	Jain 1990																								
2238	SF 12 BATCH#3	West Valley	Jain 1990																								
2239	SF 12 BATCH#4	West Valley	Jain 1990																								
2240	SF 12 BATCH#5	West Valley	Jain 1990																								
2241	SF 11 MFHT	West Valley	Jain 1990																								
2242	LAWC-30C	TWRS LAW Formulation	Matlack et al. August 1997	0.0987	0.0396	0.0271	0.0632		0.0401	0.0000	0.0198	0.2000	0.0011	0.0128	0.4094	0.0297				0.0001				0.0024			0.0062
2243	LAWC-81B	TWRS LAW Formulation	Matlack et al. August 1997	0.0987	0.0396	0.0271	0.0632		0.0401	0.0000	0.0198	0.2000	0.0011	0.0128	0.4094	0.0297				0.0001				0.0024			0.0062
2244	LAWC-93A	TWRS LAW Formulation	Matlack et al. August 1997	0.0987	0.0396	0.0271	0.0632		0.0401	0.0000	0.0198	0.2000	0.0011	0.0128	0.4094	0.0297				0.0001				0.0024			0.0062
2245	LAWC-63A	TWRS LAW Formulation	Matlack et al. August 1997	0.0987	0.0396	0.0271	0.0632		0.0401	0.0000	0.0198	0.2000	0.0011	0.0128	0.4094	0.0297				0.0001				0.0024			0.0062
2246	LAWC-63B	TWRS LAW Formulation	Matlack et al. August 1997	0.0987	0.0396	0.0271	0.0632		0.0401	0.0000	0.0198	0.2000	0.0011	0.0128	0.4094	0.0297				0.0001				0.0024			0.0062
2247	LAWC-88A	TWRS LAW Formulation	Matlack et al. August 1997	0.0987	0.0396	0.0271	0.0632		0.0401	0.0000	0.0198	0.2000	0.0011	0.0128	0.4094	0.0297				0.0001				0.0024			0.0062
2248	LAWC-95D	TWRS LAW Formulation	Matlack et al. August 1997	0.0987	0.0396	0.0271	0.0632		0.0401	0.0000	0.0198	0.2000	0.0011	0.0128	0.4094	0.0297				0.0001				0.0024			0.0062
2249	LAWC-99C	TWRS LAW Formulation	Matlack et al. August 1997	0.0987	0.0396	0.0271	0.0632		0.0401	0.0000	0.0198	0.2000	0.0011	0.0128	0.4094	0.0297				0.0001				0.0024			0.0062
2250	LAWC-99B	TWRS LAW Formulation	Matlack et al. August 1997	0.0987	0.0396	0.0271	0.0632		0.0401	0.0000	0.0198	0.2000	0.0011	0.0128	0.4094	0.0297				0.0001				0.0024			0.0062
2251	LAWBF-98E	TWRS LAW Formulation	Matlack et al. October 1997	0.0795	0.0812	0.0455	0.0638		0.0200	0.0410	0.0230	0.0876	0.0005	0.0218	0.4349	0.0304				0.0000				0.0012			0.0074
2252	LAWBF-20F	TWRS LAW Formulation	Matlack et al. October 1997	0.0789	0.0807	0.0452	0.0634		0.0199	0.0408	0.0228	0.0870	0.0005	0.0216	0.4320	0.0302				0.0000				0.0012			0.0074
2253	LAWBF-47B	TWRS LAW Formulation	Matlack et al. October 1997	0.0789	0.0807	0.0452	0.0634		0.0199	0.0408	0.0228	0.0870	0.0005	0.0216	0.4320	0.0302				0.0000				0.0012			0.0074
2254	LAWBF-49C	TWRS LAW Formulation	Matlack et al. October 1997	0.0789	0.0807	0.0452	0.0634		0.0199	0.0408	0.0228	0.0870	0.0005	0.0216	0.4320	0.0302				0.0000				0.0012			0.0074
2255	LAWBF-53C	TWRS LAW Formulation	Matlack et al. October 1997	0.0789	0.0807	0.0452	0.0634		0.0199	0.0408	0.0228	0.0870	0.0005	0.0216	0.4320	0.0302				0.0000				0.0012			0.0074
2256	LAWBF-56E	TWRS LAW Formulation	Matlack et al. October 1997	0.0789	0.0807	0.0452	0.0634		0.0199	0.0408	0.0228	0.0870	0.0005	0.0216	0.4320	0.0302				0.0000				0.0012			0.0074
2257	LAWBF-23D	TWRS LAW Formulation	Matlack et al. October 1997	0.0789	0.0807	0.0452	0.0634		0.0199	0.0408	0.0228	0.0870	0.0005	0.0216	0.4320	0.0302				0.0000				0.0012			0.0074
2258	LAWBF-27C	TWRS LAW Formulation	Matlack et al. October 1997	0.0789	0.0807	0.0452	0.0634		0.0199	0.0408	0.0228	0.0870	0.0005	0.0216	0.4320	0.0302				0.0000				0.0012			0.0074
2259	LAWBF-35B	TWRS LAW Formulation	Matlack et al. October 1997	0.0789	0.0807	0.0452	0.0634		0.0199	0.0408	0.0228	0.0870	0.0005	0.0216	0.4320	0.0302				0.0000				0.0012			0.0074
2260	LAWBF-47D	TWRS LAW Formulation	Matlack et al. October 1997	0.0789	0.0807	0.0452	0.0634		0.0199	0.0408	0.0228	0.0870	0.0005	0.0216	0.4320	0.0302				0.0000				0.0012			0.0074
2261	LAWBF-62G	TWRS LAW Formulation	Matlack et al. October 1997	0.0795	0.0812	0.0455	0.0638		0.0200	0.0410	0.0230	0.0876	0.0005	0.0218	0.4349	0.0304				0.0000				0.0012			0.0074
2262	LAWBF-70D	TWRS LAW Formulation	Matlack et al. October 1997	0.0795	0.0812	0.0455	0.0638		0.0200	0.0410	0.0230	0.0876	0.0005	0.0218	0.4349	0.0304				0.0000				0.0012			0.0074
2263	HAHP	West Valley Reference Glass	McPherson et al. 1986																								
2264	HAHF	West Valley Reference Glass	McPherson et al. 1986																								
2265	HALF	West Valley Reference Glass	McPherson et al. 1986																								
2266	Centroid	West Valley Reference Glass	McPherson et al. 1986																								
2267	AL001	West Valley Reference Glass	McPherson et al. 1986																								
2268	AL002	West Valley Reference Glass	McPherson et al. 1986																								
2269	AL003	West Valley Reference Glass	McPherson et al. 1986																								
2270	AL004	West Valley Reference Glass	McPherson et al. 1986																								
2271	AL005	West Valley Reference Glass	McPherson et al. 1986																								
2272	CR001	West Valley Reference Glass	McPherson et al. 1986																								
2273	CR002	West Valley Reference Glass	McPherson et al. 1986																								
2274	CR003	West Valley Reference Glass	McPherson et al. 1986																								
2275	CR004	West Valley Reference Glass	McPherson et al. 1986																								
2276	CR005	West Valley Reference Glass	McPherson et al. 1986																								
2277	FE001	West Valley Reference Glass	McPherson et al. 1986																								
2278	FE002	West Valley Reference Glass	McPherson et al. 1986																								
2279	FE003	West Valley Reference Glass	McPherson et al. 1986																								
2280	FE004	West Valley Reference Glass	McPherson et al. 1986																								
2281	FE005	West Valley Reference Glass	McPherson et al. 1986																								
2282	MN001	West Valley Reference Glass	McPherson et al. 1986																								
2283	MN002	West Valley Reference Glass	McPherson et al. 1986																								
2284	MN003	West Valley Reference Glass	McPherson et al. 1986																								
2285	MN004	West Valley Reference Glass	McPherson et al. 1986																								
2286	MN005	West Valley Reference Glass	McPherson et al. 1986																								
2287	NI001	West Valley Reference Glass	McPherson et al. 1986																								
2288	NI002	West Valley Reference Glass	McPherson et al. 1986																								
2289	NI003	West Valley Reference Glass	McPherson et al. 1986																								
2290	NI004	West Valley Reference Glass	McPherson et al. 1986																								
2291	NI005	West Valley Reference Glass	McPherson et al. 1986																								
2292	P001	West Valley Reference Glass	McPherson et al. 1986																								
2293	P002	West Valley Reference Glass	McPherson et al. 1986																								
2294	P003	West Valley Reference Glass	McPherson et al. 1986																								
2295	P004	West Valley Reference Glass	McPherson et al. 1986																								
2296	P005	West Valley Reference Glass	McPherson et al. 1986																								

#	Glass ID	CoO-t	Co2O3-t	Cr2O3-t	Cs2O-t	CuO-t	Dy2O3-t	Eu2O3-t	F-t	Ga2O3-t	Gd2O3-t	HfO2-t	HgO-t	I-t	La2O3-t	MnO2-t	MnO-t	MoO-t	MoO2-t	MoO3-t	Nb2O5-t	Nd2O3-t	NpO2-t	PbO-t	PdO2-t	PdO-t	Pr2O3-t	Pr6O11-t	Rb2O-t	ReO-t
2215	A40-13a																												
2216	A40-17a																												
2217	NBS-710																												
2218	SF 1																												
2219	SF 2																												
2220	SF 3																												
2221	SF 4																												
2222	SF 5																												
2223	SF 6																												
2224	SF 7																												
2225	SF 8																												
2226	SF 9																												
2227	SF 10A #1																												
2228	SF 10A #2																												
2229	SF 10B CFMUT																												
2230	SF 10B MFHT																												
2231	FRTI-III #1(CHI-VIT)																												
2232	FRTI-III #2, (CHI-VIT)																												
2233	SF 10C CFMUT																												
2234	SF 10C MFHT																												
2235	SF 11 CFMUT																												
2236	SF 12 BATCH#1																												
2237	SF 12 BATCH#2																												
2238	SF 12 BATCH#3																												
2239	SF 12 BATCH#4																												
2240	SF 12 BATCH#5																												
2241	SF 11 MFHT																												
2242	LAWC-30C			0.0025	0.0008				0.0082					0.0001									0.0007							
2243	LAWC-81B			0.0025	0.0008				0.0082					0.0001									0.0007							
2244	LAWC-93A			0.0025	0.0008				0.0082					0.0001									0.0007							
2245	LAWC-63A			0.0025	0.0008				0.0082					0.0001									0.0007							
2246	LAWC-63B			0.0025	0.0008				0.0082					0.0001									0.0007							
2247	LAWC-88A			0.0025	0.0008				0.0082					0.0001									0.0007							
2248	LAWC-95D			0.0025	0.0008				0.0082					0.0001									0.0007							
2249	LAWC-99C			0.0025	0.0008				0.0082					0.0001									0.0007							
2250	LAWC-99B			0.0025	0.0008				0.0082					0.0001									0.0007							
2251	LAWBF-98E			0.0036	0.0008																		0.0004							
2252	LAWBF-20F			0.0036	0.0008																		0.0004							
2253	LAWBF-47B			0.0036	0.0008																		0.0004							
2254	LAWBF-49C			0.0036	0.0008																		0.0004							
2255	LAWBF-53C			0.0036	0.0008																		0.0004							
2256	LAWBF-56E			0.0036	0.0008																		0.0004							
2257	LAWBF-23D			0.0036	0.0008																		0.0004							
2258	LAWBF-27C			0.0036	0.0008																		0.0004							
2259	LAWBF-35B			0.0036	0.0008																		0.0004							
2260	LAWBF-47D			0.0036	0.0008																		0.0004							
2261	LAWBF-62G			0.0036	0.0008																		0.0004							
2262	LAWBF-70D			0.0036	0.0008																		0.0004							
2263	HAHP																												
2264	HAHF																												
2265	HALF																												
2266	Centroid																												
2267	AL001																												
2268	AL002																												
2269	AL003																												
2270	AL004																												
2271	AL005																												
2272	CR001																												
2273	CR002																												
2274	CR003																												
2275	CR004																												
2276	CR005																												
2277	FE001																												
2278	FE002																												
2279	FE003																												
2280	FE004																												
2281	FE005																												
2282	MN001																												
2283	MN002																												
2284	MN003																												
2285	MN004																												
2286	MN005																												
2287	NI001																												
2288	NI002																												
2289	NI003																												
2290	NI004																												
2291	NI005																												
2292	P001																												
2293	P002																												
2294	P003																												
2295	P004																												
2296	P005																												

#	Glass ID	ReO2-t	Re2O7-t	Rh2O3-t	RhO2-t	RuO2-t	Ru2O3-t	Sb2O3-t	Sb2O5-t	SeO2-t	Sm2O3-t	SnO-t	SnO2-t	SO3-t	SrO-t	Tc2O7-t	TeO2-t	ThO2-t	TiO2-t	Tl2O-t	Tl2O3-t	U3O8-t	UO2-t	UO3-t	V2O5-t	WO3-t	Y2O3-t	ZnO-t	Sum-t	Al2O3-a
2215	A40-13a																											1.0000	
2216	A40-17a																											0.9990	
2217	NBS-710																											0.9850	
2218	SF 1																											0.0000	0.0245
2219	SF 2																											0.0000	0.0341
2220	SF 3																											0.0000	0.0372
2221	SF 4																											0.0000	0.0356
2222	SF 5																											0.0000	0.0335
2223	SF 6																											0.0000	0.0319
2224	SF 7																											0.0000	0.0314
2225	SF 8																											0.0000	0.0253
2226	SF 9																											0.0000	0.0566
2227	SF 10A #1																											0.0000	0.0732
2228	SF 10A #2																											0.0000	0.0732
2229	SF 10B CFMUT																											0.0000	0.0611
2230	SF 10B MFHT																											0.0000	0.0615
2231	FRTI-III #1(CHI-VIT)																											0.0000	0.0612
2232	FRTI-III #2, (CHI-VIT)																											0.0000	0.0612
2233	SF 10C CFMUT																											0.0000	
2234	SF 10C MFHT																											0.0000	0.0700
2235	SF 11 CFMUT																											0.0000	0.0589
2236	SF 12 BATCH#1																											0.0000	0.0633
2237	SF 12 BATCH#2																											0.0000	0.0654
2238	SF 12 BATCH#3																											0.0000	0.0552
2239	SF 12 BATCH#4																											0.0000	0.0647
2240	SF 12 BATCH#5																											0.0000	0.0645
2241	SF 11 MFHT																											0.0000	0.0700
2242	LAWC-30C													0.0037	0.0011												0.0330	1.0003	0.1007
2243	LAWC-81B													0.0037	0.0011												0.0330	1.0003	0.0977
2244	LAWC-93A													0.0037	0.0011												0.0330	1.0003	0.0953
2245	LAWC-63A													0.0037	0.0011												0.0330	1.0003	
2246	LAWC-63B													0.0037	0.0011												0.0330	1.0003	0.0959
2247	LAWC-88A													0.0037	0.0011												0.0330	1.0003	0.1060
2248	LAWC-95D													0.0037	0.0011												0.0330	1.0003	0.0945
2249	LAWC-99C													0.0037	0.0011												0.0330	1.0003	
2250	LAWC-99B													0.0037	0.0011												0.0330	1.0003	0.0985
2251	LAWBF-98E													0.0066	0.0008												0.0410	0.9910	
2252	LAWBF-20F													0.0131	0.0008												0.0408	0.9911	0.0720
2253	LAWBF-47B													0.0131	0.0008												0.0408	0.9911	
2254	LAWBF-49C													0.0131	0.0008												0.0408	0.9911	0.0736
2255	LAWBF-53C													0.0131	0.0008												0.0408	0.9911	
2256	LAWBF-56E													0.0131	0.0008												0.0408	0.9911	0.0759
2257	LAWBF-23D													0.0131	0.0008												0.0408	0.9911	0.0718
2258	LAWBF-27C													0.0131	0.0008												0.0408	0.9911	0.0739
2259	LAWBF-35B													0.0131	0.0008												0.0408	0.9911	0.0740
2260	LAWBF-47D													0.0131	0.0008												0.0408	0.9911	0.0715
2261	LAWBF-62G													0.0066	0.0008												0.0410	0.9910	0.0704
2262	LAWBF-70D													0.0066	0.0008												0.0410	0.9910	0.0735
2263	HAHP																											0.0000	0.0650
2264	HAHF																											0.0000	0.0518
2265	HALF																											0.0000	0.0518
2266	Centroid																											0.0000	0.0297
2267	AL001																											0.0000	0.0168
2268	AL002																											0.0000	0.0232
2269	AL003																											0.0000	0.0297
2270	AL004																											0.0000	0.0389
2271	AL005																											0.0000	0.0518
2272	CR001																											0.0000	0.0298
2273	CR002																											0.0000	0.0298
2274	CR003																											0.0000	0.0297
2275	CR004																											0.0000	0.0295
2276	CR005																											0.0000	0.0294
2277	FE001																											0.0000	0.0348
2278	FE002																											0.0000	0.0322
2279	FE003																											0.0000	0.0297
2280	FE004																											0.0000	0.0272
2281	FE005																											0.0000	0.0246
2282	MN001																											0.0000	0.0304
2283	MN002																											0.0000	0.0300
2284	MN003																											0.0000	0.0297
2285	MN004																											0.0000	0.0292
2286	MN005																											0.0000	0.0286
2287	NI001																											0.0000	0.0299
2288	NI002																											0.0000	0.0298
2289	NI003																											0.0000	0.0297
2290	NI004																											0.0000	0.0295
2291	NI005																											0.0000	0.0293
2292	P001																											0.0000	0.0301
2293	P002																											0.0000	0.0299
2294	P003																											0.0000	0.0297
2295	P004																											0.0000	0.0291
2296	P005																											0.0000	0.0284

#	Glass ID	B2O3-a	CaO-a	Fe2O3-a	FeO-a	K2O-a	Li2O-a	MgO-a	Na2O-a	NiO-a	P2O5-a	SiO2-a	ZrO2-a	Ag2O-a	As2O3-a	As2O5-a	BaO-a	BeO-a	Bi2O3-a	Br-a	CdO-a	Ce2O3-a	CeO2-a	Cl-a	CoO-a	Co2O3-a	Cr2O3-a	Cs2O-a	CuO-a	F-a
2215	A40-13a																													
2216	A40-17a																													
2217	NBS-710																													
2218	SF 1	0.1390	0.0073	0.1221		0.0059	0.0071	0.0031	0.1352	0.0088	0.0290	0.4592	0.0270				0.0004						0.0031			0.0074	0.0032	0.0003		
2219	SF 2	0.1120	0.0083	0.1126		0.0306	0.0233	0.0095	0.1227	0.0055	0.0255	0.4545	0.0289				0.0050						0.0016			0.0011	0.0008	0.0003		
2220	SF 3	0.1003	0.0080	0.1096		0.0300	0.0281	0.0114	0.1055	0.0064	0.0238	0.4358	0.0278				0.0058						0.0016			0.0024	0.0030	0.0040		
2221	SF 4	0.1206	0.0087	0.1180		0.0228	0.0202	0.0082	0.1311	0.0073	0.0232	0.4666	0.0293				0.0043						0.0021			0.0042	0.0015	0.0040		
2222	SF 5	0.1024	0.0049	0.1151		0.0382	0.0326	0.0094	0.1047	0.0071	0.0249	0.4550	0.0292				0.0022						0.0015			0.0048	0.0007	0.0005		
2223	SF 6	0.1050	0.0041	0.1150		0.0390	0.0342	0.0090	0.1131	0.0073	0.0255	0.4460	0.0287				0.0028						0.0012			0.0050	0.0007	0.0005		
2224	SF 7	0.1073	0.0060	0.1168		0.0380	0.0308	0.0089	0.1088	0.0068	0.0270	0.4400	0.0292				0.0007						0.0015			0.0025	0.0090	0.0001		
2225	SF 8	0.1049	0.0047	0.1270		0.0439	0.0329	0.0105	0.1261	0.0069	0.0263	0.4245	0.0239				0.0023						0.0015			0.0045	0.0010	0.0001		
2226	SF 9	0.0995	0.0060	0.1169		0.0322	0.0294	0.0126	0.1062	0.0040		0.4447	0.0222										0.0005			0.0025	0.0007	0.0001		
2227	SF 10A #1	0.1099	0.0066	0.1217		0.0347	0.0306	0.0083	0.1160	0.0024	0.0263	0.4173	0.0216				0.0013						0.0011			0.0008	0.0011	0.0001		
2228	SF 10A #2	0.1099	0.0066	0.1217		0.0347	0.0306	0.0083	0.1160	0.0024	0.0263	0.4173	0.0216				0.0013						0.0011			0.0008	0.0011	0.0001		
2229	SF 10B CFMUT	0.1144	0.0048	0.1226		0.0321	0.0294	0.0085	0.1201	0.0026	0.0225	0.4325	0.0228				0.0005						0.0059			0.0011	0.0009	0.0007		
2230	SF 10B MFHT	0.1170	0.0048	0.1222		0.0321	0.0298	0.0082	0.1185	0.0026	0.0229	0.4316	0.0228				0.0014						0.0059			0.0048	0.0008	0.0007		
2231	FRTI-III #1(CHI-VIT)	0.1107	0.0050	0.1129		0.0368	0.0306	0.0099	0.1196	0.0022	0.0233	0.4339	0.0229				0.0009						0.0013			0.0011	0.0011	0.0010		
2232	FRTI-III #2, (CHI-VIT)	0.1107	0.0050	0.1129		0.0368	0.0306	0.0099	0.1196	0.0022	0.0233	0.4339	0.0229				0.0009						0.0013			0.0011	0.0011	0.0010		
2233	SF 10C CFMUT																													
2234	SF 10C MFHT	0.1056	0.0053	0.1127		0.0378	0.0316	0.0098	0.1168	0.0028	0.0292	0.4248	0.0193				0.0035						0.0012			0.0012	0.0012	0.0007		
2235	SF 11 CFMUT	0.1107	0.0044	0.1280		0.0344	0.0290	0.0087	0.1119	0.0029	0.0248	0.4342	0.0191				0.0007						0.0013			0.0014	0.0009	0.0007		
2236	SF 12 BATCH#1	0.1081	0.0050	0.1161		0.0351	0.0329	0.0093	0.1118	0.0023	0.0252	0.4421	0.0209				0.0008						0.0011			0.0009	0.0008	0.0006		
2237	SF 12 BATCH#2	0.1096	0.0052	0.1212		0.0395	0.0308	0.0096	0.1160	0.0024	0.0249	0.4208	0.0243				0.0038						0.0012			0.0010	0.0010	0.0005		
2238	SF 12 BATCH#3	0.1053	0.0051	0.1250		0.0350	0.0327	0.0093	0.1182	0.0024	0.0242	0.4228	0.0240				0.0007						0.0013			0.0012	0.0010	0.0006		
2239	SF 12 BATCH#4	0.1057	0.0051	0.1234		0.0355	0.0318	0.0093	0.1148	0.0026	0.0245	0.4289	0.0236				0.0036						0.0011			0.0010	0.0009	0.0006		
2240	SF 12 BATCH#5	0.1035	0.0050	0.1200		0.0363	0.0325	0.0099	0.1181	0.0022	0.0241	0.4324	0.0231				0.0004						0.0010			0.0011	0.0010	0.0005		
2241	SF 11 MFHT	0.1056	0.0052	0.1127		0.0378	0.0316	0.0098	0.1168	0.0028	0.0292	0.4250	0.0193				0.0035						0.0012			0.0012	0.0012	0.0008		
2242	LAWC-30C	0.0430	0.0278	0.0636		0.0306	0.0036	0.0217	0.1829	0.0026	0.0174	0.4511	0.0163				0.0002				0.0023			0.0030			0.0039	0.0004		
2243	LAWC-81B	0.0450	0.0314	0.0663		0.0297	0.0008	0.0221	0.1843	0.0021	0.0146	0.4482	0.0118				0.0001				0.0026			0.0030			0.0031	0.0004		
2244	LAWC-93A	0.0463	0.0326	0.0644		0.0367	0.0006	0.0139	0.1833	0.0015	0.0154	0.4474	0.0153				0.0001				0.0027			0.0050			0.0037	0.0005		
2245	LAWC-63A																													
2246	LAWC-63B	0.0472	0.0334	0.0663		0.0297	0.0011	0.0166	0.1843	0.0021	0.0151	0.4460	0.0154				0.0001				0.0026			0.0040			0.0034	0.0005		
2247	LAWC-88A	0.0491	0.0351	0.0697		0.0392	0.0006	0.0183	0.2048	0.0017	0.0180	0.3916	0.0142				0.0001				0.0028			0.0030			0.0043	0.0006		
2248	LAWC-95D	0.0453	0.0317	0.0650		0.0361	0.0006	0.0189	0.1821	0.0017	0.0153	0.4454	0.0187				0.0001				0.0026			0.0060			0.0031	0.0006		
2249	LAWC-99C																													
2250	LAWC-99B	0.0450	0.0306	0.0661		0.0312	0.0008	0.0184	0.1843	0.0020	0.0148	0.4391	0.0173				0.0001				0.0025			0.0030			0.0034	0.0005		
2251	LAWBF-98E																													
2252	LAWBF-20F	0.0786	0.0419	0.0574		0.0233	0.0394	0.0205	0.0927	0.0010	0.0209	0.4173	0.0269				0.0001				0.0010			0.0020			0.0011	0.0003		
2253	LAWBF-47B																													
2254	LAWBF-49C	0.0807	0.0460	0.0611		0.0234	0.0388	0.0225	0.0896	0.0009	0.0225	0.4208	0.0281				0.0001				0.0008			0.0030			0.0010	0.0007		
2255	LAWBF-53C																													
2256	LAWBF-56E	0.0803	0.0471	0.0621		0.0231	0.0399	0.0214	0.0874	0.0012	0.0231	0.4262	0.0284				0.0001				0.0008			0.0000			0.0014	0.0004		
2257	LAWBF-23D	0.0810	0.0417	0.0583		0.0224	0.0404	0.0214	0.0906	0.0010	0.0215	0.4160	0.0272				0.0001				0.0010			0.0030			0.0028	0.0004		
2258	LAWBF-27C	0.0816	0.0428	0.0576		0.0224	0.0398	0.0152	0.0920	0.0010	0.0207	0.4156	0.0274				0.0001				0.0009			0.0030			0.0022	0.0005		
2259	LAWBF-35B	0.0820	0.0435	0.0583		0.0225	0.0384	0.0137	0.0947	0.0011	0.0219	0.4205	0.0269				0.0001				0.0008			0.0100			0.0010	0.0005		
2260	LAWBF-47D	0.0787	0.0457	0.0639		0.0229	0.0371	0.0235	0.0894	0.0017	0.0228	0.4101	0.0276				0.0001				0.0009			0.0000			0.0022	0.0005		
2261	LAWBF-62G	0.0794	0.0457	0.0608		0.0194	0.0410	0.0224	0.0845	0.0010	0.0238	0.4262	0.0263				0.0001				0.0009			0.0020			0.0010	0.0005		
2262	LAWBF-70D	0.0766	0.0477	0.0632		0.0189	0.0399	0.0219	0.0857	0.0014	0.0227	0.4320	0.0298				0.0001				0.0011			0.0000			0.0024	0.0004		
2263	HAHP	0.1030	0.0043	0.1061		0.0366	0.0314	0.0135	0.1113	0.0029	0.0253	0.4538	0.0189				0.0006						0.0006				0.0014			
2264	HAHF	0.1026	0.0022	0.1774		0.0362	0.0314	0.0130	0.1059	0.0011	0.0022	0.4522	0.0068				0.0003						0.0002				0.0005			
2265	HALF	0.1033	0.0063	0.1039		0.0369	0.0314	0.0139	0.1161	0.0045	0.0090	0.4552	0.0298				0.0008						0.0010				0.0022			
2266	Centroid	0.1031	0.0054	0.1406		0.0367	0.0314	0.0137	0.1141	0.0038	0.0076	0.4546	0.0253				0.0007				0.0001			0.0008			0.0019		0.0001	
2267	AL001	0.1032	0.0057	0.1488		0.0368	0.0314	0.0138	0.1148	0.0040	0.0081	0.4548	0.0268				0.0007				0.0001			0.0008			0.0020		0.0001	
2268	AL002	0.1032	0.0056	0.1447		0.0368	0.0314	0.0137	0.1144	0.0039	0.0078	0.4547	0.0260				0.0007				0.0001			0.0008			0.0019		0.0001	
2269	AL003	0.1031	0.0054	0.1406		0.0367	0.0314	0.0137	0.1141	0.0038	0.0076	0.4546	0.0253				0.0007				0.0001			0.0008			0.0019		0.0001	
2270	AL004	0.1031	0.0053	0.1348		0.0367	0.0314	0.0137	0.1136	0.0036	0.0073	0.4544	0.0242				0.0007				0.0001			0.0008			0.0018		0.0001	
2271	AL005	0.1031	0.0050	0.1267		0.0367	0.0314	0.0136	0.1130	0.0034	0.0069	0.4542	0.0227				0.0007				0.0001			0.0007			0.0017		0.0001	
2272	CR001	0.1031	0.0055	0.1417		0.0367	0.0314	0.0137	0.1142	0.0038	0.0077	0.4546	0.0255				0.0007				0.0001			0.0008			0.0000		0.0001	
2273	CR002	0.1031	0.0055	0.1412		0.0367	0.0314	0.0137	0.1142	0.0038	0.0076	0.4546	0.0254				0.0007				0.0001			0.0008			0.0010		0.0001	
2274	CR003	0.1031	0.0054	0.1406		0.0367	0.0314	0.0137	0.1141	0.0038	0.0076	0.4546	0.0253				0.0007				0.0001			0.0008			0.0019		0.0001	
2275	CR004	0.1031	0.0054	0.1388		0.0367	0.0314	0.0137	0.1140	0.0038	0.0075	0.4545	0.0249				0.0007				0.0001			0.0008			0.0050		0.0001	
2276	CR005	0.1031	0.0054	0.1370		0.0367	0.0314	0.0137	0.1138	0.0037	0.0074	0.4545	0.0246				0.0007				0.0001			0.0008			0.0080		0.0001	
2277	FE001	0.1034	0.0072	0.1039		0.0370	0.0314	0.0141	0.1185	0.0053	0.0105	0.4558	0.0352				0.0009				0.0001			0.0011			0.0026		0.0001	
2278	FE002	0.1033	0.0063	0.1223		0.0369	0.0314	0.0139	0.1163	0.0045	0.0091	0.4552	0.0302				0.0008				0.0001			0.0010			0.0022		0.0001	
2279	FE003	0.1031	0.0054	0.1406		0.0367	0.0314	0.0137	0.1141	0.0038	0.0076	0.4546	0.0253				0.0007				0.0001			0.0008			0.0019		0.0001	
2280	FE004	0.1030	0.0046	0.1590		0.0366	0.0314	0.0135	0.1119	0.0031	0.0062	0.4539	0.0203				0.0006				0.0001			0.0006			0.0015		0.0001	
2281	FE005	0.1028	0.0037	0.1774		0.0364	0.0314	0.0133	0.1097	0.0023	0.0047	0.4533	0.0153				0.0005				0.0001			0.0005			0.0012		0.0001	
2282	MN001	0.1032	0.0057	0.1478		0.0368	0.0314	0.0138	0.1147	0.0040	0.0080	0.4547	0.0266				0.0007				0.0001			0.0008			0.0020		0.0001	
2283	MN002	0.1032	0.0056	0.1442		0.0368	0.0314	0.0137	0.1144	0.0039	0.0078	0.4546	0.0259				0.0007				0.0001			0.0008			0.0019		0.0001	
2284	MN003	0.1031	0.0054	0.1406		0.0367	0.0314	0.0137	0.1141	0.0038	0.0076	0.4546	0.0253				0.0007				0.0001			0.0008			0.0019		0.0001	
2285	MN004	0.1031	0.0053	0.1348		0.0367	0.0314	0.0137	0.1136	0.0036	0.0073	0.4544	0.0242				0.0007				0.0001			0.0008			0.0018		0.0001	
2286	MN005	0.1031	0.0051	0.1290		0.0367	0.0314	0.0137	0.1132	0.0035	0.0070	0.4543	0.0231				0.0007				0.0001			0.0007			0.0017		0.0001	
2287	NI001	0.1032	0.0055	0.1429		0.0368	0.0314	0.0137	0.1143	0.0001	0.0077	0.4546	0.0257				0.0007				0.0001			0.0008			0.0019		0.0001	
2288	NI002	0.1031	0.0055	0.1418		0.0367	0.0314	0.0137	0.1142	0.0019	0.0077	0.4546	0.0255				0.0007				0.0001			0.0008			0.0019		0.0001	
2289	NI003	0.1031	0.0054	0.1406		0.0367	0.0314	0.0137	0.1141	0.0038	0.0076	0.4546	0.0253				0.0007				0.0001			0.0008			0.0019		0.0001	
2290	NI004	0.1031	0.0054	0.1387		0.0367	0.0314	0.0137	0.1140	0.0070	0.0075	0.4545	0.0249				0.0007				0.0001			0.0008			0.0019		0.0001	
2291	NI005	0.1031	0.0054	0.1368		0.0367	0.0314	0.0137	0.1138	0.0101	0.0074	0.4545	0.0246				0.0007				0.0001			0.0008			0.0018		0.0001	
2292	P001	0.1032	0.0056	0.1452		0.0368	0.0314	0.0138	0.1145	0.0039	0.0003	0.4547	0.0261				0.0007				0.0001			0.0008			0.0020		0.0001	
2293	P002	0.1032	0.0055	0.1429		0.0368	0.0314	0.0137	0.1143	0.0039	0.0039	0.4546	0.0257				0.0007				0.0001			0.0008			0.0019		0.0001	
2294	P003	0.1031	0.0054	0.1406		0.0367	0.0314	0.0137	0.1141	0.0038	0.0076	0.4546	0.0253				0.0007				0.0001			0.0008			0.0019		0.0001	
2295	P004	0.1031	0.0052	0.1340		0.0367	0.0314	0.0137	0.1136	0.0036	0.0184	0.4544	0.0240				0.0007				0.0001			0.0008			0.0018		0.0001	
2296	P005	0.1031	0.0050	0.1274		0.0367	0.0314	0.0136	0.1130	0.0034	0.0293	0.4542	0.0228				0.0007				0.0001			0.0007			0.0017		0.0001	

#	Glass ID	Ga2O3-a	Gd2O3-a	I-a	La2O3-a	MnO2-a	MnO-a	MoO-a	MoO3-a	Nb2O5-a	Nd2O3-a	NpO2-a	PbO-a	PdO2-a	PdO-a	Pr2O3-a	Pr6O11-a	PuO2-a	Rb2O-a	ReO-a	ReO2-a	Re2O7-a	Rh2O3-a	RhO2-a	RuO2-a	Sb2O3-a	Sb2O5-a	SeO2-a
2215	A40-13a																											
2216	A40-17a																											
2217	NBS-710																									0.0110		
2218	SF 1				0.0033		0.0081		0.0006		0.0009																	
2219	SF 2				0.0003		0.0123		0.0007		0.0004																	
2220	SF 3				0.0004		0.0133		0.0007		0.0004																	
2221	SF 4				0.0009		0.0118		0.0007		0.0001																	
2222	SF 5				0.0009		0.0138		0.0007		0.0008																	
2223	SF 6				0.0009		0.0135		0.0000		0.0000																	
2224	SF 7				0.0012		0.0237		0.0000		0.0000																	
2225	SF 8				0.0009		0.0133		0.0000		0.0000																	
2226	SF 9						0.0116																		0.0010			
2227	SF 10A #1				0.0002		0.0091		0.0000		0.0012																	
2228	SF 10A #2				0.0002		0.0091		0.0000		0.0012																	
2229	SF 10B CFMUT				0.0003		0.0044		0.0000		0.0015																	
2230	SF 10B MFHT				0.0003		0.0032		0.0000		0.0016																	
2231	FRTI-III #1(CHI-VIT)				0.0005		0.0104		0.0005		0.0020																	
2232	FRTI-III #2, (CHI-VIT)				0.0005		0.0104		0.0005		0.0020																	
2233	SF 10C CFMUT																											
2234	SF 10C MFHT				0.0004		0.0100		0.0064		0.0012																	
2235	SF 11 CFMUT				0.0005		0.0105		0.0007		0.0012																	
2236	SF 12 BATCH#1				0.0003		0.0099		0.0005		0.0016																	
2237	SF 12 BATCH#2				0.0002		0.0102		0.0005		0.0013																	
2238	SF 12 BATCH#3				0.0002		0.0100		0.0005		0.0011																	
2239	SF 12 BATCH#4				0.0004		0.0101		0.0006		0.0014																	
2240	SF 12 BATCH#5				0.0002		0.0099		0.0004		0.0010																	
2241	SF 11 MFHT				0.0004		0.0100		0.0006		0.0012																	
2242	LAWC-30C				0.0002								0.0009															
2243	LAWC-81B				0.0002								0.0010															
2244	LAWC-93A				0.0001								0.0011															
2245	LAWC-63A																											
2246	LAWC-63B				0.0002								0.0010															
2247	LAWC-88A				0.0001								0.0011															
2248	LAWC-95D				0.0001								0.0011															
2249	LAWC-99C																											
2250	LAWC-99B				0.0002								0.0010															
2251	LAWBF-98E																											
2252	LAWBF-20F												0.0004															
2253	LAWBF-47B																											
2254	LAWBF-49C												0.0003															
2255	LAWBF-53C																											
2256	LAWBF-56E												0.0004															
2257	LAWBF-23D												0.0005															
2258	LAWBF-27C												0.0005															
2259	LAWBF-35B												0.0005															
2260	LAWBF-47D												0.0005															
2261	LAWBF-62G												0.0006															
2262	LAWBF-70D												0.0008															
2263	HAHP				0.0003	0.0086					0.0010					0.0003								0.0002	0.0007			
2264	HAHF				0.0001	0.0031					0.0004					0.0001								0.0001	0.0002			
2265	HALF				0.0005	0.0135					0.0017					0.0004								0.0003	0.0011			
2266	Centroid				0.0004	0.0114			0.0001		0.0014		0.0001			0.0004								0.0003	0.0009	0.0001		
2267	AL001				0.0005	0.0121			0.0001		0.0015		0.0001			0.0004								0.0003	0.0010	0.0001		
2268	AL002				0.0004	0.0118			0.0001		0.0014		0.0001			0.0004								0.0003	0.0010	0.0001		
2269	AL003				0.0004	0.0114			0.0001		0.0014		0.0001			0.0004								0.0003	0.0009	0.0001		
2270	AL004		0.0013		0.0004	0.0110			0.0001		0.0013		0.0001			0.0004								0.0003	0.0009	0.0001		
2271	AL005				0.0004	0.0103			0.0001		0.0013		0.0001			0.0003								0.0002	0.0008	0.0001		
2272	CR001				0.0004	0.0115			0.0001		0.0014		0.0001			0.0004								0.0003	0.0009	0.0001		
2273	CR002				0.0004	0.0115			0.0001		0.0014		0.0001			0.0004								0.0003	0.0010	0.0001		
2274	CR003				0.0004	0.0114			0.0001		0.0014		0.0001			0.0004								0.0003	0.0009	0.0001		
2275	CR004				0.0004	0.0113			0.0001		0.0014		0.0001			0.0004								0.0003	0.0009	0.0001		
2276	CR005				0.0004	0.0111			0.0001		0.0014		0.0001			0.0004								0.0003	0.0009	0.0001		
2277	FE001				0.0006	0.0159			0.0001		0.0020		0.0001			0.0005								0.0004	0.0013	0.0001		
2278	FE002				0.0005	0.0137			0.0001		0.0017		0.0001			0.0004								0.0003	0.0011	0.0001		
2279	FE003				0.0004	0.0114			0.0001		0.0014		0.0001			0.0004								0.0003	0.0009	0.0001		
2280	FE004				0.0004	0.0092			0.0001		0.0011		0.0001			0.0003								0.0002	0.0007	0.0001		
2281	FE005				0.0003	0.0070			0.0001		0.0008		0.0001			0.0002								0.0002	0.0006	0.0001		
2282	MN001				0.0005	0.0001			0.0001		0.0015		0.0001			0.0004								0.0003	0.0010	0.0001		
2283	MN002				0.0004	0.0058			0.0001		0.0014		0.0001			0.0004								0.0003	0.0009	0.0001		
2284	MN003				0.0004	0.0114			0.0001		0.0014		0.0001			0.0004								0.0003	0.0009	0.0001		
2285	MN004				0.0004	0.0208			0.0001		0.0013		0.0001			0.0004								0.0003	0.0009	0.0001		
2286	MN005				0.0004	0.0301			0.0001		0.0013		0.0001			0.0003								0.0002	0.0008	0.0001		
2287	NI001				0.0004	0.0116			0.0001		0.0014		0.0001			0.0004								0.0003	0.0009	0.0001		
2288	NI002				0.0004	0.0115			0.0001		0.0014		0.0001			0.0004								0.0003	0.0009	0.0001		
2289	NI003				0.0004	0.0114			0.0001		0.0014		0.0001			0.0004								0.0003	0.0009	0.0001		
2290	NI004				0.0004	0.0113			0.0001		0.0014		0.0001			0.0004								0.0003	0.0009	0.0001		
2291	NI005				0.0004	0.0111			0.0001		0.0014		0.0001			0.0004								0.0003	0.0009	0.0001		
2292	P001				0.0004	0.0118			0.0001		0.0014		0.0001			0.0004								0.0003	0.0010	0.0001		
2293	P002				0.0004	0.0116			0.0001		0.0014		0.0001			0.0004								0.0003	0.0009	0.0001		
2294	P003				0.0004	0.0114			0.0001		0.0014		0.0001			0.0004								0.0003	0.0009	0.0001		
2295	P004				0.0004	0.0109			0.0001		0.0013		0.0001			0.0004								0.0003	0.0009	0.0001		
2296	P005				0.0004	0.0103			0.0001		0.0013		0.0001			0.0003								0.0002	0.0008	0.0001		

#	Glass ID	Sm2O3-a	SnO-a	SnO2-a	SO3-a	SrO-a	Tc2O7-a	TeO2-a	ThO2-a	TiO2-a	Tl2O-a	Tl2O3-a	U3O8-a	UO2-a	UO3-a	V2O5-a	WO3-a	Y2O3-a	ZnO-a	Sum-a	T_M (°C)	$T_{L,G}$ (°C)	$T_{L,U}$ (°C)	$T_{1\%}$ (°C)	Primary Phase	$C_{650°C}$	$C_{700°C}$	$C_{750°C}$
2215	A40-13a																			0.0000								
2216	A40-17a																			0.0000								
2217	NBS-710																			0.0110								
2218	SF 1				0.0024	0.0001				0.0015								0.0001		0.9997								
2219	SF 2				0.0010	0.0001				0.0078								0.0001		0.9990								
2220	SF 3				0.0013	0.0003				0.0094								0.0001		0.9665								
2221	SF 4				0.0014	0.0001				0.0065								0.0001		1.0293								
2222	SF 5				0.0040	0.0010				0.0103								0.0002		0.9983								
2223	SF 6				0.0028	0.0007				0.0101								0.0001		0.9971								
2224	SF 7				0.0076	0.0013				0.0080								0.0012		1.0078								
2225	SF 8				0.0064	0.0013				0.0091								0.0008		0.9981								
2226	SF 9				0.0080	0.0007				0.0098										0.9652								
2227	SF 10A #1				0.0030	0.0012				0.0075								0.0049		1.0001								
2228	SF 10A #2				0.0030	0.0012				0.0075								0.0049		1.0001								
2229	SF 10B CFMUT				0.0256	0.0003				0.0082								0.0003		1.0230								
2230	SF 10B MFHT				0.0025	0.0003				0.0080								0.0003		1.0038								
2231	FRTI-III #1(CHI-VIT)				0.0027	0.0004				0.0085								0.0006		1.0000								
2232	FRTI-III #2, (CHI-VIT)				0.0027	0.0004				0.0085								0.0006		1.0000								
2233	SF 10C CFMUT																			0.0000								
2234	SF 10C MFHT				0.0050	0.0003				0.0083								0.0004		1.0056								
2235	SF 11 CFMUT				0.0033	0.0003				0.0077								0.0038		0.9999								
2236	SF 12 BATCH#1				0.0025	0.0003				0.0075								0.0010		0.9999								
2237	SF 12 BATCH#2				0.0018	0.0003				0.0080								0.0002		0.9997								
2238	SF 12 BATCH#3				0.0013	0.0003				0.0084								0.0038		0.9896								
2239	SF 12 BATCH#4				0.0017	0.0004				0.0078								0.0004		0.9999								
2240	SF 12 BATCH#5				0.0013	0.0003				0.0073								0.0038		0.9998								
2241	SF 11 MFHT				0.0050	0.0003				0.0083								0.0004		0.9999								
2242	LAWC-30C				0.0002	0.0011												0.0299		1.0034								
2243	LAWC-81B				0.0026	0.0011												0.0352		1.0033								
2244	LAWC-93A				0.0018	0.0013												0.0364		1.0054								
2245	LAWC-63A																			0.0000								
2246	LAWC-63B				0.0026	0.0012												0.0359		1.0046								
2247	LAWC-88A				0.0043	0.0014												0.0374		1.0034								
2248	LAWC-95D				0.0010	0.0012												0.0353		1.0064								
2249	LAWC-99C																			0.0000								
2250	LAWC-99B				0.0079	0.0012												0.0349		1.0028								
2251	LAWBF-98E																			0.0000								
2252	LAWBF-20F				0.0067	0.0003												0.0352		0.9390								
2253	LAWBF-47B																			0.0000								
2254	LAWBF-49C				0.0074	0.0008												0.0353		0.9574								
2255	LAWBF-53C																			0.0000								
2256	LAWBF-56E				0.0066	0.0008												0.0354		0.9620								
2257	LAWBF-23D				0.0066	0.0005												0.0354		0.9436								
2258	LAWBF-27C				0.0087	0.0007												0.0361		0.9427								
2259	LAWBF-35B				0.0202	0.0007												0.0380		0.9693								
2260	LAWBF-47D				0.0075	0.0008												0.0352		0.9426								
2261	LAWBF-62G				0.0038	0.0009												0.0373		0.9480								
2262	LAWBF-70D				0.0116	0.0009												0.0339		0.9645								
2263	HAHP	0.0003			0.0028	0.0003				0.0102								0.0002	0.0200	1.0196								
2264	HAHF	0.0001			0.0010	0.0001				0.0102								0.0000	0.0001	0.9993								
2265	HALF	0.0004			0.0044	0.0004				0.0102								0.0002	0.0004	0.9996								
2266	Centroid	0.0004			0.0037	0.0004				0.0102								0.0001	0.0003	0.9998				966				
2267	AL001	0.0004			0.0039	0.0004				0.0102								0.0002	0.0003	1.0002				966				
2268	AL002	0.0004			0.0038	0.0004				0.0102								0.0002	0.0003	0.9999				966				
2269	AL003	0.0004			0.0037	0.0004				0.0102								0.0001	0.0003	0.9998								
2270	AL004	0.0003			0.0035	0.0004				0.0102								0.0002	0.0003	1.0013				966				
2271	AL005	0.0003			0.0033	0.0003				0.0102								0.0002	0.0003	1.0000				966				
2272	CR001	0.0004			0.0037	0.0004				0.0102								0.0002	0.0003	0.9998				966				
2273	CR002	0.0004			0.0037	0.0004				0.0102								0.0002	0.0003	1.0002				966				
2274	CR003	0.0004			0.0037	0.0004				0.0102								0.0001	0.0003	0.9998								
2275	CR004	0.0003			0.0036	0.0004				0.0102								0.0002	0.0003	1.0000				982				
2276	CR005	0.0003			0.0036	0.0004				0.0102								0.0002	0.0003	1.0002				982				
2277	FE001	0.0005			0.0051	0.0005				0.0102								0.0003	0.0004	0.9999				966				
2278	FE002	0.0004			0.0044	0.0004				0.0102								0.0002	0.0004	0.9998				966				
2279	FE003	0.0004			0.0037	0.0004				0.0102								0.0001	0.0003	0.9998								
2280	FE004	0.0003			0.0030	0.0003				0.0102								0.0002	0.0003	1.0001				966				
2281	FE005	0.0002			0.0022	0.0002				0.0102								0.0001	0.0002	0.9998				966				
2282	MN001	0.0004			0.0039	0.0004				0.0102								0.0002	0.0003	1.0003				966				
2283	MN002	0.0004			0.0038	0.0004				0.0102								0.0002	0.0003	0.9999				966				
2284	MN003	0.0004			0.0037	0.0004				0.0102								0.0001	0.0003	0.9998								
2285	MN004	0.0003			0.0035	0.0004				0.0102								0.0002	0.0003	1.0001				966				
2286	MN005	0.0003			0.0034	0.0003				0.0102								0.0002	0.0003	1.0001				966				
2287	NI001	0.0004			0.0037	0.0004				0.0102								0.0002	0.0003	0.9999				966				
2288	NI002	0.0004			0.0037	0.0004				0.0102								0.0002	0.0003	0.9999				966				
2289	NI003	0.0004			0.0037	0.0004				0.0102								0.0001	0.0003	0.9998								
2290	NI004	0.0003			0.0036	0.0004				0.0102								0.0002	0.0003	1.0000				966				
2291	NI005	0.0003			0.0036	0.0004				0.0102								0.0002	0.0003	1.0001				966				
2292	P001	0.0004			0.0038	0.0004				0.0102								0.0002	0.0003	1.0002				966				
2293	P002	0.0004			0.0037	0.0004				0.0102								0.0002	0.0003	0.9999				966				
2294	P003	0.0004			0.0037	0.0004				0.0102								0.0001	0.0003	0.9998								
2295	P004	0.0003			0.0035	0.0004				0.0102								0.0002	0.0003	1.0001				966				
2296	P005	0.0003			0.0033	0.0003				0.0102								0.0002	0.0003	0.9998				966				

#	Glass ID	$C_{800°C}$	$C_{850°C}$	$C_{900°C}$	$C_{950°C}$	$C_{1000°C}$	$C_{1050°C}$	$C_{1100°C}$	$C_{1150°C}$	$C_{1200°C}$	Quenched Visual/OM	Quenched XRD	CCC XRD	ρ (g/cm³)	Fulc Visc A	Fulc Visc B	Fulc Visc To	Arrh Visc E	Arrh Visc F	T1 (°C)	V1 (Pa·s)
2215	A40-13a																			1200.0	53.500
2216	A40-17a																			1200.0	53.800
2217	NBS-710																			1200.0	784.100
2218	SF 1																			1000.0	28.840
2219	SF 2																			1000.0	13.180
2220	SF 3																			1000.5	12.590
2221	SF 4																			1001.5	13.490
2222	SF 5																			1003.5	12.300
2223	SF 6																			1005.0	8.710
2224	SF 7																			999.5	12.590
2225	SF 8																			1000.0	9.330
2226	SF 9																			1004.5	16.980
2227	SF 10A #1																			1006.0	25.700
2228	SF 10A #2																			1048.0	13.180
2229	SF 10B CFMUT																			939.0	39.810
2230	SF 10B MFHT																			940.0	42.660
2231	FRTI-III #1(CHI-VIT)																			953.0	40.740
2232	FRTI-III #2, (CHI-VIT)																			956.0	38.020
2233	SF 10C CFMUT																			935.0	28.840
2234	SF 10C MFHT																			962.0	25.710
2235	SF 11 CFMUT																			979.0	25.700
2236	SF 12 BATCH#1																			1151.0	3.770
2237	SF 12 BATCH#2																			1152.0	4.260
2238	SF 12 BATCH#3																			1150.0	3.530
2239	SF 12 BATCH#4																			1152.0	3.770
2240	SF 12 BATCH#5																			1151.0	3.300
2241	SF 11 MFHT																			976.0	34.670
2242	LAWC-30C																				
2243	LAWC-81B																			950.0	225.100
2244	LAWC-93A																			950.0	205.300
2245	LAWC-63A																				
2246	LAWC-63B																				
2247	LAWC-88A																				
2248	LAWC-95D																				
2249	LAWC-99C																				
2250	LAWC-99B																				
2251	LAWBF-98E																			950.0	38.600
2252	LAWBF-20F																				
2253	LAWBF-47B																				
2254	LAWBF-49C																				
2255	LAWBF-53C																				
2256	LAWBF-56E																				
2257	LAWBF-23D																				
2258	LAWBF-27C																				
2259	LAWBF-35B																				
2260	LAWBF-47D																				
2261	LAWBF-62G																				
2262	LAWBF-70D																				
2263	HAHP																			1000.0	22.650
2264	HAHF																			1000.0	14.790
2265	HALF																			1000.0	17.910
2266	Centroid													2.740	-3.420	5556.2	233.7			1100.0	5.248
2267	AL001													2.740	-3.370	5556.2	169.1			1100.0	4.571
2268	AL002													2.730	-1.520	2500.0	509.8			1100.0	4.786
2269	AL003																				
2270	AL004													2.740	-3.040	5556.0	148.8			1100.0	5.754
2271	AL005													2.690	-3.120	5556.2	179.1			1100.0	7.762
2272	CR001													2.740	0.440	427.7	957.6			1100.0	5.072
2273	CR002													2.710	0.460	440.5	943.5			1100.0	4.577
2274	CR003																				
2275	CR004													2.720	-1.840	3337.0	385.0			1100.0	5.248
2276	CR005													2.720	0.410	393.8	953.5			1100.0	4.677
2277	FE001													2.720	-3.040	5556.0	148.2			1100.0	5.888
2278	FE002													2.760	-3.100	5556.0	133.3			1100.0	5.754
2279	FE003																				
2280	FE004													2.700	0.397	383.1	951.7			1100.0	52.480
2281	FE005													2.760	-2.940	5556.0	154.5			1100.0	4.677
2282	MN001													2.730	-2.990	5556.0	99.1			1100.0	5.370
2283	MN002													2.720	-3.050	5556.0	137.7			1100.0	5.370
2284	MN003																				
2285	MN004													2.730	-3.040	5556.0	144.6			1100.0	5.072
2286	MN005													2.780	-3.020	5556.0	147.3			1100.0	4.677
2287	NI001													2.690	-0.340	1116.8	778.5			1100.0	4.467
2288	NI002													2.720	-0.430	117.0	759.3			1100.0	5.729
2289	NI003																				
2290	NI004													2.720	-0.425	1116.0	761.0			1100.0	4.677
2291	NI005													2.700	-0.510	1164.0	773.5			1100.0	4.467
2292	P001													2.710	-1.890	3337.0	384.6			1100.0	5.248
2293	P002													2.720	-3.080	5556.0	139.2			1100.0	4.786
2294	P003																				
2295	P004													2.720	-1.850	3337.0	368.9			1100.0	4.677
2296	P005													2.700	-2.060	4000.0	218.7			1100.0	5.623

#	Glass ID	T2 (°C)	V2 (Pa·s)	T3 (°C)	V3 (Pa·s)	T4 (°C)	V4 (Pa·s)	T5 (°C)	V5 (Pa·s)	T6 (°C)	V6 (Pa·s)	T7 (°C)	V7 (Pa·s)	T8 (°C)	V8 (Pa·s)	T9 (°C)	V9 (Pa·s)	T10 (°C)	V10 (Pa·s)	TCLP Ag	TCLP As	TCLP Ba	TCLP Cd	TCLP Cr	TCLP Ni	TCLP Pb
2215	A40-13a	1300	21.100	1400	9.3	1550.0	3.2																			
2216	A40-17a	1300	21.500	1400	9.6	1550.0	3.4																			
2217	NBS-710	1300	303.400	1400	131.5	1500.0	62.6																			
2218	SF 1	1040	18.200	1084	11.2	1128.5	7.4	1155.0	5.9																	
2219	SF 2	1038.5	9.120	1078	6.3	1114.0	4.7	1156.0	3.5																	
2220	SF 3	1043	8.510	1081	6.2	1118.5	4.6	1155.0	3.5																	
2221	SF 4	1039	9.770	1076	7.1	1113.0	5.3	1153.0	3.9																	
2222	SF 5	1043	8.910	1079	6.6	1115.0	4.9	1152.0	3.8																	
2223	SF 6	1044	6.460	1082	4.9	1115.5	3.7	1152.0	2.9																	
2224	SF 7	1035	9.120	1075	6.3	1122.0	4.5	1151.0	3.7																	
2225	SF 8	1035	6.760	1075	4.7	1116.0	3.5	1152.0	2.6																	
2226	SF 9	1047	11.480	1079	8.6	1115.0	6.5	1158.0	4.7																	
2227	SF 10A #1	1054	15.490	1103	9.8	1127.0	7.8	1150.0	6.3																	
2228	SF 10A #2	1070	10.230	1095	7.9	1116.0	6.5	1142.0	5.1																	
2229	SF 10B CFMUT	989	21.880	1039	12.9	1087.0	8.1	1134.0	5.4																	
2230	SF 10B MFHT	990	23.440	1040	13.8	1087.0	8.7	1132.0	5.8																	
2231	FRTI-III #1(CHI-VIT)	1001	22.810	1051	13.2	1099.0	8.5	1144.0	5.9																	
2232	FRTI-III #2, (CHI-VIT)	1006	20.890	1055	12.6	1102.0	8.1	1144.0	5.8																	
2233	SF 10C CFMUT	990	15.490	1045	9.3	1100.0	5.6	1153.0	3.6																	
2234	SF 10C MFHT	1017	14.120	1071	8.1	1124.0	5.0	1178.0	3.1																	
2235	SF 11 CFMUT	1032	14.450	1085	8.5	1140.0	5.1																			
2236	SF 12 BATCH#1	1120	5.000	1066	8.2	1013.0	13.6	958.0	24.1																	
2237	SF 12 BATCH#2	1119	5.720	1065	9.4	1011.0	15.7	956.0	27.9																	
2238	SF 12 BATCH#3	1119	4.750	1065	7.7	1011.0	12.6	957.0	22.4																	
2239	SF 12 BATCH#4	1123	4.830	1069	8.4	1016.0	13.5	962.0	23.3																	
2240	SF 12 BATCH#5	1121	4.360	1068	7.0	1014.0	11.6	959.0	19.8																	
2241	SF 11 MFHT	1080	12.020	1130	7.6	1181.0	4.9																			
2242	LAWC-30C	1000	100.400	1050	51.5	1100.0	27.9	1150.0	15.9	1200.0	9.4	1250.0	5.8	1300.0	3.7											
2243	LAWC-81B	1000	108.800	1050	56.3	1100.0	30.9	1150.0	17.9	1200.0	10.8	1250.0	6.8	1300.0	4.4											
2244	LAWC-93A	1000	98.500	1050	50.9	1100.0	28.0	1150.0	16.2	1200.0	9.9	1250.0	6.3	1300.0	4.1							0.469	0.125	1.623	0.077	<0.024
2245	LAWC-63A																					0.355	0.357	8.982	0.23	0.052
2246	LAWC-63B																									
2247	LAWC-88A																									
2248	LAWC-95D																					0.709	0.128	0.238	0.082	<0.024
2249	LAWC-99C																					0.53	0.092	0.518	0.046	0.031
2250	LAWC-99B																									
2251	LAWBF-98E	1000	19.400	1050	10.7	1100.0	6.4	1150.0	4.0	1200.0	2.7	1250.0	1.9	1300.0	1.3							0.564	0.038	<0.005	0.013	<0.024
2252	LAWBF-20F																					0.606	0.047	0.015	0.04	<0.024
2253	LAWBF-47B																					0.56	0.037	<0.005	0.032	<0.024
2254	LAWBF-49C																					0.571	0.036	0.006	0.023	0.033
2255	LAWBF-53C																					0.544	0.043	<0.005	0.021	<0.024
2256	LAWBF-56E																					0.538	0.035	<0.005	0.017	<0.024
2257	LAWBF-23D																									
2258	LAWBF-27C																									
2259	LAWBF-35B																									
2260	LAWBF-47D																									
2261	LAWBF-62G																									
2262	LAWBF-70D																									
2263	HAHP	1050	13.870	1100	9.0	1150.0	6.1																			
2264	HAHF	1050	9.330	1100	6.3	1150.0	4.4																			
2265	HALF	1050	10.790	1100	7.0	1150.0	4.8																			
2266	Centroid																									
2267	AL001																									
2268	AL002																									
2269	AL003																									
2270	AL004																									
2271	AL005																									
2272	CR001																									
2273	CR002																									
2274	CR003																									
2275	CR004																									
2276	CR005																									
2277	FE001																									
2278	FE002																									
2279	FE003																									
2280	FE004																									
2281	FE005																									
2282	MN001																									
2283	MN002																									
2284	MN003																									
2285	MN004																									
2286	MN005																									
2287	NI001																									
2288	NI002																									
2289	NI003																									
2290	NI004																									
2291	NI005																									
2292	P001																									
2293	P002																									
2294	P003																									
2295	P004																									
2296	P005																									

#	Glass ID	TCLP Se	TCLP Zn	TCLP Al	TCLP B	TCLP Sb	TCLP Tl	TCLP V	Q PCT B (g/m²)	Q PCT Li (g/m²)	Q PCT Na (g/m²)	Q PCT Si (g/m²)	Q PCT pH	CCC PCT B (g/m²)	CCC PCT Li (g/m²)	CCC PCT Na (g/m²)	CCC PCT Si (g/m²)	CCC PCT pH	T1 (°C)
2215	A40-13a																		
2216	A40-17a																		
2217	NBS-710																		
2218	SF 1																		
2219	SF 2																		
2220	SF 3																		
2221	SF 4																		
2222	SF 5																		
2223	SF 6																		
2224	SF 7																		
2225	SF 8																		
2226	SF 9																		
2227	SF 10A #1																		
2228	SF 10A #2																		
2229	SF 10B CFMUT																		
2230	SF 10B MFHT																		
2231	FRTI-III #1(CHI-VIT)																		
2232	FRTI-III #2, (CHI-VIT)																		
2233	SF 10C CFMUT																		
2234	SF 10C MFHT																		
2235	SF 11 CFMUT																		
2236	SF 12 BATCH#1																		
2237	SF 12 BATCH#2																		
2238	SF 12 BATCH#3																		
2239	SF 12 BATCH#4																		
2240	SF 12 BATCH#5																		
2241	SF 11 MFHT																		
2242	LAWC-30C																		
2243	LAWC-81B																		
2244	LAWC-93A		1.78																
2245	LAWC-63A		4.37																
2246	LAWC-63B								0.060		0.039	0.005							
2247	LAWC-88A								0.076		0.037	0.005							
2248	LAWC-95D		1.9						0.030		0.031	0.006							
2249	LAWC-99C		1.18																
2250	LAWC-99B								0.016		0.030	0.007							
2251	LAWBF-98E		1.314																
2252	LAWBF-20F		1.88																
2253	LAWBF-47B		1.381																
2254	LAWBF-49C		1.293																
2255	LAWBF-53C		1.448						0.015		0.019	0.006							
2256	LAWBF-56E		1.328																
2257	LAWBF-23D								0.032		0.022	0.007							
2258	LAWBF-27C								0.015		0.022	0.006							
2259	LAWBF-35B								0.016		0.023	0.007							
2260	LAWBF-47D								0.034		0.022	0.007							
2261	LAWBF-62G								0.035		0.018	0.006							
2262	LAWBF-70D								0.033		0.019	0.006							
2263	HAHP																		
2264	HAHF																		
2265	HALF																		
2266	Centroid																		
2267	AL001																		
2268	AL002																		
2269	AL003																		
2270	AL004																		
2271	AL005																		
2272	CR001																		
2273	CR002																		
2274	CR003																		
2275	CR004																		
2276	CR005																		
2277	FE001																		
2278	FE002																		
2279	FE003																		
2280	FE004																		
2281	FE005																		
2282	MN001																		
2283	MN002																		
2284	MN003																		
2285	MN004																		
2286	MN005																		
2287	NI001																		
2288	NI002																		
2289	NI003																		
2290	NI004																		
2291	NI005																		
2292	P001																		
2293	P002																		
2294	P003																		
2295	P004																		
2296	P005																		

#	Glass ID	EC1 (S/cm)	T2 (°C)	EC2 (S/cm)	T3 (°C)	EC3 (S/cm)	T4 (°C)	EC4 (S/cm)	T5 (°C)	EC5 (S/cm)	T6 (°C)	EC6 (S/cm)	A	B	To
2215	A40-13a														
2216	A40-17a														
2217	NBS-710														
2218	SF 1														
2219	SF 2														
2220	SF 3														
2221	SF 4														
2222	SF 5														
2223	SF 6														
2224	SF 7														
2225	SF 8														
2226	SF 9														
2227	SF 10A #1														
2228	SF 10A #2														
2229	SF 10B CFMUT														
2230	SF 10B MFHT														
2231	FRTI-III #1(CHI-VIT)														
2232	FRTI-III #2, (CHI-VIT)														
2233	SF 10C CFMUT														
2234	SF 10C MFHT														
2235	SF 11 CFMUT														
2236	SF 12 BATCH#1														
2237	SF 12 BATCH#2														
2238	SF 12 BATCH#3														
2239	SF 12 BATCH#4														
2240	SF 12 BATCH#5														
2241	SF 11 MFHT														
2242	LAWC-30C														
2243	LAWC-81B														
2244	LAWC-93A														
2245	LAWC-63A														
2246	LAWC-63B														
2247	LAWC-88A														
2248	LAWC-95D														
2249	LAWC-99C														
2250	LAWC-99B														
2251	LAWBF-98E														
2252	LAWBF-20F														
2253	LAWBF-47B														
2254	LAWBF-49C														
2255	LAWBF-53C														
2256	LAWBF-56E														
2257	LAWBF-23D														
2258	LAWBF-27C														
2259	LAWBF-35B														
2260	LAWBF-47D														
2261	LAWBF-62G														
2262	LAWBF-70D														
2263	HAHP														
2264	HAHF														
2265	HALF														
2266	Centroid														
2267	AL001														
2268	AL002														
2269	AL003														
2270	AL004														
2271	AL005														
2272	CR001														
2273	CR002														
2274	CR003														
2275	CR004														
2276	CR005														
2277	FE001														
2278	FE002														
2279	FE003														
2280	FE004														
2281	FE005														
2282	MN001														
2283	MN002														
2284	MN003														
2285	MN004														
2286	MN005														
2287	NI001														
2288	NI002														
2289	NI003														
2290	NI004														
2291	NI005														
2292	P001														
2293	P002														
2294	P003														
2295	P004														
2296	P005														

#	Glass ID	Study	Reference	Al2O3-t	B2O3-t	CaO-t	Fe2O3-t	FeO-t	K2O-t	Li2O-t	MgO-t	Na2O-t	NiO-t	P2O5-t	SiO2-t	ZrO2-t	Ag2O-t	As2O3-t	As2O5-t	BaO-t	BeO-t	Bi2O3-t	Br-t	CdO-t	Ce2O3-t	CeO2-t	Cl-t
2297	Frit 18	Savannah River	Plodinec 1978	0.0000	0.1000	0.0500	0.0000			0.0000		0.2250	0.0000		0.5250												
2298	Frit 18, 25 HI	Savannah River	Plodinec 1978	0.0140	0.0750	0.0480	0.1535			0.0000		0.1687	0.0263		0.3937												
2299	Frit 21	Savannah River	Plodinec 1978	0.0000	0.1000	0.0500	0.0000			0.0400		0.1850	0.0000		0.5250												
2300	Frit 21, 25 HI	Savannah River	Plodinec 1978	0.0140	0.0750	0.0480	0.1535			0.0300		0.1387	0.0263		0.3937												
2301	Frit 21, 30 HI	Savannah River	Plodinec 1978	0.0168	0.0700	0.0476	0.1842			0.0280		0.1295	0.0315		0.3675												
2302	Frit 21, 10 HA	Savannah River	Plodinec 1978	0.0863	0.0900	0.0454	0.0060			0.0360		0.1665	0.0009		0.4725												
2303	Frit 21, 15 HA	Savannah River	Plodinec 1978	0.1294	0.0850	0.0431	0.0090			0.0340		0.1572	0.0014		0.4462												
2304	Frit 21, 20 HA	Savannah River	Plodinec 1978	0.1726	0.0800	0.0408	0.0120			0.0320		0.1480	0.0018		0.4200												
2305	Frit 21, 25 HA	Savannah River	Plodinec 1978	0.2157	0.0750	0.0385	0.0150			0.0300		0.1387	0.0023		0.3937												
2306	Frit 21, 35 HA	Savannah River	Plodinec 1978	0.3020	0.0650	0.0339	0.0210			0.0260		0.1202	0.0032		0.3412												
2307	Frit 18, 25 HA	Savannah River	Plodinec 1978	0.2157	0.0750	0.0385	0.0150			0.0000		0.1687	0.0023		0.3937												
2308	Frit 18, 25 SA	Savannah River	Plodinec 1978	0.0645	0.0750	0.0450	0.1087			0.0000		0.1687	0.0125		0.3937												
2309	Frit 18, 35 SA	Savannah River	Plodinec 1978	0.0903	0.0650	0.0430	0.1522			0.0000		0.1462	0.0175		0.3412												
2310	Frit 21, 25 SA	Savannah River	Plodinec 1978	0.0645	0.0750	0.0450	0.1087			0.0300		0.1387	0.0125		0.3937												
2311	Frit 21, 30 SA	Savannah River	Plodinec 1978	0.0774	0.0700	0.0440	0.1305			0.0280		0.1295	0.0150		0.3675												
2312	Frit 18, 25 SC	Savannah River	Plodinec 1978	0.1160	0.0750	0.0457	0.0790			0.0000		0.1687	0.0058		0.3937												
2313	Frit 21, 20 SC	Savannah River	Plodinec 1978	0.0928	0.0800	0.0466	0.0632			0.0320		0.1480	0.0046		0.4200												
2314	Frit 21, 25 SC	Savannah River	Plodinec 1978	0.1160	0.0750	0.0457	0.0790			0.0300		0.1387	0.0058		0.3937												
2315	Frit 21, 30 SC	Savannah River	Plodinec 1978	0.1392	0.0700	0.0449	0.0948			0.0280		0.1295	0.0069		0.3675												
2316	HT-S-1	WVNS Production Glass	Reimus et al. 1988	0.0999	0.1069	0.0060	0.1219	0.0000	0.0244	0.0263	0.0133	0.0958	0.0028	0.0252	0.3996	0.0029	0.0000	0.0000		0.0005		0.0000		0.0000	0.0000	0.0007	0.0000
2317	HT-S-2	WVNS Production Glass	Reimus et al. 1988	0.0999	0.1069	0.0060	0.1219	0.0000	0.0244	0.0263	0.0133	0.0958	0.0028	0.0252	0.3996	0.0029	0.0000	0.0000		0.0005		0.0000		0.0000	0.0000	0.0007	0.0000
2318	HT-S-3	WVNS Production Glass	Reimus et al. 1988	0.0999	0.1069	0.0060	0.1219	0.0000	0.0244	0.0263	0.0133	0.0958	0.0028	0.0252	0.3996	0.0029	0.0000	0.0000		0.0005		0.0000		0.0000	0.0000	0.0007	0.0000
2319	HT-S-4	WVNS Production Glass	Reimus et al. 1988	0.0999	0.1069	0.0060	0.1219	0.0000	0.0244	0.0263	0.0133	0.0958	0.0028	0.0252	0.3996	0.0029	0.0000	0.0000		0.0005		0.0000		0.0000	0.0000	0.0007	0.0000
2320	HT-S-5	WVNS Production Glass	Reimus et al. 1988	0.0999	0.1069	0.0060	0.1219	0.0000	0.0244	0.0263	0.0133	0.0958	0.0028	0.0252	0.3996	0.0029	0.0000	0.0000		0.0005		0.0000		0.0000	0.0000	0.0007	0.0000
2321	HT-S-6	WVNS Production Glass	Reimus et al. 1988	0.0999	0.1069	0.0060	0.1219	0.0000	0.0244	0.0263	0.0133	0.0958	0.0028	0.0252	0.3996	0.0029	0.0000	0.0000		0.0005		0.0000		0.0000	0.0000	0.0007	0.0000
2322	AL1TC34	WVNS Production Glass	Reimus et al. 1988	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000		0.0000		0.0000	0.0000	0.0000	0.0000
2323	AL1TC36	WVNS Production Glass	Reimus et al. 1988	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000		0.0000		0.0000	0.0000	0.0000	0.0000
2324	AL4TC34	WVNS Production Glass	Reimus et al. 1988	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000		0.0000		0.0000	0.0000	0.0000	0.0000
2325	AL5TC34	WVNS Production Glass	Reimus et al. 1988	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000		0.0000		0.0000	0.0000	0.0000	0.0000
2326	AL9TC27	WVNS Production Glass	Reimus et al. 1988	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000		0.0000		0.0000	0.0000	0.0000	0.0000
2327	HTS1	WVNS Glass Product Qualific	Reimus et al. 1988																								
2328	HTS2	WVNS Glass Product Qualific	Reimus et al. 1988																								
2329	HTS3	WVNS Glass Product Qualific	Reimus et al. 1988																								
2330	HTS4	WVNS Glass Product Qualific	Reimus et al. 1988																								
2331	HTS5	WVNS Glass Product Qualific	Reimus et al. 1988																								
2332	HTS6	WVNS Glass Product Qualific	Reimus et al. 1988																								
2333	HTS7	WVNS Glass Product Qualific	Reimus et al. 1988																								
2334	HTS8	WVNS Glass Product Qualific	Reimus et al. 1988																								
2335	HTS9	WVNS Glass Product Qualific	Reimus et al. 1988																								
2336	HTS10	WVNS Glass Product Qualific	Reimus et al. 1988																								
2337	HTS11	WVNS Glass Product Qualific	Reimus et al. 1988																								
2338	HTS12	WVNS Glass Product Qualific	Reimus et al. 1988																								
2339	HTS13	WVNS Glass Product Qualific	Reimus et al. 1988																								
2340	HTS14	WVNS Glass Product Qualific	Reimus et al. 1988																								
2341	HTS15	WVNS Glass Product Qualific	Reimus et al. 1988																								
2342	HTS16	WVNS Glass Product Qualific	Reimus et al. 1988																								
2343	HTS17	WVNS Glass Product Qualific	Reimus et al. 1988																								
2344	HTS18	WVNS Glass Product Qualific	Reimus et al. 1988																								
2345	HTS19	WVNS Glass Product Qualific	Reimus et al. 1988																								
2346	HTS20	WVNS Glass Product Qualific	Reimus et al. 1988																								
2347	HTS21	WVNS Glass Product Qualific	Reimus et al. 1988																								
2348	HTS22	WVNS Glass Product Qualific	Reimus et al. 1988																								
2349	WVRefGlass	WVNS Glass Product Qualific	Reimus et al. 1988																								
2350	SM513FR	Pamela Testing	Scheiwer 1986	0.0300	0.1470	0.0510	0.0000			0.0470	0.0230	0.0650	0.0000		0.5860	0.0000				0.0000						0.0000	
2351	SM513LW08	Pamela Testing	Scheiwer 1986	0.0342	0.1352	0.0469	0.0121			0.0432	0.0212	0.0835	0.0031		0.5389	0.0037				0.0006						0.0037	
2352	SM513LW11	Pamela Testing	Scheiwer 1986	0.0358	0.1308	0.0454	0.0166			0.0418	0.0205	0.0904	0.0043		0.5213	0.0050				0.0009						0.0050	
2353	SM513LW14	Pamela Testing	Scheiwer 1986	0.0374	0.1263	0.0438	0.0211			0.0404	0.0198	0.0973	0.0055		0.5036	0.0064				0.0011						0.0064	
2354	SRL-202-G	SRS	Shade 1991	0.0515	0.0781	0.0138	0.1362		0.0378	0.0431	0.0134	0.0941	0.0082		0.4860					0.0016							
2355	SRL-202-P	SRS	Shade 1991	0.0478	0.0972	0.0127	0.1260		0.0676	0.0391	0.0122	0.1022	0.0077		0.4419					0.0022							
2356	W-Al/131	Savannah River Site	Soper et al. 1982	0.1467	0.1048	0.0042	0.0396		0.0032	0.0406	0.0143	0.1466	0.0057		0.4473	0.0036											
2357	W-Al/141	Savannah River Site	Soper et al. 1982	0.1467	0.1048	0.0042	0.0396		0.0032	0.0278	0.0143	0.1459	0.0057		0.4537	0.0000											
2358	W-Al/142	Savannah River Site	Soper et al. 1982	0.1467	0.1012	0.0042	0.0396		0.0032	0.0271	0.0064	0.1081	0.0057		0.5050	0.0064											
2359	W-Al/143	Savannah River Site	Soper et al. 1982	0.1467	0.0991	0.0042	0.0396		0.0032	0.0399	0.0135	0.1059	0.0057		0.4965	0.0000											
2360	W-Al/144	Savannah River Site	Soper et al. 1982	0.1467	0.1062	0.0042	0.0396		0.0032	0.0421	0.0071	0.1473	0.0057		0.4580	0.0071											
2361	W-Al/145	Savannah River Site	Soper et al. 1982	0.1467	0.0791	0.0042	0.0396		0.0032	0.0399	0.0135	0.1394	0.0057		0.4965	0.0000											
2362	W-Al/146	Savannah River Site	Soper et al. 1982	0.1467	0.0791	0.0042	0.0396		0.0032	0.0399	0.0135	0.1394	0.0057		0.4843	0.0000											
2363	W-Al/147	Savannah River Site	Soper et al. 1982	0.1467	0.0948	0.0042	0.0396		0.0032	0.0314	0.0078	0.1230	0.0057		0.5100	0.0000											
2364	W-Al/148	Savannah River Site	Soper et al. 1982	0.1467	0.1091	0.0042	0.0396		0.0032	0.0435	0.0143	0.1152	0.0057		0.4708	0.0071											
2365	W-Al/149	Savannah River Site	Soper et al. 1982	0.1467	0.0834	0.0042	0.0396		0.0032	0.0278	0.0135	0.1102	0.0057		0.5193	0.0071											
2366	W-Al/150	Savannah River Site	Soper et al. 1982	0.1467	0.0863	0.0042	0.0396		0.0032	0.0285	0.0143	0.1501	0.0057		0.4665	0.0071											
2367	W-Al/151	Savannah River Site	Soper et al. 1982	0.1467	0.0898	0.0042	0.0396		0.0032	0.0449	0.0078	0.1181	0.0057		0.4851	0.0000											
2368	W-Al/152	Savannah River Site	Soper et al. 1982	0.1467	0.0984	0.0042	0.0396		0.0032	0.0264	0.0064	0.1380	0.0057		0.4922	0.0000											
2369	W-Al/154	Savannah River Site	Soper et al. 1982	0.1467	0.0777	0.0042	0.0396		0.0032	0.0449	0.0050	0.1188	0.0057		0.5164	0.0000											
2370	W-Al/155	Savannah River Site	Soper et al. 1982	0.1467	0.0806	0.0042	0.0396		0.0032	0.0463	0.0128	0.1580	0.0057		0.4644	0.0000											
2371	W-Al/156	Savannah River Site	Soper et al. 1982	0.1467	0.0742	0.0042	0.0396		0.0032	0.0299	0.0050	0.1480	0.0057		0.4979	0.0000											
2372	W-Al/157	Savannah River Site	Soper et al. 1982	0.1467	0.0991	0.0042	0.0396		0.0032	0.0449	0.0050	0.1537	0.0057		0.4508	0.0000											
2373	W-Al/158	Savannah River Site	Soper et al. 1982	0.1467	0.0934	0.0042	0.0396		0.0032	0.0250	0.0057	0.1038	0.0057		0.5228	0.0029											
2374	W-Al/159	Savannah River Site	Soper et al. 1982	0.1467	0.0692	0.0042	0.0396		0.0032	0.0292	0.0114	0.1131	0.0057		0.5285	0.0000											
2375	W-Al/160	Savannah River Site	Soper et al. 1982	0.1467	0.0984	0.0042	0.0396		0.0032	0.0321	0.0121	0.1223	0.0057		0.5029	0.0000											
2376	W-Al/161	Savannah River Site	Soper et al. 1982	0.1467	0.0756	0.0042	0.0396		0.0032	0.0264	0.0128	0.1067	0.0057		0.5400	0.0029											
2377	W-Al/162	Savannah River Site	Soper et al. 1982	0.1467	0.0927	0.0042	0.0396		0.0032	0.0285	0.0071	0.1131	0.0057		0.5157	0.0036											
2378	W-Al/163	Savannah River Site	Soper et al. 1982	0.1467	0.0927	0.0042	0.0396		0.0032	0.0321	0.0071	0.1059	0.0057		0.5193	0.0036											

#	Glass ID	CoO-t	Co2O3-t	Cr2O3-t	Cs2O-t	CuO-t	Dy2O3-t	Eu2O3-t	F-t	Ga2O3-t	Gd2O3-t	HfO2-t	HgO-t	I-t	La2O3-t	MnO2-t	MnO-t	MoO-t	MoO2-t	MoO3-t	Nb2O5-t	Nd2O3-t	NpO2-t	PbO-t	PdO2-t	PdO-t	Pr2O3-t	Pr6O11-t	Rb2O-t	ReO-t
2297	Frit 18															0.0000													
2298	Frit 18, 25 HI															0.0103													
2299	Frit 21															0.0000													
2300	Frit 21, 25 HI															0.0103													
2301	Frit 21, 30 HI															0.0123													
2302	Frit 21, 10 HA															0.0049													
2303	Frit 21, 15 HA															0.0074													
2304	Frit 21, 20 HA															0.0098													
2305	Frit 21, 25 HA															0.0123													
2306	Frit 21, 35 HA															0.0172													
2307	Frit 18, 25 HA															0.0123													
2308	Frit 18, 25 SA															0.0292													
2309	Frit 18, 35 SA															0.0409													
2310	Frit 21, 25 SA															0.0292													
2311	Frit 21, 30 SA															0.0351													
2312	Frit 18, 25 SC															0.0257													
2313	Frit 21, 20 SC															0.0206													
2314	Frit 21, 25 SC															0.0257													
2315	Frit 21, 30 SC															0.0309													
2316	HT-S-1		0.0000	0.0018	0.0008	0.0000			0.0000		0.0000			0.0000	0.0003	0.0131	0.0000			0.0001	0.0000	0.0012		0.0000	0.0001	0.0000	0.0000	0.0003	0.0000	
2317	HT-S-2		0.0000	0.0018	0.0008	0.0000			0.0000		0.0000			0.0000	0.0003	0.0131	0.0000			0.0001	0.0000	0.0012		0.0000	0.0001	0.0000	0.0000	0.0003	0.0000	
2318	HT-S-3		0.0000	0.0018	0.0008	0.0000			0.0000		0.0000			0.0000	0.0003	0.0131	0.0000			0.0001	0.0000	0.0012		0.0000	0.0001	0.0000	0.0000	0.0003	0.0000	
2319	HT-S-4		0.0000	0.0018	0.0008	0.0000			0.0000		0.0000			0.0000	0.0003	0.0131	0.0000			0.0001	0.0000	0.0012		0.0000	0.0001	0.0000	0.0000	0.0003	0.0000	
2320	HT-S-5		0.0000	0.0018	0.0008	0.0000			0.0000		0.0000			0.0000	0.0003	0.0131	0.0000			0.0001	0.0000	0.0012		0.0000	0.0001	0.0000	0.0000	0.0003	0.0000	
2321	HT-S-6		0.0000	0.0018	0.0008	0.0000			0.0000		0.0000			0.0000	0.0003	0.0131	0.0000			0.0001	0.0000	0.0012		0.0000	0.0001	0.0000	0.0000	0.0003	0.0000	
2322	AL1TC34		0.0000	0.0000	0.0000	0.0000			0.0000		0.0000			0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
2323	AL1TC36		0.0000	0.0000	0.0000	0.0000			0.0000		0.0000			0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
2324	AL4TC34		0.0000	0.0000	0.0000	0.0000			0.0000		0.0000			0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
2325	AL5TC34		0.0000	0.0000	0.0000	0.0000			0.0000		0.0000			0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
2326	AL9TC27		0.0000	0.0000	0.0000	0.0000			0.0000		0.0000			0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
2327	HTS1																												
2328	HTS2																												
2329	HTS3																												
2330	HTS4																												
2331	HTS5																												
2332	HTS6																												
2333	HTS7																												
2334	HTS8																												
2335	HTS9																												
2336	HTS10																												
2337	HTS11																												
2338	HTS12																												
2339	HTS13																												
2340	HTS14																												
2341	HTS15																												
2342	HTS16																												
2343	HTS17																												
2344	HTS18																												
2345	HTS19																												
2346	HTS20																												
2347	HTS21																												
2348	HTS22																												
2349	WVRefGlass																												
2350	SM513FR			0.0000	0.0000				0.0000							0.0000				0.0000		0.0000				0.0000			
2351	SM513LW08			0.0031	0.0006				0.0054							0.0032				0.0020		0.0036				0.0005			
2352	SM513LW11			0.0043	0.0009				0.0075							0.0043				0.0027		0.0050				0.0007			
2353	SM513LW14			0.0055	0.0011				0.0095							0.0055				0.0035		0.0064				0.0010			
2354	SRL-202-G			0.0011	0.0000	0.0043										0.0223													
2355	SRL-202-P			0.0011	0.0000	0.0074										0.0206													
2356	W-Al/131														0.0036	0.0324													
2357	W-Al/141														0.0071	0.0324													
2358	W-Al/142														0.0000	0.0324													
2359	W-Al/143														0.0000	0.0324													
2360	W-Al/144														0.0000	0.0324													
2361	W-Al/145														0.0000	0.0324													
2362	W-Al/146														0.0000	0.0324													
2363	W-Al/147														0.0000	0.0324													
2364	W-Al/148														0.0071	0.0324													
2365	W-Al/149														0.0071	0.0324													
2366	W-Al/150														0.0000	0.0324													
2367	W-Al/151														0.0078	0.0324													
2368	W-Al/152														0.0064	0.0324													
2369	W-Al/154														0.0000	0.0324													
2370	W-Al/155														0.0057	0.0324													
2371	W-Al/156														0.0000	0.0324													
2372	W-Al/157														0.0000	0.0324													
2373	W-Al/158														0.0000	0.0324													
2374	W-Al/159														0.0036	0.0324													
2375	W-Al/160														0.0000	0.0324													
2376	W-Al/161														0.0036	0.0324													
2377	W-Al/162														0.0000	0.0324													
2378	W-Al/163														0.0000	0.0324													

#	Glass ID	ReO2-t	Re2O7-t	Rh2O3-t	RhO2-t	RuO2-t	Ru2O3-t	Sb2O3-t	Sb2O5-t	SeO2-t	Sm2O3-t	SnO-t	SnO2-t	SO3-t	SrO-t	Tc2O7-t	TeO2-t	ThO2-t	TiO2-t	Tl2O-t	Tl2O3-t	U3O8-t	UO2-t	UO3-t	V2O5-t	WO3-t	Y2O3-t	ZnO-t	Sum-t	Al2O3-a
2297	Frit 18																		0.1000				0.0000						1.0000	
2298	Frit 18, 25 HI																		0.0750				0.0355						1.0000	
2299	Frit 21																		0.1000				0.0000						1.0000	
2300	Frit 21, 25 HI																		0.0750				0.0355						1.0000	
2301	Frit 21, 30 HI																		0.0700				0.0426						1.0000	
2302	Frit 21, 10 HA																		0.0900				0.0015						1.0000	
2303	Frit 21, 15 HA																		0.0850				0.0023						1.0000	
2304	Frit 21, 20 HA																		0.0800				0.0030						1.0000	
2305	Frit 21, 25 HA																		0.0750				0.0038						1.0000	
2306	Frit 21, 35 HA																		0.0650				0.0053						1.0000	
2307	Frit 18, 25 HA																		0.0750				0.0038						1.0000	
2308	Frit 18, 25 SA																		0.0750				0.0275						0.9998	
2309	Frit 18, 35 SA																		0.0650				0.0385						0.9998	
2310	Frit 21, 25 SA																		0.0750				0.0275						0.9998	
2311	Frit 21, 30 SA																		0.0700				0.0330						1.0000	
2312	Frit 18, 25 SC																		0.0750				0.0153						0.9999	
2313	Frit 21, 20 SC																		0.0800				0.0122						1.0000	
2314	Frit 21, 25 SC																		0.0750				0.0153						0.9999	
2315	Frit 21, 30 SC																		0.0700				0.0183						1.0000	
2316	HT-S-1	0.0000		0.0000	0.0001	0.0008		0.0000		0.0000	0.0003		0.0000	0.0030	0.0003		0.0000	0.0361	0.0099			0.0000	0.0056	0.0000		0.0000	0.0002	0.0000	1.0002	0.1060
2317	HT-S-2	0.0000		0.0000	0.0001	0.0008		0.0000		0.0000	0.0003		0.0000	0.0030	0.0003		0.0000	0.0361	0.0099			0.0000	0.0056	0.0000		0.0000	0.0002	0.0000	1.0002	0.1032
2318	HT-S-3	0.0000		0.0000	0.0001	0.0008		0.0000		0.0000	0.0003		0.0000	0.0030	0.0003		0.0000	0.0361	0.0099			0.0000	0.0056	0.0000		0.0000	0.0002	0.0000	1.0002	0.1041
2319	HT-S-4	0.0000		0.0000	0.0001	0.0008		0.0000		0.0000	0.0003		0.0000	0.0030	0.0003		0.0000	0.0361	0.0099			0.0000	0.0056	0.0000		0.0000	0.0002	0.0000	1.0002	0.1037
2320	HT-S-5	0.0000		0.0000	0.0001	0.0008		0.0000		0.0000	0.0003		0.0000	0.0030	0.0003		0.0000	0.0361	0.0099			0.0000	0.0056	0.0000		0.0000	0.0002	0.0000	1.0002	0.1033
2321	HT-S-6	0.0000		0.0000	0.0001	0.0008		0.0000		0.0000	0.0003		0.0000	0.0030	0.0003		0.0000	0.0361	0.0099			0.0000	0.0056	0.0000		0.0000	0.0002	0.0000	1.0002	0.1035
2322	AL1TC34	0.0000		0.0000	0.0000	0.0000		0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000	0.0000	0.0000			0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0534
2323	AL1TC36	0.0000		0.0000	0.0000	0.0000		0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000	0.0000	0.0000			0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0611
2324	AL4TC34	0.0000		0.0000	0.0000	0.0000		0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000	0.0000	0.0000			0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0520
2325	AL5TC34	0.0000		0.0000	0.0000	0.0000		0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000	0.0000	0.0000			0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0529
2326	AL9TC27	0.0000		0.0000	0.0000	0.0000		0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000	0.0000	0.0000			0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0638
2327	HTS1																											0.0000	0.1060
2328	HTS2																											0.0000	0.1032
2329	HTS3																											0.0000	0.1041
2330	HTS4																											0.0000	0.1037
2331	HTS5																											0.0000	0.1033
2332	HTS6																											0.0000	0.1035
2333	HTS7																											0.0000	0.0999
2334	HTS8																											0.0000	0.0999
2335	HTS9																											0.0000	0.0999
2336	HTS10																											0.0000	0.0999
2337	HTS11																											0.0000	0.0999
2338	HTS12																											0.0000	0.0999
2339	HTS13																											0.0000	0.0999
2340	HTS14																											0.0000	0.0999
2341	HTS15																											0.0000	0.0999
2342	HTS16																											0.0000	0.0999
2343	HTS17																											0.0000	0.0999
2344	HTS18																											0.0000	0.0999
2345	HTS19																											0.0000	0.0999
2346	HTS20																											0.0000	0.0999
2347	HTS21																											0.0000	0.0999
2348	HTS22																											0.0000	0.0999
2349	WVRefGlass																											0.0000	0.1132
2350	SM513FR				0.0000	0.0000								0.0000	0.0000				0.0510				0.0000						1.0000	
2351	SM513LW08				0.0006	0.0006								0.0039	0.0006				0.0469				0.0025						0.9998	
2352	SM513LW11				0.0008	0.0008								0.0054	0.0009				0.0454				0.0034						0.9999	
2353	SM513LW14				0.0011	0.0011								0.0069	0.0011				0.0438				0.0044						1.0000	
2354	SRL-202-G																		0.0070										0.9985	
2355	SRL-202-P																		0.0128										0.9985	
2356	W-Al/131																		0.0071										0.9997	
2357	W-Al/141																		0.0143										0.9997	
2358	W-Al/142																		0.0135										0.9995	
2359	W-Al/143																		0.0135										1.0002	
2360	W-Al/144																		0.0000										0.9996	
2361	W-Al/145																		0.0000										1.0002	
2362	W-Al/146																		0.0000										0.9880	
2363	W-Al/147																		0.0000										0.9988	
2364	W-Al/148																		0.0000										0.9989	
2365	W-Al/149																		0.0000										1.0002	
2366	W-Al/150																		0.0143										0.9989	
2367	W-Al/151																		0.0150										1.0003	
2368	W-Al/152																		0.0000										0.9996	
2369	W-Al/154																		0.0000										0.9946	
2370	W-Al/155																		0.0000										0.9996	
2371	W-Al/156																		0.0135										1.0003	
2372	W-Al/157																		0.0135										0.9988	
2373	W-Al/158																		0.0135										0.9989	
2374	W-Al/159																		0.0135										1.0003	
2375	W-Al/160																		0.0000										0.9996	
2376	W-Al/161																		0.0000										0.9998	
2377	W-Al/162																		0.0071										0.9996	
2378	W-Al/163																		0.0071										0.9996	

#	Glass ID	B2O3-a	CaO-a	Fe2O3-a	FeO-a	K2O-a	Li2O-a	MgO-a	Na2O-a	NiO-a	P2O5-a	SiO2-a	ZrO2-a	Ag2O-a	As2O3-a	As2O5-a	BaO-a	BeO-a	Bi2O3-a	Br-a	CdO-a	Ce2O3-a	CeO2-a	Cl-a	CoO-a	Co2O3-a	Cr2O3-a	Cs2O-a	CuO-a	F-a
2297	Frit 18																													
2298	Frit 18, 25 HI																													
2299	Frit 21																													
2300	Frit 21, 25 HI																													
2301	Frit 21, 30 HI																													
2302	Frit 21, 10 HA																													
2303	Frit 21, 15 HA																													
2304	Frit 21, 20 HA																													
2305	Frit 21, 25 HA																													
2306	Frit 21, 35 HA																													
2307	Frit 18, 25 HA																													
2308	Frit 18, 25 SA																													
2309	Frit 18, 35 SA																													
2310	Frit 21, 25 SA																													
2311	Frit 21, 30 SA																													
2312	Frit 18, 25 SC																													
2313	Frit 21, 20 SC																													
2314	Frit 21, 25 SC																													
2315	Frit 21, 30 SC																													
2316	HT-S-1	0.1081	0.0064	0.1185		0.0230	0.0257	0.0129	0.0906	0.0029	0.0254	0.4115	0.0052				0.0004						0.0007				0.0019	0.0008		
2317	HT-S-2	0.1093	0.0064	0.1167		0.0233	0.0256	0.0129	0.0923	0.0027	0.0254	0.4141	0.0046				0.0005						0.0007				0.0018	0.0007		
2318	HT-S-3	0.1082	0.0066	0.1176		0.0242	0.0255	0.0130	0.0915	0.0029	0.0251	0.4131	0.0047				0.0004						0.0007				0.0019	0.0007		
2319	HT-S-4	0.1087	0.0062	0.1181		0.0220	0.0253	0.0130	0.0926	0.0028	0.0253	0.4139	0.0043				0.0005						0.0007				0.0019	0.0006		
2320	HT-S-5	0.1096	0.0064	0.1158		0.0243	0.0259	0.0128	0.0919	0.0029	0.0252	0.4122	0.0050				0.0005						0.0007				0.0017	0.0007		
2321	HT-S-6	0.1090	0.0063	0.1174		0.0221	0.0255	0.0130	0.0913	0.0028	0.0256	0.4140	0.0049				0.0005						0.0007				0.0019	0.0007		
2322	AL1TC34	0.1027		0.1098							0.0232	0.4399																		
2323	AL1TC36	0.0997		0.1154							0.0237	0.4411																		
2324	AL4TC34	0.1053		0.1136							0.0248	0.4493																		
2325	AL5TC34	0.1043		0.1128							0.0259	0.4450																		
2326	AL9TC27	0.1000		0.1163							0.0237	0.4391																		
2327	HTS1	0.1081	0.0064	0.1185		0.0230	0.0257	0.0129	0.0906	0.0029	0.0254	0.4115	0.0052				0.0004						0.0007				0.0019	0.0008		
2328	HTS2	0.1093	0.0064	0.1167		0.0233	0.0256	0.0129	0.0923	0.0027	0.0254	0.4141	0.0046				0.0005						0.0007				0.0018	0.0007		
2329	HTS3	0.1082	0.0066	0.1176		0.0242	0.0255	0.0130	0.0915	0.0029	0.0251	0.4131	0.0047				0.0004						0.0007				0.0019	0.0007		
2330	HTS4	0.1087	0.0062	0.1181		0.0220	0.0253	0.0130	0.0926	0.0028	0.0253	0.4139	0.0043				0.0005						0.0007				0.0019	0.0006		
2331	HTS5	0.1096	0.0064	0.1158		0.0243	0.0259	0.0128	0.0919	0.0029	0.0252	0.4122	0.0050				0.0005						0.0007				0.0017	0.0007		
2332	HTS6	0.1090	0.0063	0.1174		0.0221	0.0255	0.0130	0.0913	0.0028	0.0256	0.4140	0.0049				0.0005						0.0007				0.0019	0.0007		
2333	HTS7	0.1069	0.0060	0.1219		0.0244	0.0263	0.0133	0.0958	0.0028	0.0252	0.3996	0.0029				0.0005						0.0007				0.0018	0.0008	0.0000	
2334	HTS8	0.1069	0.0060	0.1219		0.0244	0.0263	0.0133	0.0958	0.0028	0.0252	0.3996	0.0029				0.0005						0.0007				0.0018	0.0008	0.0000	
2335	HTS9	0.1069	0.0060	0.1219		0.0244	0.0263	0.0133	0.0958	0.0028	0.0252	0.3996	0.0029				0.0005						0.0007				0.0018	0.0008	0.0000	
2336	HTS10	0.1069	0.0060	0.1219		0.0244	0.0263	0.0133	0.0958	0.0028	0.0252	0.3996	0.0029				0.0005						0.0007				0.0018	0.0008	0.0000	
2337	HTS11	0.1069	0.0060	0.1219		0.0244	0.0263	0.0133	0.0958	0.0028	0.0252	0.3996	0.0029				0.0005						0.0007				0.0018	0.0008	0.0000	
2338	HTS12	0.1069	0.0060	0.1219		0.0244	0.0263	0.0133	0.0958	0.0028	0.0252	0.3996	0.0029				0.0005						0.0007				0.0018	0.0008	0.0000	
2339	HTS13	0.1069	0.0060	0.1219		0.0244	0.0263	0.0133	0.0958	0.0028	0.0252	0.3996	0.0029				0.0005						0.0007				0.0018	0.0008	0.0000	
2340	HTS14	0.1069	0.0060	0.1219		0.0244	0.0263	0.0133	0.0958	0.0028	0.0252	0.3996	0.0029				0.0005						0.0007				0.0018	0.0008	0.0000	
2341	HTS15	0.1069	0.0060	0.1219		0.0244	0.0263	0.0133	0.0958	0.0028	0.0252	0.3996	0.0029				0.0005						0.0007				0.0018	0.0008	0.0000	
2342	HTS16	0.1069	0.0060	0.1219		0.0244	0.0263	0.0133	0.0958	0.0028	0.0252	0.3996	0.0029				0.0005						0.0007				0.0018	0.0008	0.0000	
2343	HTS17	0.1069	0.0060	0.1219		0.0244	0.0263	0.0133	0.0958	0.0028	0.0252	0.3996	0.0029				0.0005						0.0007				0.0018	0.0008	0.0000	
2344	HTS18	0.1069	0.0060	0.1219		0.0244	0.0263	0.0133	0.0958	0.0028	0.0252	0.3996	0.0029				0.0005						0.0007				0.0018	0.0008	0.0000	
2345	HTS19	0.1069	0.0060	0.1219		0.0244	0.0263	0.0133	0.0958	0.0028	0.0252	0.3996	0.0029				0.0005						0.0007				0.0018	0.0008	0.0000	
2346	HTS20	0.1069	0.0060	0.1219		0.0244	0.0263	0.0133	0.0958	0.0028	0.0252	0.3996	0.0029				0.0005						0.0007				0.0018	0.0008	0.0000	
2347	HTS21	0.1069	0.0060	0.1219		0.0244	0.0263	0.0133	0.0958	0.0028	0.0252	0.3996	0.0029				0.0005						0.0007				0.0018	0.0008	0.0000	
2348	HTS22	0.1069	0.0060	0.1219		0.0244	0.0263	0.0133	0.0958	0.0028	0.0252	0.3996	0.0029				0.0005						0.0007				0.0018	0.0008	0.0000	
2349	WVRefGlass	0.1072	0.0058	0.1152		0.0279	0.0261	0.0126	0.0899		0.0255	0.4062					0.0005						0.0007				0.0000	0.0005	0.0003	0.0047
2350	SM513FR																													
2351	SM513LW08																													
2352	SM513LW11																													
2353	SM513LW14																													
2354	SRL-202-G																													
2355	SRL-202-P																													
2356	W-Al/131																													
2357	W-Al/141																													
2358	W-Al/142																													
2359	W-Al/143																													
2360	W-Al/144																													
2361	W-Al/145																													
2362	W-Al/146																													
2363	W-Al/147																													
2364	W-Al/148																													
2365	W-Al/149																													
2366	W-Al/150																													
2367	W-Al/151																													
2368	W-Al/152																													
2369	W-Al/154																													
2370	W-Al/155																													
2371	W-Al/156																													
2372	W-Al/157																													
2373	W-Al/158																													
2374	W-Al/159																													
2375	W-Al/160																													
2376	W-Al/161																													
2377	W-Al/162																													
2378	W-Al/163																													

#	Glass ID	Ga2O3-a	Gd2O3-a	I-a	La2O3-a	MnO2-a	MnO-a	MoO-a	MoO3-a	Nb2O5-a	Nd2O3-a	NpO2-a	PbO-a	PdO2-a	PdO-a	Pr2O3-a	Pr6O11-a	PuO2-a	Rb2O-a	ReO-a	ReO2-a	Re2O7-a	Rh2O3-a	RhO2-a	RuO2-a	Sb2O3-a	Sb2O5-a	SeO2-a
2297	Frit 18																											
2298	Frit 18, 25 HI																											
2299	Frit 21																											
2300	Frit 21, 25 HI																											
2301	Frit 21, 30 HI																											
2302	Frit 21, 10 HA																											
2303	Frit 21, 15 HA																											
2304	Frit 21, 20 HA																											
2305	Frit 21, 25 HA																											
2306	Frit 21, 35 HA																											
2307	Frit 18, 25 HA																											
2308	Frit 18, 25 SA																											
2309	Frit 18, 35 SA																											
2310	Frit 21, 25 SA																											
2311	Frit 21, 30 SA																											
2312	Frit 18, 25 SC																											
2313	Frit 21, 20 SC																											
2314	Frit 21, 25 SC																											
2315	Frit 21, 30 SC																											
2316	HT-S-1				0.0004	0.0134			0.0001		0.0011			0.0001			0.0003							0.0001	0.0012			
2317	HT-S-2				0.0004	0.0133			0.0001		0.0013			0.0001			0.0003							0.0001	0.0013			
2318	HT-S-3				0.0003	0.0136			0.0001		0.0011			0.0001			0.0003							0.0001	0.0012			
2319	HT-S-4				0.0003	0.0135			0.0001		0.0013			0.0001			0.0003							0.0001	0.0013			
2320	HT-S-5				0.0004	0.0133			0.0001		0.0011			0.0001			0.0003							0.0001	0.0011			
2321	HT-S-6				0.0004	0.0136			0.0001		0.0013			0.0001			0.0003							0.0001	0.0013			
2322	AL1TC34					0.0128																						
2323	AL1TC36					0.0112																						
2324	AL4TC34					0.0126																						
2325	AL5TC34					0.0123																						
2326	AL9TC27					0.0112																						
2327	HTS1				0.0004	0.0134			0.0001		0.0011				0.0001		0.0003							0.0001	0.0012			
2328	HTS2				0.0004	0.0133			0.0001		0.0013				0.0001		0.0003							0.0001	0.0013			
2329	HTS3				0.0003	0.0136			0.0001		0.0011				0.0001		0.0003							0.0001	0.0012			
2330	HTS4				0.0003	0.0135			0.0001		0.0013				0.0001		0.0003							0.0001	0.0013			
2331	HTS5				0.0004	0.0133			0.0001		0.0011				0.0001		0.0003							0.0001	0.0011			
2332	HTS6				0.0004	0.0136			0.0001		0.0013				0.0001		0.0003							0.0001	0.0013			
2333	HTS7				0.0003	0.0131			0.0001		0.0012				0.0001		0.0003							0.0001	0.0008			
2334	HTS8				0.0003	0.0131			0.0001		0.0012				0.0001		0.0003							0.0001	0.0008			
2335	HTS9				0.0003	0.0131			0.0001		0.0012				0.0001		0.0003							0.0001	0.0008			
2336	HTS10				0.0003	0.0131			0.0001		0.0012				0.0001		0.0003							0.0001	0.0008			
2337	HTS11				0.0003	0.0131			0.0001		0.0012				0.0001		0.0003							0.0001	0.0008			
2338	HTS12				0.0003	0.0131			0.0001		0.0012				0.0001		0.0003							0.0001	0.0008			
2339	HTS13				0.0003	0.0131			0.0001		0.0012				0.0001		0.0003							0.0001	0.0008			
2340	HTS14				0.0003	0.0131			0.0001		0.0012				0.0001		0.0003							0.0001	0.0008			
2341	HTS15				0.0003	0.0131			0.0001		0.0012				0.0001		0.0003							0.0001	0.0008			
2342	HTS16				0.0003	0.0131			0.0001		0.0012				0.0001		0.0003							0.0001	0.0008			
2343	HTS17				0.0003	0.0131			0.0001		0.0012				0.0001		0.0003							0.0001	0.0008			
2344	HTS18				0.0003	0.0131			0.0001		0.0012				0.0001		0.0003							0.0001	0.0008			
2345	HTS19				0.0003	0.0131			0.0001		0.0012				0.0001		0.0003							0.0001	0.0008			
2346	HTS20				0.0003	0.0131			0.0001		0.0012				0.0001		0.0003							0.0001	0.0008			
2347	HTS21				0.0003	0.0131			0.0001		0.0012				0.0001		0.0003							0.0001	0.0008			
2348	HTS22				0.0003	0.0131			0.0001		0.0012				0.0001		0.0003							0.0001	0.0008			
2349	WVRefGlass				0.0003	0.0121			0.0001		0.0012				0.0001		0.0003							0.0001	0.0006			
2350	SM513FR																											
2351	SM513LW08																											
2352	SM513LW11																											
2353	SM513LW14																											
2354	SRL-202-G																											
2355	SRL-202-P																											
2356	W-Al/131																											
2357	W-Al/141																											
2358	W-Al/142																											
2359	W-Al/143																											
2360	W-Al/144																											
2361	W-Al/145																											
2362	W-Al/146																											
2363	W-Al/147																											
2364	W-Al/148																											
2365	W-Al/149																											
2366	W-Al/150																											
2367	W-Al/151																											
2368	W-Al/152																											
2369	W-Al/154																											
2370	W-Al/155																											
2371	W-Al/156																											
2372	W-Al/157																											
2373	W-Al/158																											
2374	W-Al/159																											
2375	W-Al/160																											
2376	W-Al/161																											
2377	W-Al/162																											
2378	W-Al/163																											

#	Glass ID	Sm2O3-a	SnO-a	SnO2-a	SO3-a	SrO-a	Tc2O7-a	TeO2-a	ThO2-a	TiO2-a	Tl2O-a	Tl2O3-a	U3O8-a	UO2-a	UO3-a	V2O5-a	WO3-a	Y2O3-a	ZnO-a	Sum-a	T_M (°C)	$T_{L,G}$ (°C)	$T_{L,U}$ (°C)	$T_{1\%}$ (°C)	Primary Phase	$C_{650°C}$	$C_{700°C}$	$C_{750°C}$
2297	Frit 18																			0.0000								
2298	Frit 18, 25 HI																			0.0000								
2299	Frit 21																			0.0000								
2300	Frit 21, 25 HI																			0.0000								
2301	Frit 21, 30 HI																			0.0000								
2302	Frit 21, 10 HA																			0.0000								
2303	Frit 21, 15 HA																			0.0000								
2304	Frit 21, 20 HA																			0.0000								
2305	Frit 21, 25 HA																			0.0000								
2306	Frit 21, 35 HA																			0.0000								
2307	Frit 18, 25 HA																			0.0000								
2308	Frit 18, 25 SA																			0.0000								
2309	Frit 18, 35 SA																			0.0000								
2310	Frit 21, 25 SA																			0.0000								
2311	Frit 21, 30 SA																			0.0000								
2312	Frit 18, 25 SC																			0.0000								
2313	Frit 21, 20 SC																			0.0000								
2314	Frit 21, 25 SC																			0.0000								
2315	Frit 21, 30 SC																			0.0000								
2316	HT-S-1	0.0003			0.0031	0.0002			0.0251	0.0094				0.0049				0.0002		0.9999								
2317	HT-S-2	0.0003			0.0032	0.0002			0.0248	0.0091				0.0049				0.0002		0.9998								
2318	HT-S-3	0.0003			0.0031	0.0002			0.0249	0.0093				0.0049				0.0002		0.9999								
2319	HT-S-4	0.0003			0.0031	0.0002			0.0252	0.0094				0.0049				0.0002		0.9999								
2320	HT-S-5	0.0003			0.0031	0.0002			0.0262	0.0092				0.0051				0.0002		0.9997								
2321	HT-S-6	0.0003			0.0031	0.0002			0.0256	0.0091				0.0050				0.0002		0.9999								
2322	AL1TC34								0.0000					0.0000						0.7418								
2323	AL1TC36								0.0000					0.0000						0.7522								
2324	AL4TC34								0.0000					0.0000						0.7576								
2325	AL5TC34								0.0000					0.0000						0.7532								
2326	AL9TC27								0.0000					0.0000						0.7541								
2327	HTS1	0.0003			0.0031	0.0002			0.0251	0.0094				0.0049				0.0002		0.9999								
2328	HTS2	0.0003			0.0032	0.0002			0.0248	0.0091				0.0049				0.0002		0.9998								
2329	HTS3	0.0003			0.0031	0.0002			0.0249	0.0093				0.0049				0.0002		0.9999								
2330	HTS4	0.0003			0.0031	0.0002			0.0252	0.0094				0.0049				0.0002		0.9999								
2331	HTS5	0.0003			0.0031	0.0002			0.0262	0.0092				0.0051				0.0002		0.9997								
2332	HTS6	0.0003			0.0031	0.0002			0.0256	0.0091				0.0050				0.0002		0.9999								
2333	HTS7	0.0003			0.0030	0.0003			0.0361	0.0099				0.0056				0.0002		1.0002								
2334	HTS8	0.0003			0.0030	0.0003			0.0361	0.0099				0.0056				0.0002		1.0002								
2335	HTS9	0.0003			0.0030	0.0003			0.0361	0.0099				0.0056				0.0002		1.0002								
2336	HTS10	0.0003			0.0030	0.0003			0.0361	0.0099				0.0056				0.0002		1.0002								
2337	HTS11	0.0003			0.0030	0.0003			0.0361	0.0099				0.0056				0.0002		1.0002								
2338	HTS12	0.0003			0.0030	0.0003			0.0361	0.0099				0.0056				0.0002		1.0002								
2339	HTS13	0.0003			0.0030	0.0003			0.0361	0.0099				0.0056				0.0002		1.0002								
2340	HTS14	0.0003			0.0030	0.0003			0.0361	0.0099				0.0056				0.0002		1.0002								
2341	HTS15	0.0003			0.0030	0.0003			0.0361	0.0099				0.0056				0.0002		1.0002								
2342	HTS16	0.0003			0.0030	0.0003			0.0361	0.0099				0.0056				0.0002		1.0002								
2343	HTS17	0.0003			0.0030	0.0003			0.0361	0.0099				0.0056				0.0002		1.0002								
2344	HTS18	0.0003			0.0030	0.0003			0.0361	0.0099				0.0056				0.0002		1.0002								
2345	HTS19	0.0003			0.0030	0.0003			0.0361	0.0099				0.0056				0.0002		1.0002								
2346	HTS20	0.0003			0.0030	0.0003			0.0361	0.0099				0.0056				0.0002		1.0002								
2347	HTS21	0.0003			0.0030	0.0003			0.0361	0.0099				0.0056				0.0002		1.0002								
2348	HTS22	0.0003			0.0030	0.0003			0.0361	0.0099				0.0056				0.0002		1.0002								
2349	WVRefGlass	0.0003		0.0003	0.0030			0.0003		0.0304				0.0096					0.0002	0.9952								
2350	SM513FR																			0.0000								
2351	SM513LW08																			0.0000								
2352	SM513LW11																			0.0000								
2353	SM513LW14																			0.0000								
2354	SRL-202-G																			0.0000								
2355	SRL-202-P																			0.0000								
2356	W-Al/131																			0.0000								
2357	W-Al/141																			0.0000								
2358	W-Al/142																			0.0000								
2359	W-Al/143																			0.0000			835					
2360	W-Al/144																			0.0000			784					
2361	W-Al/145																			0.0000			820					
2362	W-Al/146																			0.0000			927					
2363	W-Al/147																			0.0000			804					
2364	W-Al/148																			0.0000								
2365	W-Al/149																			0.0000								
2366	W-Al/150																			0.0000			790					
2367	W-Al/151																			0.0000			860					
2368	W-Al/152																			0.0000			840					
2369	W-Al/154																			0.0000			850					
2370	W-Al/155																			0.0000			800					
2371	W-Al/156																			0.0000			840					
2372	W-Al/157																			0.0000			805					
2373	W-Al/158																			0.0000			900					
2374	W-Al/159																			0.0000			953					
2375	W-Al/160																			0.0000			840					
2376	W-Al/161																			0.0000			890					
2377	W-Al/162																			0.0000								
2378	W-Al/163																			0.0000								

#	Glass ID	$C_{800°C}$	$C_{850°C}$	$C_{900°C}$	$C_{950°C}$	$C_{1000°C}$	$C_{1050°C}$	$C_{1100°C}$	$C_{1150°C}$	$C_{1200°C}$	Quenched Visual/OM	Quenched XRD	CCC XRD	ρ (g/cm³)	Fulc Visc A	Fulc Visc B	Fulc Visc To	Arrh Visc E	Arrh Visc F	T1 (°C)	V1 (Pa·s)
2297	Frit 18																				
2298	Frit 18, 25 HI																				
2299	Frit 21																				
2300	Frit 21, 25 HI																				
2301	Frit 21, 30 HI																				
2302	Frit 21, 10 HA																				
2303	Frit 21, 15 HA																				
2304	Frit 21, 20 HA																				
2305	Frit 21, 25 HA																				
2306	Frit 21, 35 HA																				
2307	Frit 18, 25 HA																				
2308	Frit 18, 25 SA																				
2309	Frit 18, 35 SA																				
2310	Frit 21, 25 SA																				
2311	Frit 21, 30 SA																				
2312	Frit 18, 25 SC																				
2313	Frit 21, 20 SC																				
2314	Frit 21, 25 SC																				
2315	Frit 21, 30 SC																				
2316	HT-S-1												7% spinel, 3.5% fluorite, 7% hematite								
2317	HT-S-2												15.75% spinel, 1.75% fluorite, <0.87% hematite								
2318	HT-S-3												14% spinel, 3.5% fluorite, <0.87% hematite								
2319	HT-S-4												14% spinel, 1.75% fluorite, 1.75% hematite								
2320	HT-S-5												14.88% spinel, 1.75% fluorite, <0.87% hematite								
2321	HT-S-6												16.62% spinel, 0.87% fluorite, <0.87% hematite								
2322	AL1TC34																				
2323	AL1TC36																				
2324	AL4TC34																				
2325	AL5TC34																				
2326	AL9TC27																				
2327	HTS1																				
2328	HTS2																				
2329	HTS3																				
2330	HTS4																				
2331	HTS5																				
2332	HTS6																				
2333	HTS7																				
2334	HTS8																				
2335	HTS9																				
2336	HTS10																				
2337	HTS11																				
2338	HTS12																				
2339	HTS13																				
2340	HTS14																				
2341	HTS15																				
2342	HTS16																				
2343	HTS17																				
2344	HTS18																				
2345	HTS19																				
2346	HTS20																				
2347	HTS21																				
2348	HTS22																				
2349	WVRefGlass																				
2350	SM513FR																			1000.0	33.000
2351	SM513LW08																			1000.0	23.000
2352	SM513LW11																			1000.0	20.200
2353	SM513LW14																			1000.0	15.000
2354	SRL-202-G																				
2355	SRL-202-P																				
2356	W-Al/131																				
2357	W-Al/141																				
2358	W-Al/142																				
2359	W-Al/143																				
2360	W-Al/144																				
2361	W-Al/145																				
2362	W-Al/146																				
2363	W-Al/147																				
2364	W-Al/148																				
2365	W-Al/149																				
2366	W-Al/150																				
2367	W-Al/151																				
2368	W-Al/152																				
2369	W-Al/154																				
2370	W-Al/155																				
2371	W-Al/156																				
2372	W-Al/157																				
2373	W-Al/158																				
2374	W-Al/159																				
2375	W-Al/160																				
2376	W-Al/161																				
2377	W-Al/162																				
2378	W-Al/163																				

#	Glass ID	T2 (°C)	V2 (Pa·s)	T3 (°C)	V3 (Pa·s)	T4 (°C)	V4 (Pa·s)	T5 (°C)	V5 (Pa·s)	T6 (°C)	V6 (Pa·s)	T7 (°C)	V7 (Pa·s)	T8 (°C)	V8 (Pa·s)	T9 (°C)	V9 (Pa·s)	T10 (°C)	V10 (Pa·s)	TCLP Ag	TCLP As	TCLP Ba	TCLP Cd	TCLP Cr	TCLP Ni	TCLP Pb
2297	Frit 18																									
2298	Frit 18, 25 HI																									
2299	Frit 21																									
2300	Frit 21, 25 HI																									
2301	Frit 21, 30 HI																									
2302	Frit 21, 10 HA																									
2303	Frit 21, 15 HA																									
2304	Frit 21, 20 HA																									
2305	Frit 21, 25 HA																									
2306	Frit 21, 35 HA																									
2307	Frit 18, 25 HA																									
2308	Frit 18, 25 SA																									
2309	Frit 18, 35 SA																									
2310	Frit 21, 25 SA																									
2311	Frit 21, 30 SA																									
2312	Frit 18, 25 SC																									
2313	Frit 21, 20 SC																									
2314	Frit 21, 25 SC																									
2315	Frit 21, 30 SC																									
2316	HT-S-1																									
2317	HT-S-2																									
2318	HT-S-3																									
2319	HT-S-4																									
2320	HT-S-5																									
2321	HT-S-6																									
2322	AL1TC34																									
2323	AL1TC36																									
2324	AL4TC34																									
2325	AL5TC34																									
2326	AL9TC27																									
2327	HTS1																									
2328	HTS2																									
2329	HTS3																									
2330	HTS4																									
2331	HTS5																									
2332	HTS6																									
2333	HTS7																									
2334	HTS8																									
2335	HTS9																									
2336	HTS10																									
2337	HTS11																									
2338	HTS12																									
2339	HTS13																									
2340	HTS14																									
2341	HTS15																									
2342	HTS16																									
2343	HTS17																									
2344	HTS18																									
2345	HTS19																									
2346	HTS20																									
2347	HTS21																									
2348	HTS22																									
2349	WVRefGlass																									
2350	SM513FR	1100	12.000	1200	8.0																					
2351	SM513LW08	1100	8.000	1200	5.3																					
2352	SM513LW11	1100	7.000	1200	5.0																					
2353	SM513LW14	1100	6.000	1200	4.0																					
2354	SRL-202-G																									
2355	SRL-202-P																									
2356	W-Al/131																									
2357	W-Al/141																									
2358	W-Al/142																									
2359	W-Al/143																									
2360	W-Al/144																									
2361	W-Al/145																									
2362	W-Al/146																									
2363	W-Al/147																									
2364	W-Al/148																									
2365	W-Al/149																									
2366	W-Al/150																									
2367	W-Al/151																									
2368	W-Al/152																									
2369	W-Al/154																									
2370	W-Al/155																									
2371	W-Al/156																									
2372	W-Al/157																									
2373	W-Al/158																									
2374	W-Al/159																									
2375	W-Al/160																									
2376	W-Al/161																									
2377	W-Al/162																									
2378	W-Al/163																									

#	Glass ID	TCLP Se	TCLP Zn	TCLP Al	TCLP B	TCLP Sb	TCLP Tl	TCLP V	Q PCT B (g/m²)	Q PCT Li (g/m²)	Q PCT Na (g/m²)	Q PCT Si (g/m²)	Q PCT pH	CCC PCT B (g/m²)	CCC PCT Li (g/m²)	CCC PCT Na (g/m²)	CCC PCT Si (g/m²)	CCC PCT pH	T1 (°C)
2297	Frit 18																		
2298	Frit 18, 25 HI																		
2299	Frit 21																		
2300	Frit 21, 25 HI																		
2301	Frit 21, 30 HI																		
2302	Frit 21, 10 HA																		
2303	Frit 21, 15 HA																		
2304	Frit 21, 20 HA																		
2305	Frit 21, 25 HA																		
2306	Frit 21, 35 HA																		
2307	Frit 18, 25 HA																		
2308	Frit 18, 25 SA																		
2309	Frit 18, 35 SA																		
2310	Frit 21, 25 SA																		
2311	Frit 21, 30 SA																		
2312	Frit 18, 25 SC																		
2313	Frit 21, 20 SC																		
2314	Frit 21, 25 SC																		
2315	Frit 21, 30 SC																		
2316	HT-S-1													0.246	1.030	0.265	0.142	10.140	
2317	HT-S-2													0.204	0.581	0.217	0.124	9.890	
2318	HT-S-3													0.192	0.408	0.206	0.117	9.810	
2319	HT-S-4													0.175	0.295	0.188	0.109	9.770	
2320	HT-S-5													0.228	1.000	0.249	0.141	10.200	
2321	HT-S-6													0.218	0.930	0.237	0.136	10.140	
2322	AL1TC34								0.298										
2323	AL1TC36								0.226										
2324	AL4TC34								0.258										
2325	AL5TC34								0.291										
2326	AL9TC27								0.232										
2327	HTS1																		
2328	HTS2																		
2329	HTS3																		
2330	HTS4																		
2331	HTS5																		
2332	HTS6																		
2333	HTS7																		
2334	HTS8																		
2335	HTS9																		
2336	HTS10																		
2337	HTS11																		
2338	HTS12																		
2339	HTS13																		
2340	HTS14																		
2341	HTS15																		
2342	HTS16																		
2343	HTS17																		
2344	HTS18																		
2345	HTS19																		
2346	HTS20																		
2347	HTS21																		
2348	HTS22																		
2349	WVRefGlass																		
2350	SM513FR																		
2351	SM513LW08																		
2352	SM513LW11																		
2353	SM513LW14																		
2354	SRL-202-G								36.100	32.800	108.050	139.500	10.700						
2355	SRL-202-P								83.960	46.240	194.670	163.750	11.200						
2356	W-Al/131																		
2357	W-Al/141																		
2358	W-Al/142																		
2359	W-Al/143																		
2360	W-Al/144																		
2361	W-Al/145																		
2362	W-Al/146																		
2363	W-Al/147																		
2364	W-Al/148																		
2365	W-Al/149																		
2366	W-Al/150																		
2367	W-Al/151																		
2368	W-Al/152																		
2369	W-Al/154																		
2370	W-Al/155																		
2371	W-Al/156																		
2372	W-Al/157																		
2373	W-Al/158																		
2374	W-Al/159																		
2375	W-Al/160																		
2376	W-Al/161																		
2377	W-Al/162																		
2378	W-Al/163																		

#	Glass ID	EC1 (S/cm)	T2 (°C)	EC2 (S/cm)	T3 (°C)	EC3 (S/cm)	T4 (°C)	EC4 (S/cm)	T5 (°C)	EC5 (S/cm)	T6 (°C)	EC6 (S/cm)	A	B	To
2297	Frit 18														
2298	Frit 18, 25 HI														
2299	Frit 21														
2300	Frit 21, 25 HI														
2301	Frit 21, 30 HI														
2302	Frit 21, 10 HA														
2303	Frit 21, 15 HA														
2304	Frit 21, 20 HA														
2305	Frit 21, 25 HA														
2306	Frit 21, 35 HA														
2307	Frit 18, 25 HA														
2308	Frit 18, 25 SA														
2309	Frit 18, 35 SA														
2310	Frit 21, 25 SA														
2311	Frit 21, 30 SA														
2312	Frit 18, 25 SC														
2313	Frit 21, 20 SC														
2314	Frit 21, 25 SC														
2315	Frit 21, 30 SC														
2316	HT-S-1														
2317	HT-S-2														
2318	HT-S-3														
2319	HT-S-4														
2320	HT-S-5														
2321	HT-S-6														
2322	AL1TC34														
2323	AL1TC36														
2324	AL4TC34														
2325	AL5TC34														
2326	AL9TC27														
2327	HTS1														
2328	HTS2														
2329	HTS3														
2330	HTS4														
2331	HTS5														
2332	HTS6														
2333	HTS7														
2334	HTS8														
2335	HTS9														
2336	HTS10														
2337	HTS11														
2338	HTS12														
2339	HTS13														
2340	HTS14														
2341	HTS15														
2342	HTS16														
2343	HTS17														
2344	HTS18														
2345	HTS19														
2346	HTS20														
2347	HTS21														
2348	HTS22														
2349	WVRefGlass														
2350	SM513FR														
2351	SM513LW08														
2352	SM513LW11														
2353	SM513LW14														
2354	SRL-202-G														
2355	SRL-202-P														
2356	W-Al/131														
2357	W-Al/141														
2358	W-Al/142														
2359	W-Al/143														
2360	W-Al/144														
2361	W-Al/145														
2362	W-Al/146														
2363	W-Al/147														
2364	W-Al/148														
2365	W-Al/149														
2366	W-Al/150														
2367	W-Al/151														
2368	W-Al/152														
2369	W-Al/154														
2370	W-Al/155														
2371	W-Al/156														
2372	W-Al/157														
2373	W-Al/158														
2374	W-Al/159														
2375	W-Al/160														
2376	W-Al/161														
2377	W-Al/162														
2378	W-Al/163														

#	Glass ID	Study	Reference	Al2O3-t	B2O3-t	CaO-t	Fe2O3-t	FeO-t	K2O-t	Li2O-t	MgO-t	Na2O-t	NiO-t	P2O5-t	SiO2-t	ZrO2-t	Ag2O-t	As2O3-t	As2O5-t	BaO-t	BeO-t	Bi2O3-t	Br-t	CdO-t	Ce2O3-t	CeO2-t	Cl-t
2379	W-Al/164	Savannah River Site	Soper et al. 1982	0.1467	0.0856	0.0042	0.0396		0.0032	0.0392	0.0071	0.1202	0.0057		0.5122	0.0036											
2380	W-Al/165	Savannah River Site	Soper et al. 1982	0.1467	0.0713	0.0042	0.0396		0.0032	0.0499	0.0071	0.1131	0.0057		0.5193	0.0071											
2381	W-Al/166	Savannah River Site	Soper et al. 1982	0.1467	0.0856	0.0042	0.0396		0.0032	0.0392	0.0071	0.1202	0.0057		0.5122	0.0036											
2382	W-Fe/131	Savannah River Site	Soper et al. 1982	0.0080	0.1032	0.0164	0.1761		0.0027	0.0400	0.0140	0.1442	0.0301		0.4348	0.0035											
2383	W-Fe/141	Savannah River Site	Soper et al. 1982	0.0080	0.1032	0.0164	0.1761		0.0027	0.0274	0.0140	0.1435	0.0301		0.4411	0.0000											
2384	W-Fe/142	Savannah River Site	Soper et al. 1982	0.0080	0.0997	0.0164	0.1761		0.0027	0.0267	0.0063	0.1063	0.0301		0.4916	0.0063											
2385	W-Fe/143	Savannah River Site	Soper et al. 1982	0.0080	0.0976	0.0164	0.1761		0.0027	0.0393	0.0133	0.1042	0.0301		0.4832	0.0000											
2386	W-Fe/144	Savannah River Site	Soper et al. 1982	0.0080	0.1046	0.0164	0.1761		0.0027	0.0414	0.0070	0.1449	0.0301		0.4453	0.0070											
2387	W-Fe/145	Savannah River Site	Soper et al. 1982	0.0080	0.0779	0.0164	0.1761		0.0027	0.0393	0.0133	0.1372	0.0301		0.4832	0.0000											
2388	W-Fe/146	Savannah River Site	Soper et al. 1982	0.0080	0.0779	0.0164	0.1761		0.0027	0.0393	0.0133	0.1372	0.0301		0.4713	0.0000											
2389	W-Fe/147	Savannah River Site	Soper et al. 1982	0.0080	0.0934	0.0164	0.1761		0.0027	0.0309	0.0077	0.1210	0.0301		0.4965	0.0000											
2390	W-Fe/148	Savannah River Site	Soper et al. 1982	0.0080	0.1074	0.0164	0.1761		0.0027	0.0428	0.0140	0.1133	0.0301		0.4579	0.0070											
2391	W-Fe/149	Savannah River Site	Soper et al. 1982	0.0080	0.0821	0.0164	0.1761		0.0027	0.0274	0.0133	0.1084	0.0301		0.5057	0.0070											
2392	W-Fe/150	Savannah River Site	Soper et al. 1982	0.0080	0.0849	0.0164	0.1761		0.0027	0.0281	0.0140	0.1477	0.0301		0.4537	0.0070											
2393	W-Fe/151	Savannah River Site	Soper et al. 1982	0.0080	0.0885	0.0164	0.1761		0.0027	0.0442	0.0077	0.1161	0.0301		0.4720	0.0000											
2394	W-Fe/152	Savannah River Site	Soper et al. 1982	0.0080	0.0969	0.0164	0.1761		0.0027	0.0260	0.0063	0.1358	0.0301		0.4790	0.0000											
2395	W-Fe/154	Savannah River Site	Soper et al. 1982	0.0080	0.0765	0.0164	0.1761		0.0027	0.0442	0.0049	0.1168	0.0301		0.5029	0.0000											
2396	W-Fe/155	Savannah River Site	Soper et al. 1982	0.0080	0.0793	0.0164	0.1761		0.0027	0.0456	0.0126	0.1554	0.0301		0.4516	0.0000											
2397	W-Fe/156	Savannah River Site	Soper et al. 1982	0.0080	0.0730	0.0164	0.1761		0.0027	0.0295	0.0049	0.1456	0.0301		0.4846	0.0000											
2398	W-Fe/157	Savannah River Site	Soper et al. 1982	0.0080	0.0976	0.0164	0.1761		0.0027	0.0442	0.0049	0.1512	0.0301		0.4383	0.0000											
2399	W-Fe/158	Savannah River Site	Soper et al. 1982	0.0080	0.0920	0.0164	0.1761		0.0027	0.0246	0.0056	0.1021	0.0301		0.5092	0.0028											
2400	W-Fe/159	Savannah River Site	Soper et al. 1982	0.0080	0.0681	0.0164	0.1761		0.0027	0.0288	0.0112	0.1112	0.0301		0.5148	0.0000											
2401	W-Fe/160	Savannah River Site	Soper et al. 1982	0.0080	0.0969	0.0164	0.1761		0.0027	0.0316	0.0119	0.1203	0.0301		0.4895	0.0000											
2402	W-Fe/161	Savannah River Site	Soper et al. 1982	0.0080	0.0744	0.0164	0.1761		0.0027	0.0260	0.0126	0.1049	0.0301		0.5260	0.0028											
2403	W-Fe/162	Savannah River Site	Soper et al. 1982	0.0080	0.0913	0.0164	0.1761		0.0027	0.0281	0.0070	0.1112	0.0301		0.5022	0.0035											
2404	W-Fe/163	Savannah River Site	Soper et al. 1982	0.0080	0.0913	0.0164	0.1761		0.0027	0.0316	0.0070	0.1042	0.0301		0.5057	0.0035											
2405	W-Fe/164	Savannah River Site	Soper et al. 1982	0.0080	0.0842	0.0164	0.1761		0.0027	0.0386	0.0070	0.1182	0.0301		0.4987	0.0035											
2406	W-Fe/165	Savannah River Site	Soper et al. 1982	0.0080	0.0702	0.0164	0.1761		0.0027	0.0491	0.0070	0.1112	0.0301		0.5057	0.0070											
2407	W-Fe/166	Savannah River Site	Soper et al. 1982	0.0080	0.0842	0.0164	0.1761		0.0027	0.0386	0.0070	0.1182	0.0301		0.4987	0.0035											
2408	Stage 1/131	Savannah River Site	Soper et al. 1982	0.0498	0.1020	0.0168	0.1264		0.0019	0.0396	0.0139	0.1329	0.0107		0.4554	0.0035											
2409	Stage 1/141	Savannah River Site	Soper et al. 1982	0.0498	0.1020	0.0168	0.1264		0.0019	0.0271	0.0139	0.1322	0.0107		0.4616	0.0000											
2410	Stage 1/142	Savannah River Site	Soper et al. 1982	0.0498	0.0985	0.0168	0.1264		0.0019	0.0264	0.0062	0.0954	0.0107		0.5116	0.0062											
2411	Stage 1/143	Savannah River Site	Soper et al. 1982	0.0498	0.0965	0.0168	0.1264		0.0019	0.0389	0.0132	0.0933	0.0107		0.5033	0.0000											
2412	Stage 1/144	Savannah River Site	Soper et al. 1982	0.0498	0.1034	0.0168	0.1264		0.0019	0.0409	0.0069	0.1336	0.0107		0.4658	0.0069											
2413	Stage 1/145	Savannah River Site	Soper et al. 1982	0.0498	0.0770	0.0168	0.1264		0.0019	0.0389	0.0132	0.1260	0.0107		0.5033	0.0000											
2414	Stage 1/146	Savannah River Site	Soper et al. 1982	0.0498	0.0770	0.0168	0.1264		0.0019	0.0389	0.0132	0.1260	0.0107		0.4915	0.0000											
2415	Stage 1/147	Savannah River Site	Soper et al. 1982	0.0498	0.0923	0.0168	0.1264		0.0019	0.0305	0.0076	0.1100	0.0107		0.5164	0.0000											
2416	Stage 1/148	Savannah River Site	Soper et al. 1982	0.0498	0.1062	0.0168	0.1264		0.0019	0.0423	0.0139	0.1024	0.0107		0.4783	0.0069											
2417	Stage 1/149	Savannah River Site	Soper et al. 1982	0.0498	0.0812	0.0168	0.1264		0.0019	0.0271	0.0132	0.0975	0.0107		0.5255	0.0069											
2418	Stage 1/150	Savannah River Site	Soper et al. 1982	0.0498	0.0840	0.0168	0.1264		0.0019	0.0278	0.0139	0.1364	0.0107		0.4741	0.0069											
2419	Stage 1/151	Savannah River Site	Soper et al. 1982	0.0498	0.0874	0.0168	0.1264		0.0019	0.0437	0.0076	0.1051	0.0107		0.4922	0.0000											
2420	Stage 1/152	Savannah River Site	Soper et al. 1982	0.0498	0.0958	0.0168	0.1264		0.0019	0.0257	0.0062	0.1246	0.0107		0.4991	0.0000											
2421	Stage 1/154	Savannah River Site	Soper et al. 1982	0.0498	0.0756	0.0168	0.1264		0.0019	0.0437	0.0049	0.1058	0.0107		0.5227	0.0000											
2422	Stage 1/155	Savannah River Site	Soper et al. 1982	0.0498	0.0784	0.0168	0.1264		0.0019	0.0451	0.0125	0.1440	0.0107		0.4720	0.0000											
2423	Stage 1/156	Savannah River Site	Soper et al. 1982	0.0498	0.0722	0.0168	0.1264		0.0019	0.0291	0.0049	0.1343	0.0107		0.5047	0.0000											
2424	Stage 1/157	Savannah River Site	Soper et al. 1982	0.0498	0.0965	0.0168	0.1264		0.0019	0.0437	0.0049	0.1398	0.0107		0.4588	0.0000											
2425	Stage 1/158	Savannah River Site	Soper et al. 1982	0.0498	0.0909	0.0168	0.1264		0.0019	0.0243	0.0056	0.0913	0.0107		0.5289	0.0028											
2426	Stage 1/159	Savannah River Site	Soper et al. 1982	0.0498	0.0673	0.0168	0.1264		0.0019	0.0285	0.0110	0.1003	0.0107		0.5345	0.0000											
2427	Stage 1/160	Savannah River Site	Soper et al. 1982	0.0498	0.0958	0.0168	0.1264		0.0019	0.0312	0.0118	0.1093	0.0107		0.5095	0.0000											
2428	Stage 1/161	Savannah River Site	Soper et al. 1982	0.0498	0.0736	0.0168	0.1264		0.0019	0.0257	0.0125	0.0940	0.0107		0.5456	0.0028											
2429	Stage 1/162	Savannah River Site	Soper et al. 1982	0.0498	0.0902	0.0168	0.1264		0.0019	0.0278	0.0069	0.1003	0.0107		0.5220	0.0035											
2430	Stage 1/163	Savannah River Site	Soper et al. 1982	0.0498	0.0902	0.0168	0.1264		0.0019	0.0312	0.0069	0.0933	0.0107		0.5255	0.0035											
2431	Stage 1/164	Savannah River Site	Soper et al. 1982	0.0498	0.0833	0.0168	0.1264		0.0019	0.0382	0.0069	0.1072	0.0107		0.5185	0.0035											
2432	Stage 1/165	Savannah River Site	Soper et al. 1982	0.0498	0.0694	0.0168	0.1264		0.0019	0.0486	0.0069	0.1003	0.0107		0.5255	0.0069											
2433	Stage 1/166	Savannah River Site	Soper et al. 1982	0.0498	0.0833	0.0168	0.1264		0.0019	0.0382	0.0069	0.1072	0.0107		0.5185	0.0035											
2434	TDS-3A/131	Savannah River Site	Soper et al. 1982	0.0315	0.1032	0.0152	0.1410		0.0033	0.0400	0.0140	0.1358	0.0173		0.4395	0.0035											
2435	TDS-3A/141	Savannah River Site	Soper et al. 1982	0.0315	0.1032	0.0152	0.1410		0.0033	0.0274	0.0140	0.1351	0.0173		0.4459	0.0000											
2436	TDS-3A/142	Savannah River Site	Soper et al. 1982	0.0315	0.0997	0.0152	0.1410		0.0033	0.0267	0.0063	0.0979	0.0173		0.4964	0.0063											
2437	TDS-3A/143	Savannah River Site	Soper et al. 1982	0.0315	0.0976	0.0152	0.1410		0.0033	0.0393	0.0133	0.0958	0.0173		0.4880	0.0000											
2438	TDS-3A/144	Savannah River Site	Soper et al. 1982	0.0315	0.1046	0.0152	0.1410		0.0033	0.0414	0.0070	0.1365	0.0173		0.4501	0.0070											
2439	TDS-3A/145	Savannah River Site	Soper et al. 1982	0.0315	0.0779	0.0152	0.1410		0.0033	0.0393	0.0133	0.1288	0.0173		0.4880	0.0000											
2440	TDS-3A/146	Savannah River Site	Soper et al. 1982	0.0315	0.0779	0.0152	0.1410		0.0033	0.0393	0.0133	0.1288	0.0173		0.4760	0.0000											
2441	TDS-3A/147	Savannah River Site	Soper et al. 1982	0.0315	0.0934	0.0152	0.1410		0.0033	0.0309	0.0077	0.1127	0.0173		0.5013	0.0000											
2442	TDS-3A/148	Savannah River Site	Soper et al. 1982	0.0315	0.1074	0.0152	0.1410		0.0033	0.0428	0.0140	0.1050	0.0173		0.4627	0.0070											
2443	TDS-3A/149	Savannah River Site	Soper et al. 1982	0.0315	0.0821	0.0152	0.1410		0.0033	0.0274	0.0133	0.1000	0.0173		0.5104	0.0070											
2444	TDS-3A/150	Savannah River Site	Soper et al. 1982	0.0315	0.0849	0.0152	0.1410		0.0033	0.0281	0.0140	0.1394	0.0173		0.4585	0.0070											
2445	TDS-3A/151	Savannah River Site	Soper et al. 1982	0.0315	0.0885	0.0152	0.1410		0.0033	0.0442	0.0077	0.1078	0.0173		0.4767	0.0000											
2446	TDS-3A/152	Savannah River Site	Soper et al. 1982	0.0315	0.0969	0.0152	0.1410		0.0033	0.0260	0.0063	0.1274	0.0173		0.4838	0.0000											
2447	TDS-3A/154	Savannah River Site	Soper et al. 1982	0.0315	0.0765	0.0152	0.1410		0.0033	0.0442	0.0049	0.1085	0.0173		0.5076	0.0000											
2448	TDS-3A/155	Savannah River Site	Soper et al. 1982	0.0315	0.0793	0.0152	0.1410		0.0033	0.0456	0.0126	0.1471	0.0173		0.4564	0.0000											
2449	TDS-3A/156	Savannah River Site	Soper et al. 1982	0.0315	0.0730	0.0152	0.1410		0.0033	0.0295	0.0049	0.1372	0.0173		0.4894	0.0000											
2450	TDS-3A/157	Savannah River Site	Soper et al. 1982	0.0315	0.0976	0.0152	0.1410		0.0033	0.0442	0.0049	0.1429	0.0173		0.4430	0.0000											
2451	TDS-3A/158	Savannah River Site	Soper et al. 1982	0.0315	0.0920	0.0152	0.1410		0.0033	0.0246	0.0056	0.0937	0.0173		0.5139	0.0028											
2452	TDS-3A/159	Savannah River Site	Soper et al. 1982	0.0315	0.0681	0.0152	0.1410		0.0033	0.0288	0.0112	0.1028	0.0173		0.5196	0.0000											
2453	TDS-3A/160	Savannah River Site	Soper et al. 1982	0.0315	0.0969	0.0152	0.1410		0.0033	0.0316	0.0119	0.1120	0.0173		0.4943	0.0000											
2454	TDS-3A/161	Savannah River Site	Soper et al. 1982	0.0315	0.0744	0.0152	0.1410		0.0033	0.0260	0.0126	0.0965	0.0173		0.5308	0.0028											
2455	TDS-3A/162	Savannah River Site	Soper et al. 1982	0.0315	0.0913	0.0152	0.1410		0.0033	0.0281	0.0070	0.1028	0.0173		0.5069	0.0035											
2456	TDS-3A/163	Savannah River Site	Soper et al. 1982	0.0315	0.0913	0.0152	0.1410		0.0033	0.0316	0.0070	0.0958	0.0173		0.5104	0.0035											
2457	TDS-3A/164	Savannah River Site	Soper et al. 1982	0.0315	0.0842	0.0152	0.1410		0.0033	0.0386	0.0070	0.1099	0.0173		0.5034	0.0035											
2458	TDS-3A/165	Savannah River Site	Soper et al. 1982	0.0315	0.0702	0.0152	0.1410		0.0033	0.0491	0.0070	0.1028	0.0173		0.5104	0.0070											
2459	TDS-3A/166	Savannah River Site	Soper et al. 1982	0.0315	0.0842	0.0152	0.1410		0.0033	0.0386	0.0070	0.1099	0.0173		0.5034	0.0035											
2460	HTB700	Waste Loading Maximization	Bailey et al. 1995	0.0972	0.0006	0.0154	0.0822		0.0017	0.0000	0.0006	0.1892	0.0170	0.0352	0.3748	0.0529						0.0146		0.0007		0.0204	

#	Glass ID	CoO-t	Co2O3-t	Cr2O3-t	Cs2O-t	CuO-t	Dy2O3-t	Eu2O3-t	F-t	Ga2O3-t	Gd2O3-t	HfO2-t	HgO-t	I-t	La2O3-t	MnO2-t	MnO-t	MoO-t	MoO2-t	MoO3-t	Nb2O5-t	Nd2O3-t	NpO2-t	PbO-t	PdO2-t	PdO-t	Pr2O3-t	Pr6O11-t	Rb2O-t	ReO-t
2379	W-Al/164														0.0000	0.0324													
2380	W-Al/165														0.0000	0.0324													
2381	W-Al/166														0.0000	0.0324													
2382	W-Fe/131														0.0035	0.0119													
2383	W-Fe/141														0.0070	0.0119													
2384	W-Fe/142														0.0000	0.0119													
2385	W-Fe/143														0.0000	0.0119													
2386	W-Fe/144														0.0000	0.0119													
2387	W-Fe/145														0.0000	0.0119													
2388	W-Fe/146														0.0000	0.0119													
2389	W-Fe/147														0.0000	0.0119													
2390	W-Fe/148														0.0070	0.0119													
2391	W-Fe/149														0.0070	0.0119													
2392	W-Fe/150														0.0000	0.0119													
2393	W-Fe/151														0.0077	0.0119													
2394	W-Fe/152														0.0063	0.0119													
2395	W-Fe/154														0.0000	0.0119													
2396	W-Fe/155														0.0056	0.0119													
2397	W-Fe/156														0.0000	0.0119													
2398	W-Fe/157														0.0000	0.0119													
2399	W-Fe/158														0.0000	0.0119													
2400	W-Fe/159														0.0035	0.0119													
2401	W-Fe/160														0.0000	0.0119													
2402	W-Fe/161														0.0035	0.0119													
2403	W-Fe/162														0.0000	0.0119													
2404	W-Fe/163														0.0000	0.0119													
2405	W-Fe/164														0.0000	0.0119													
2406	W-Fe/165														0.0000	0.0119													
2407	W-Fe/166														0.0000	0.0119													
2408	Stage 1/131														0.0035	0.0352													
2409	Stage 1/141														0.0069	0.0352													
2410	Stage 1/142														0.0000	0.0352													
2411	Stage 1/143														0.0000	0.0352													
2412	Stage 1/144														0.0000	0.0352													
2413	Stage 1/145														0.0000	0.0352													
2414	Stage 1/146														0.0000	0.0352													
2415	Stage 1/147														0.0000	0.0352													
2416	Stage 1/148														0.0069	0.0352													
2417	Stage 1/149														0.0069	0.0352													
2418	Stage 1/150														0.0000	0.0352													
2419	Stage 1/151														0.0076	0.0352													
2420	Stage 1/152														0.0062	0.0352													
2421	Stage 1/154														0.0000	0.0352													
2422	Stage 1/155														0.0056	0.0352													
2423	Stage 1/156														0.0000	0.0352													
2424	Stage 1/157														0.0000	0.0352													
2425	Stage 1/158														0.0000	0.0352													
2426	Stage 1/159														0.0035	0.0352													
2427	Stage 1/160														0.0000	0.0352													
2428	Stage 1/161														0.0035	0.0352													
2429	Stage 1/162														0.0000	0.0352													
2430	Stage 1/163														0.0000	0.0352													
2431	Stage 1/164														0.0000	0.0352													
2432	Stage 1/165														0.0000	0.0352													
2433	Stage 1/166														0.0000	0.0352													
2434	TDS-3A/131														0.0035	0.0405													
2435	TDS-3A/141														0.0070	0.0405													
2436	TDS-3A/142														0.0000	0.0405													
2437	TDS-3A/143														0.0000	0.0405													
2438	TDS-3A/144														0.0000	0.0405													
2439	TDS-3A/145														0.0000	0.0405													
2440	TDS-3A/146														0.0000	0.0405													
2441	TDS-3A/147														0.0000	0.0405													
2442	TDS-3A/148														0.0070	0.0405													
2443	TDS-3A/149														0.0070	0.0405													
2444	TDS-3A/150														0.0000	0.0405													
2445	TDS-3A/151														0.0077	0.0405													
2446	TDS-3A/152														0.0063	0.0405													
2447	TDS-3A/154														0.0000	0.0405													
2448	TDS-3A/155														0.0056	0.0405													
2449	TDS-3A/156														0.0000	0.0405													
2450	TDS-3A/157														0.0000	0.0405													
2451	TDS-3A/158														0.0000	0.0405													
2452	TDS-3A/159														0.0035	0.0405													
2453	TDS-3A/160														0.0000	0.0405													
2454	TDS-3A/161														0.0035	0.0405													
2455	TDS-3A/162														0.0000	0.0405													
2456	TDS-3A/163														0.0000	0.0405													
2457	TDS-3A/164														0.0000	0.0405													
2458	TDS-3A/165														0.0000	0.0405													
2459	TDS-3A/166														0.0000	0.0405													
2460	HTB700			0.0034					0.0041						0.0032		0.0111			0.0005		0.0653		0.0026						

#	Glass ID	ReO2-t	Re2O7-t	Rh2O3-t	RhO2-t	RuO2-t	Ru2O3-t	Sb2O3-t	Sb2O5-t	SeO2-t	Sm2O3-t	SnO-t	SnO2-t	SO3-t	SrO-t	Tc2O7-t	TeO2-t	ThO2-t	TiO2-t	Tl2O-t	Tl2O3-t	U3O8-t	UO2-t	UO3-t	V2O5-t	WO3-t	Y2O3-t	ZnO-t	Sum-t	Al2O3-a
2379	W-Al/164																		0.0000									0.9997	
2380	W-Al/165																		0.0000									0.9996	
2381	W-Al/166																		0.0000									0.9997	
2382	W-Fe/131																		0.0070									0.9954	
2383	W-Fe/141																		0.0140									0.9954	
2384	W-Fe/142																		0.0133									0.9954	
2385	W-Fe/143																		0.0133									0.9961	
2386	W-Fe/144																		0.0000									0.9954	
2387	W-Fe/145																		0.0000									0.9961	
2388	W-Fe/146																		0.0000									0.9842	
2389	W-Fe/147																		0.0000									0.9947	
2390	W-Fe/148																		0.0000									0.9946	
2391	W-Fe/149																		0.0000									0.9961	
2392	W-Fe/150																		0.1400									1.1206	
2393	W-Fe/151																		0.0147									0.9961	
2394	W-Fe/152																		0.0000									0.9955	
2395	W-Fe/154																		0.0000									0.9905	
2396	W-Fe/155																		0.0000									0.9953	
2397	W-Fe/156																		0.0133									0.9961	
2398	W-Fe/157																		0.0133									0.9947	
2399	W-Fe/158																		0.0133									0.9948	
2400	W-Fe/159																		0.0133									0.9961	
2401	W-Fe/160																		0.0000									0.9954	
2402	W-Fe/161																		0.0000									0.9954	
2403	W-Fe/162																		0.0070									0.9955	
2404	W-Fe/163																		0.0070									0.9955	
2405	W-Fe/164																		0.0000									0.9954	
2406	W-Fe/165																		0.0000									0.9954	
2407	W-Fe/166																		0.0000									0.9954	
2408	Stage 1/131																		0.0069									0.9985	
2409	Stage 1/141																		0.0139									0.9984	
2410	Stage 1/142																		0.0132									0.9983	
2411	Stage 1/143																		0.0132									0.9992	
2412	Stage 1/144																		0.0000									0.9983	
2413	Stage 1/145																		0.0000									0.9992	
2414	Stage 1/146																		0.0000									0.9874	
2415	Stage 1/147																		0.0000									0.9976	
2416	Stage 1/148																		0.0000									0.9977	
2417	Stage 1/149																		0.0000									0.9991	
2418	Stage 1/150																		0.0139									0.9978	
2419	Stage 1/151																		0.0146									0.9990	
2420	Stage 1/152																		0.0000									0.9984	
2421	Stage 1/154																		0.0000									0.9935	
2422	Stage 1/155																		0.0000									0.9984	
2423	Stage 1/156																		0.0132									0.9992	
2424	Stage 1/157																		0.0132									0.9977	
2425	Stage 1/158																		0.0132									0.9978	
2426	Stage 1/159																		0.0132									0.9991	
2427	Stage 1/160																		0.0000									0.9984	
2428	Stage 1/161																		0.0000									0.9985	
2429	Stage 1/162																		0.0069									0.9984	
2430	Stage 1/163																		0.0069									0.9983	
2431	Stage 1/164																		0.0000									0.9984	
2432	Stage 1/165																		0.0000									0.9984	
2433	Stage 1/166																		0.0000									0.9984	
2434	TDS-3A/131																		0.0070									0.9953	
2435	TDS-3A/141																		0.0140									0.9954	
2436	TDS-3A/142																		0.0133									0.9954	
2437	TDS-3A/143																		0.0133									0.9961	
2438	TDS-3A/144																		0.0000									0.9954	
2439	TDS-3A/145																		0.0000									0.9961	
2440	TDS-3A/146																		0.0000									0.9841	
2441	TDS-3A/147																		0.0000									0.9948	
2442	TDS-3A/148																		0.0000									0.9947	
2443	TDS-3A/149																		0.0000									0.9960	
2444	TDS-3A/150																		0.0140									0.9947	
2445	TDS-3A/151																		0.0147									0.9961	
2446	TDS-3A/152																		0.0000									0.9955	
2447	TDS-3A/154																		0.0000									0.9905	
2448	TDS-3A/155																		0.0000									0.9954	
2449	TDS-3A/156																		0.0133									0.9961	
2450	TDS-3A/157																		0.0133									0.9947	
2451	TDS-3A/158																		0.0133									0.9947	
2452	TDS-3A/159																		0.0133									0.9961	
2453	TDS-3A/160																		0.0000									0.9955	
2454	TDS-3A/161																		0.0000									0.9954	
2455	TDS-3A/162																		0.0070									0.9954	
2456	TDS-3A/163																		0.0070									0.9954	
2457	TDS-3A/164																		0.0000									0.9954	
2458	TDS-3A/165																		0.0000									0.9953	
2459	TDS-3A/166																		0.0000									0.9954	
2460	HTB700					0.0004								0.0025	0.0031										0.0013			1.0000	

#	Glass ID	B2O3-a	CaO-a	Fe2O3-a	FeO-a	K2O-a	Li2O-a	MgO-a	Na2O-a	NiO-a	P2O5-a	SiO2-a	ZrO2-a	Ag2O-a	As2O3-a	As2O5-a	BaO-a	BeO-a	Bi2O3-a	Br-a	CdO-a	Ce2O3-a	CeO2-a	Cl-a	CoO-a	Co2O3-a	Cr2O3-a	Cs2O-a	CuO-a	F-a
2379	W-Al/164																													
2380	W-Al/165																													
2381	W-Al/166																													
2382	W-Fe/131																													
2383	W-Fe/141																													
2384	W-Fe/142																													
2385	W-Fe/143																													
2386	W-Fe/144																													
2387	W-Fe/145																													
2388	W-Fe/146																													
2389	W-Fe/147																													
2390	W-Fe/148																													
2391	W-Fe/149																													
2392	W-Fe/150																													
2393	W-Fe/151																													
2394	W-Fe/152																													
2395	W-Fe/154																													
2396	W-Fe/155																													
2397	W-Fe/156																													
2398	W-Fe/157																													
2399	W-Fe/158																													
2400	W-Fe/159																													
2401	W-Fe/160																													
2402	W-Fe/161																													
2403	W-Fe/162																													
2404	W-Fe/163																													
2405	W-Fe/164																													
2406	W-Fe/165																													
2407	W-Fe/166																													
2408	Stage 1/131																													
2409	Stage 1/141																													
2410	Stage 1/142																													
2411	Stage 1/143																													
2412	Stage 1/144																													
2413	Stage 1/145																													
2414	Stage 1/146																													
2415	Stage 1/147																													
2416	Stage 1/148																													
2417	Stage 1/149																													
2418	Stage 1/150																													
2419	Stage 1/151																													
2420	Stage 1/152																													
2421	Stage 1/154																													
2422	Stage 1/155																													
2423	Stage 1/156																													
2424	Stage 1/157																													
2425	Stage 1/158																													
2426	Stage 1/159																													
2427	Stage 1/160																													
2428	Stage 1/161																													
2429	Stage 1/162																													
2430	Stage 1/163																													
2431	Stage 1/164																													
2432	Stage 1/165																													
2433	Stage 1/166																													
2434	TDS-3A/131																													
2435	TDS-3A/141																													
2436	TDS-3A/142																													
2437	TDS-3A/143																													
2438	TDS-3A/144																													
2439	TDS-3A/145																													
2440	TDS-3A/146																													
2441	TDS-3A/147																													
2442	TDS-3A/148																													
2443	TDS-3A/149																													
2444	TDS-3A/150																													
2445	TDS-3A/151																													
2446	TDS-3A/152																													
2447	TDS-3A/154																													
2448	TDS-3A/155																													
2449	TDS-3A/156																													
2450	TDS-3A/157																													
2451	TDS-3A/158																													
2452	TDS-3A/159																													
2453	TDS-3A/160																													
2454	TDS-3A/161																													
2455	TDS-3A/162																													
2456	TDS-3A/163																													
2457	TDS-3A/164																													
2458	TDS-3A/165																													
2459	TDS-3A/166																													
2460	HTB700																													

#	Glass ID	Ga2O3-a	Gd2O3-a	I-a	La2O3-a	MnO2-a	MnO-a	MoO-a	MoO3-a	Nb2O5-a	Nd2O3-a	NpO2-a	PbO-a	PdO2-a	PdO-a	Pr2O3-a	Pr6O11-a	PuO2-a	Rb2O-a	ReO-a	ReO2-a	Re2O7-a	Rh2O3-a	RhO2-a	RuO2-a	Sb2O3-a	Sb2O5-a	SeO2-a
2379	W-Al/164																											
2380	W-Al/165																											
2381	W-Al/166																											
2382	W-Fe/131																											
2383	W-Fe/141																											
2384	W-Fe/142																											
2385	W-Fe/143																											
2386	W-Fe/144																											
2387	W-Fe/145																											
2388	W-Fe/146																											
2389	W-Fe/147																											
2390	W-Fe/148																											
2391	W-Fe/149																											
2392	W-Fe/150																											
2393	W-Fe/151																											
2394	W-Fe/152																											
2395	W-Fe/154																											
2396	W-Fe/155																											
2397	W-Fe/156																											
2398	W-Fe/157																											
2399	W-Fe/158																											
2400	W-Fe/159																											
2401	W-Fe/160																											
2402	W-Fe/161																											
2403	W-Fe/162																											
2404	W-Fe/163																											
2405	W-Fe/164																											
2406	W-Fe/165																											
2407	W-Fe/166																											
2408	Stage 1/131																											
2409	Stage 1/141																											
2410	Stage 1/142																											
2411	Stage 1/143																											
2412	Stage 1/144																											
2413	Stage 1/145																											
2414	Stage 1/146																											
2415	Stage 1/147																											
2416	Stage 1/148																											
2417	Stage 1/149																											
2418	Stage 1/150																											
2419	Stage 1/151																											
2420	Stage 1/152																											
2421	Stage 1/154																											
2422	Stage 1/155																											
2423	Stage 1/156																											
2424	Stage 1/157																											
2425	Stage 1/158																											
2426	Stage 1/159																											
2427	Stage 1/160																											
2428	Stage 1/161																											
2429	Stage 1/162																											
2430	Stage 1/163																											
2431	Stage 1/164																											
2432	Stage 1/165																											
2433	Stage 1/166																											
2434	TDS-3A/131																											
2435	TDS-3A/141																											
2436	TDS-3A/142																											
2437	TDS-3A/143																											
2438	TDS-3A/144																											
2439	TDS-3A/145																											
2440	TDS-3A/146																											
2441	TDS-3A/147																											
2442	TDS-3A/148																											
2443	TDS-3A/149																											
2444	TDS-3A/150																											
2445	TDS-3A/151																											
2446	TDS-3A/152																											
2447	TDS-3A/154																											
2448	TDS-3A/155																											
2449	TDS-3A/156																											
2450	TDS-3A/157																											
2451	TDS-3A/158																											
2452	TDS-3A/159																											
2453	TDS-3A/160																											
2454	TDS-3A/161																											
2455	TDS-3A/162																											
2456	TDS-3A/163																											
2457	TDS-3A/164																											
2458	TDS-3A/165																											
2459	TDS-3A/166																											
2460	HTB700																											

#	Glass ID	Sm2O3-a	SnO-a	SnO2-a	SO3-a	SrO-a	Tc2O7-a	TeO2-a	ThO2-a	TiO2-a	Tl2O-a	Tl2O3-a	U3O8-a	UO2-a	UO3-a	V2O5-a	WO3-a	Y2O3-a	ZnO-a	Sum-a	T_M (°C)	$T_{L,G}$ (°C)	$T_{L,U}$ (°C)	$T_{1\%}$ (°C)	Primary Phase	$C_{650°C}$	$C_{700°C}$	$C_{750°C}$
2379	W-Al/164																			0.0000								
2380	W-Al/165																			0.0000								
2381	W-Al/166																			0.0000								
2382	W-Fe/131																			0.0000			957					
2383	W-Fe/141																			0.0000			862					
2384	W-Fe/142																			0.0000			870					
2385	W-Fe/143																			0.0000			835					
2386	W-Fe/144																			0.0000			784					
2387	W-Fe/145																			0.0000			820					
2388	W-Fe/146																			0.0000			927					
2389	W-Fe/147																			0.0000			804					
2390	W-Fe/148																			0.0000			937					
2391	W-Fe/149																			0.0000			848					
2392	W-Fe/150																			0.0000			790					
2393	W-Fe/151																			0.0000			860					
2394	W-Fe/152																			0.0000			840					
2395	W-Fe/154																			0.0000			850					
2396	W-Fe/155																			0.0000								
2397	W-Fe/156																			0.0000								
2398	W-Fe/157																			0.0000								
2399	W-Fe/158																			0.0000								
2400	W-Fe/159																			0.0000								
2401	W-Fe/160																			0.0000								
2402	W-Fe/161																			0.0000								
2403	W-Fe/162																			0.0000			845					
2404	W-Fe/163																			0.0000			865					
2405	W-Fe/164																			0.0000			855					
2406	W-Fe/165																			0.0000			875					
2407	W-Fe/166																			0.0000			855					
2408	Stage 1/131																			0.0000								
2409	Stage 1/141																			0.0000								
2410	Stage 1/142																			0.0000								
2411	Stage 1/143																			0.0000								
2412	Stage 1/144																			0.0000								
2413	Stage 1/145																			0.0000								
2414	Stage 1/146																			0.0000								
2415	Stage 1/147																			0.0000								
2416	Stage 1/148																			0.0000								
2417	Stage 1/149																			0.0000								
2418	Stage 1/150																			0.0000								
2419	Stage 1/151																			0.0000								
2420	Stage 1/152																			0.0000								
2421	Stage 1/154																			0.0000								
2422	Stage 1/155																			0.0000								
2423	Stage 1/156																			0.0000								
2424	Stage 1/157																			0.0000								
2425	Stage 1/158																			0.0000								
2426	Stage 1/159																			0.0000								
2427	Stage 1/160																			0.0000								
2428	Stage 1/161																			0.0000								
2429	Stage 1/162																			0.0000								
2430	Stage 1/163																			0.0000								
2431	Stage 1/164																			0.0000								
2432	Stage 1/165																			0.0000								
2433	Stage 1/166																			0.0000								
2434	TDS-3A/131																			0.0000								
2435	TDS-3A/141																			0.0000								
2436	TDS-3A/142																			0.0000								
2437	TDS-3A/143																			0.0000								
2438	TDS-3A/144																			0.0000								
2439	TDS-3A/145																			0.0000								
2440	TDS-3A/146																			0.0000								
2441	TDS-3A/147																			0.0000								
2442	TDS-3A/148																			0.0000								
2443	TDS-3A/149																			0.0000								
2444	TDS-3A/150																			0.0000								
2445	TDS-3A/151																			0.0000								
2446	TDS-3A/152																			0.0000								
2447	TDS-3A/154																			0.0000								
2448	TDS-3A/155																			0.0000								
2449	TDS-3A/156																			0.0000								
2450	TDS-3A/157																			0.0000								
2451	TDS-3A/158																			0.0000								
2452	TDS-3A/159																			0.0000								
2453	TDS-3A/160																			0.0000								
2454	TDS-3A/161																			0.0000								
2455	TDS-3A/162																			0.0000								
2456	TDS-3A/163																			0.0000								
2457	TDS-3A/164																			0.0000								
2458	TDS-3A/165																			0.0000								
2459	TDS-3A/166																			0.0000								
2460	HTB700																			0.0000	1250							

#	Glass ID	$C_{800°C}$	$C_{850°C}$	$C_{900°C}$	$C_{950°C}$	$C_{1000°C}$	$C_{1050°C}$	$C_{1100°C}$	$C_{1150°C}$	$C_{1200°C}$	Quenched Visual/OM	Quenched XRD	CCC XRD	ρ (g/cm³)	Fulc Visc A	Fulc Visc B	Fulc Visc To	Arrh Visc E	Arrh Visc F	T1 (°C)	V1 (Pa·s)
2379	W-Al/164																				
2380	W-Al/165																				
2381	W-Al/166																				
2382	W-Fe/131																				
2383	W-Fe/141																				
2384	W-Fe/142																				
2385	W-Fe/143																				
2386	W-Fe/144																				
2387	W-Fe/145																				
2388	W-Fe/146																				
2389	W-Fe/147																				
2390	W-Fe/148																				
2391	W-Fe/149																				
2392	W-Fe/150																				
2393	W-Fe/151																				
2394	W-Fe/152																				
2395	W-Fe/154																				
2396	W-Fe/155																				
2397	W-Fe/156																				
2398	W-Fe/157																				
2399	W-Fe/158																				
2400	W-Fe/159																				
2401	W-Fe/160																				
2402	W-Fe/161																				
2403	W-Fe/162																				
2404	W-Fe/163																				
2405	W-Fe/164																				
2406	W-Fe/165																				
2407	W-Fe/166																				
2408	Stage 1/131																				
2409	Stage 1/141																				
2410	Stage 1/142																				
2411	Stage 1/143																				
2412	Stage 1/144																				
2413	Stage 1/145																				
2414	Stage 1/146																				
2415	Stage 1/147																				
2416	Stage 1/148																				
2417	Stage 1/149																				
2418	Stage 1/150																				
2419	Stage 1/151																				
2420	Stage 1/152																				
2421	Stage 1/154																				
2422	Stage 1/155																				
2423	Stage 1/156																				
2424	Stage 1/157																				
2425	Stage 1/158																				
2426	Stage 1/159																				
2427	Stage 1/160																				
2428	Stage 1/161																				
2429	Stage 1/162																				
2430	Stage 1/163																				
2431	Stage 1/164																				
2432	Stage 1/165																				
2433	Stage 1/166																				
2434	TDS-3A/131																				
2435	TDS-3A/141																				
2436	TDS-3A/142																				
2437	TDS-3A/143																				
2438	TDS-3A/144																				
2439	TDS-3A/145																				
2440	TDS-3A/146																				
2441	TDS-3A/147																				
2442	TDS-3A/148																				
2443	TDS-3A/149																				
2444	TDS-3A/150																				
2445	TDS-3A/151																				
2446	TDS-3A/152																				
2447	TDS-3A/154																				
2448	TDS-3A/155																				
2449	TDS-3A/156																				
2450	TDS-3A/157																				
2451	TDS-3A/158																				
2452	TDS-3A/159																				
2453	TDS-3A/160																				
2454	TDS-3A/161																				
2455	TDS-3A/162																				
2456	TDS-3A/163																				
2457	TDS-3A/164																				
2458	TDS-3A/165																				
2459	TDS-3A/166																				
2460	HTB700														-8.250	11612.2	40.4	-11.100	19243.3		

#	Glass ID	T2 (°C)	V2 (Pa·s)	T3 (°C)	V3 (Pa·s)	T4 (°C)	V4 (Pa·s)	T5 (°C)	V5 (Pa·s)	T6 (°C)	V6 (Pa·s)	T7 (°C)	V7 (Pa·s)	T8 (°C)	V8 (Pa·s)	T9 (°C)	V9 (Pa·s)	T10 (°C)	V10 (Pa·s)	TCLP Ag	TCLP As	TCLP Ba	TCLP Cd	TCLP Cr	TCLP Ni	TCLP Pb
2379	W-Al/164																									
2380	W-Al/165																									
2381	W-Al/166																									
2382	W-Fe/131																									
2383	W-Fe/141																									
2384	W-Fe/142																									
2385	W-Fe/143																									
2386	W-Fe/144																									
2387	W-Fe/145																									
2388	W-Fe/146																									
2389	W-Fe/147																									
2390	W-Fe/148																									
2391	W-Fe/149																									
2392	W-Fe/150																									
2393	W-Fe/151																									
2394	W-Fe/152																									
2395	W-Fe/154																									
2396	W-Fe/155																									
2397	W-Fe/156																									
2398	W-Fe/157																									
2399	W-Fe/158																									
2400	W-Fe/159																									
2401	W-Fe/160																									
2402	W-Fe/161																									
2403	W-Fe/162																									
2404	W-Fe/163																									
2405	W-Fe/164																									
2406	W-Fe/165																									
2407	W-Fe/166																									
2408	Stage 1/131																									
2409	Stage 1/141																									
2410	Stage 1/142																									
2411	Stage 1/143																									
2412	Stage 1/144																									
2413	Stage 1/145																									
2414	Stage 1/146																									
2415	Stage 1/147																									
2416	Stage 1/148																									
2417	Stage 1/149																									
2418	Stage 1/150																									
2419	Stage 1/151																									
2420	Stage 1/152																									
2421	Stage 1/154																									
2422	Stage 1/155																									
2423	Stage 1/156																									
2424	Stage 1/157																									
2425	Stage 1/158																									
2426	Stage 1/159																									
2427	Stage 1/160																									
2428	Stage 1/161																									
2429	Stage 1/162																									
2430	Stage 1/163																									
2431	Stage 1/164																									
2432	Stage 1/165																									
2433	Stage 1/166																									
2434	TDS-3A/131																									
2435	TDS-3A/141																									
2436	TDS-3A/142																									
2437	TDS-3A/143																									
2438	TDS-3A/144																									
2439	TDS-3A/145																									
2440	TDS-3A/146																									
2441	TDS-3A/147																									
2442	TDS-3A/148																									
2443	TDS-3A/149																									
2444	TDS-3A/150																									
2445	TDS-3A/151																									
2446	TDS-3A/152																									
2447	TDS-3A/154																									
2448	TDS-3A/155																									
2449	TDS-3A/156																									
2450	TDS-3A/157																									
2451	TDS-3A/158																									
2452	TDS-3A/159																									
2453	TDS-3A/160																									
2454	TDS-3A/161																									
2455	TDS-3A/162																									
2456	TDS-3A/163																									
2457	TDS-3A/164																									
2458	TDS-3A/165																									
2459	TDS-3A/166																									
2460	HTB700																									

#	Glass ID	TCLP Se	TCLP Zn	TCLP Al	TCLP B	TCLP Sb	TCLP Tl	TCLP V	Q PCT B (g/m²)	Q PCT Li (g/m²)	Q PCT Na (g/m²)	Q PCT Si (g/m²)	Q PCT pH	CCC PCT B (g/m²)	CCC PCT Li (g/m²)	CCC PCT Na (g/m²)	CCC PCT Si (g/m²)	CCC PCT pH	T1 (°C)
2379	W-Al/164																		
2380	W-Al/165																		
2381	W-Al/166																		
2382	W-Fe/131																		
2383	W-Fe/141																		
2384	W-Fe/142																		
2385	W-Fe/143																		
2386	W-Fe/144																		
2387	W-Fe/145																		
2388	W-Fe/146																		
2389	W-Fe/147																		
2390	W-Fe/148																		
2391	W-Fe/149																		
2392	W-Fe/150																		
2393	W-Fe/151																		
2394	W-Fe/152																		
2395	W-Fe/154																		
2396	W-Fe/155																		
2397	W-Fe/156																		
2398	W-Fe/157																		
2399	W-Fe/158																		
2400	W-Fe/159																		
2401	W-Fe/160																		
2402	W-Fe/161																		
2403	W-Fe/162																		
2404	W-Fe/163																		
2405	W-Fe/164																		
2406	W-Fe/165																		
2407	W-Fe/166																		
2408	Stage 1/131																		
2409	Stage 1/141																		
2410	Stage 1/142																		
2411	Stage 1/143																		
2412	Stage 1/144																		
2413	Stage 1/145																		
2414	Stage 1/146																		
2415	Stage 1/147																		
2416	Stage 1/148																		
2417	Stage 1/149																		
2418	Stage 1/150																		
2419	Stage 1/151																		
2420	Stage 1/152																		
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2427	Stage 1/160																		
2428	Stage 1/161																		
2429	Stage 1/162																		
2430	Stage 1/163																		
2431	Stage 1/164																		
2432	Stage 1/165																		
2433	Stage 1/166																		
2434	TDS-3A/131																		
2435	TDS-3A/141																		
2436	TDS-3A/142																		
2437	TDS-3A/143																		
2438	TDS-3A/144																		
2439	TDS-3A/145																		
2440	TDS-3A/146																		
2441	TDS-3A/147																		
2442	TDS-3A/148																		
2443	TDS-3A/149																		
2444	TDS-3A/150																		
2445	TDS-3A/151																		
2446	TDS-3A/152																		
2447	TDS-3A/154																		
2448	TDS-3A/155																		
2449	TDS-3A/156																		
2450	TDS-3A/157																		
2451	TDS-3A/158																		
2452	TDS-3A/159																		
2453	TDS-3A/160																		
2454	TDS-3A/161																		
2455	TDS-3A/162																		
2456	TDS-3A/163																		
2457	TDS-3A/164																		
2458	TDS-3A/165																		
2459	TDS-3A/166																		
2460	HTB700								0.277		0.629	0.189	11.510	0.484		0.593	0.253	11.480	

#	Glass ID	EC1 (S/cm)	T2 (°C)	EC2 (S/cm)	T3 (°C)	EC3 (S/cm)	T4 (°C)	EC4 (S/cm)	T5 (°C)	EC5 (S/cm)	T6 (°C)	EC6 (S/cm)	A	B	To
2379	W-Al/164														
2380	W-Al/165														
2381	W-Al/166														
2382	W-Fe/131														
2383	W-Fe/141														
2384	W-Fe/142														
2385	W-Fe/143														
2386	W-Fe/144														
2387	W-Fe/145														
2388	W-Fe/146														
2389	W-Fe/147														
2390	W-Fe/148														
2391	W-Fe/149														
2392	W-Fe/150														
2393	W-Fe/151														
2394	W-Fe/152														
2395	W-Fe/154														
2396	W-Fe/155														
2397	W-Fe/156														
2398	W-Fe/157														
2399	W-Fe/158														
2400	W-Fe/159														
2401	W-Fe/160														
2402	W-Fe/161														
2403	W-Fe/162														
2404	W-Fe/163														
2405	W-Fe/164														
2406	W-Fe/165														
2407	W-Fe/166														
2408	Stage 1/131														
2409	Stage 1/141														
2410	Stage 1/142														
2411	Stage 1/143														
2412	Stage 1/144														
2413	Stage 1/145														
2414	Stage 1/146														
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2416	Stage 1/148														
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2426	Stage 1/159														
2427	Stage 1/160														
2428	Stage 1/161														
2429	Stage 1/162														
2430	Stage 1/163														
2431	Stage 1/164														
2432	Stage 1/165														
2433	Stage 1/166														
2434	TDS-3A/131														
2435	TDS-3A/141														
2436	TDS-3A/142														
2437	TDS-3A/143														
2438	TDS-3A/144														
2439	TDS-3A/145														
2440	TDS-3A/146														
2441	TDS-3A/147														
2442	TDS-3A/148														
2443	TDS-3A/149														
2444	TDS-3A/150														
2445	TDS-3A/151														
2446	TDS-3A/152														
2447	TDS-3A/154														
2448	TDS-3A/155														
2449	TDS-3A/156														
2450	TDS-3A/157														
2451	TDS-3A/158														
2452	TDS-3A/159														
2453	TDS-3A/160														
2454	TDS-3A/161														
2455	TDS-3A/162														
2456	TDS-3A/163														
2457	TDS-3A/164														
2458	TDS-3A/165														
2459	TDS-3A/166														
2460	HTB700														

#	Glass ID	Study	Reference	Al2O3-t	B2O3-t	CaO-t	Fe2O3-t	FeO-t	K2O-t	Li2O-t	MgO-t	Na2O-t	NiO-t	P2O5-t	SiO2-t	ZrO2-t	Ag2O-t	As2O3-t	As2O5-t	BaO-t	BeO-t	Bi2O3-t	Br-t	CdO-t	Ce2O3-t	CeO2-t	Cl-t
2461	HTB725	Waste Loading Maximization	Bailey et al. 1995	0.1007	0.0006	0.0160	0.0852		0.0017	0.0000	0.0006	0.1959	0.0176	0.0365	0.3524	0.0548						0.0151		0.0007		0.0211	
2462	HTB750	Waste Loading Maximization	Bailey et al. 1995	0.1041	0.0006	0.0165	0.0881		0.0018	0.0000	0.0006	0.2027	0.0182	0.0377	0.3301	0.0567						0.0156		0.0007		0.0219	
2463	HTB775	Waste Loading Maximization	Bailey et al. 1995	0.1076	0.0006	0.0171	0.0911		0.0018	0.0000	0.0006	0.2094	0.0188	0.0390	0.3078	0.0586						0.0161		0.0008		0.0226	
2464	HTB800	Waste Loading Maximization	Bailey et al. 1995	0.1111	0.0006	0.0176	0.0940		0.0019	0.0000	0.0007	0.2162	0.0194	0.0402	0.2854	0.0605						0.0167		0.0008		0.0233	
2465	HTB825	Waste Loading Maximization	Bailey et al. 1995	0.1146	0.0007	0.0182	0.0969		0.0020	0.0000	0.0007	0.2229	0.0200	0.0415	0.2631	0.0624						0.0172		0.0008		0.0241	
2466	HTB850	Waste Loading Maximization	Bailey et al. 1995	0.1180	0.0007	0.0187	0.0999		0.0020	0.0000	0.0007	0.2297	0.0206	0.0428	0.2408	0.0643						0.0177		0.0008		0.0248	
2467	PFP-0P	PFP Phosphorous Study	Heckle et al. 1994	0.0898	0.1411	0.0088	0.0371			0.0744	0.0031	0.0436		0.0000	0.5404	0.0006											
2468	PFP-3.3P	PFP Phosphorous Study	Heckle et al. 1994	0.0867	0.1363	0.0085	0.0359			0.0719	0.0030	0.0421	0.0008	0.0333	0.5220	0.0006				0.0000				0.0011		0.0012	
2469	PFP-5.3P	PFP Phosphorous Study	Heckle et al. 1994	0.0849	0.1334	0.0083	0.0351			0.0704	0.0029	0.0412	0.0008	0.0533	0.5110	0.0006				0.0000				0.0011		0.0012	
2470	PFP-7.3P	PFP Phosphorous Study	Heckle et al. 1994	0.0831	0.1306	0.0081	0.0344			0.0689	0.0029	0.0403	0.0008	0.0733	0.5002	0.0005				0.0000				0.0011		0.0012	
2471	PFP 5.3P/no Cr	PFP Phosphorous Study	Heckle et al. 1994	0.0870	0.1367	0.0085	0.0360			0.0721	0.0030	0.0422	0.0009	0.0546	0.5234	0.0006				0.0000				0.0011		0.0012	
2472	PFP 3.3P/no Cr	PFP Phosphorous Study	Heckle et al. 1994	0.0889	0.1396	0.0087	0.0368			0.0736	0.0031	0.0431	0.0009	0.0342	0.5347	0.0006				0.0000				0.0012		0.0012	
2473	PFP 3.3P/no Li	PFP Phosphorous Study	Heckle et al. 1994	0.0867	0.1382	0.0084	0.0359			0.0000	0.0030	0.2079	0.0008	0.0333	0.4258	0.0006				0.0000				0.0011		0.0012	
2474	PFP 3.3P/3 Li	PFP Phosphorous Study	Heckle et al. 1994	0.0867	0.1382	0.0084	0.0359			0.0302	0.0030	0.1777	0.0008	0.0333	0.4258	0.0006				0.0000				0.0011		0.0012	
2475	HTB651	Waste Loading Maximization	Bailey et al. 1995	0.0910		0.0144	0.0770					0.1770		0.0330	0.4227	0.0495						0.0136					
2476	HTB651	Waste Loading Maximization	Bailey et al. 1995	0.0910		0.0144	0.0770					0.1770		0.0330	0.4227	0.0495						0.0136					
2477	HTB651	Waste Loading Maximization	Bailey et al. 1995	0.0910		0.0144	0.0770					0.1770		0.0330	0.4227	0.0495						0.0136					
2478	HTB651Cr0.6	Waste Loading Maximization	Bailey et al. 1995	0.0907		0.0144	0.0767					0.1765		0.0329	0.4215	0.0494						0.0136					
2479	HTB651Cr0.8	Waste Loading Maximization	Bailey et al. 1995	0.0905		0.0143	0.0766					0.1762		0.0328	0.4206	0.0493						0.0136					
2480	HTB651P5	Waste Loading Maximization	Bailey et al. 1995	0.0894		0.0142	0.0756					0.1739		0.0500	0.4152	0.0487						0.0134					
2481	HTB651P7	Waste Loading Maximization	Bailey et al. 1995	0.0875		0.0139	0.0740					0.1702		0.0700	0.4065	0.0476						0.0131					
2482	HTB651P9	Waste Loading Maximization	Bailey et al. 1995	0.0856		0.0136	0.0724					0.1666		0.0900	0.3978	0.0466						0.0128					
2483	HTB651Ti1	Waste Loading Maximization	Bailey et al. 1995	0.0900		0.0143	0.0762					0.1752		0.0326	0.4185	0.0490						0.0135					
2484	HTB651Ti3	Waste Loading Maximization	Bailey et al. 1995	0.0882		0.0140	0.0747					0.1717		0.0320	0.4100	0.0481						0.0132					
2485	HTB651Ti5	Waste Loading Maximization	Bailey et al. 1995	0.0864		0.0137	0.0731					0.1682		0.0313	0.4016	0.0471						0.0130					
2486	HLW98-01	BNFL HLW98	Fu and Pegg 1998	0.1074	0.1064	0.0097	0.1172		0.0043	0.0195	0.0097	0.1308	0.0043	0.0085	0.3221	0.0605	0.0020	0.0006		0.0043		0.0004		0.0063	0.0047		0.0011
2487	HLW98-02	BNFL HLW98	Fu and Pegg 1998	0.1109	0.1099	0.0101	0.1210		0.0044	0.0202	0.0101	0.1350	0.0044	0.0087	0.3326	0.0303	0.0020	0.0006		0.0045		0.0004		0.0065	0.0049		0.0011
2488	HLW98-03	BNFL HLW98	Fu and Pegg 1998	0.1180	0.1001	0.0142	0.0944		0.0024	0.0300	0.0094	0.1180	0.0024	0.0094	0.3946	0.0377	0.0009	0.0005		0.0024		0.0005		0.0024	0.0023		0.0024
2489	HLW98-04	BNFL HLW98	Fu and Pegg 1998	0.1180	0.1301	0.0142	0.0944		0.0024	0.0000	0.0094	0.1180	0.0024	0.0094	0.3946	0.0377	0.0009	0.0005		0.0024		0.0005		0.0024	0.0023		0.0024
2490	HLW98-05	BNFL HLW98	Fu and Pegg 1998	0.1147	0.1301	0.0137	0.1218		0.0023	0.0000	0.0092	0.1147	0.0023	0.0092	0.4120	0.0000	0.0009	0.0005		0.0023		0.0005		0.0046	0.0022		0.0023
2491	HLW98-06	BNFL HLW98	Fu and Pegg 1998	0.0852	0.1001	0.0043	0.1277		0.0043	0.0300	0.0085	0.1107	0.0043	0.0064	0.4281	0.0213	0.0009	0.0010		0.0043		0.0004		0.0034	0.0012		0.0009
2492	HLW98-07	BNFL HLW98	Fu and Pegg 1998	0.0883	0.1001	0.0044	0.1325		0.0044	0.0100	0.0088	0.1148	0.0044	0.0066	0.4329	0.0220	0.0009	0.0010		0.0044		0.0004		0.0035	0.0012		0.0009
2493	HLW98-08	BNFL HLW98	Fu and Pegg 1998	0.0744	0.1201	0.0153	0.1227		0.0044	0.0300	0.0087	0.0919	0.0044	0.0066	0.4097	0.0219	0.0009	0.0010		0.0044		0.0004		0.0035	0.0012		0.0009
2494	HLW98-09	BNFL HLW98	Fu and Pegg 1998	0.0798	0.1201	0.0040	0.1197		0.0040	0.0300	0.0080	0.0837	0.0040	0.0060	0.4500	0.0199	0.0008	0.0009		0.0040		0.0004		0.0032	0.0011		0.0008
2495	HLW98-10	BNFL HLW98	Fu and Pegg 1998	0.0702	0.1201	0.0144	0.1158		0.0041	0.0300	0.0084	0.0868	0.0041	0.0062	0.4336	0.0206	0.0008	0.0009		0.0041		0.0004		0.0033	0.0011		0.0008
2496	HLW98-11	BNFL HLW98	Fu and Pegg 1998	0.0730	0.1201	0.0150	0.1203		0.0043	0.0300	0.0086	0.0902	0.0043	0.0064	0.4177	0.0215	0.0009	0.0010		0.0043		0.0004		0.0034	0.0012		0.0009
2497	HLW98-12	BNFL HLW98	Fu and Pegg 1998	0.0749	0.1502	0.0027	0.1268		0.0030	0.0701	0.0009	0.0293	0.0046	0.0059	0.4103	0.0388	0.0008	0.0007		0.0006		0.0000		0.0053	0.0011		0.0001
2498	HLW98-13	BNFL HLW98	Fu and Pegg 1998	0.0667	0.1502	0.0024	0.1127		0.0026	0.0300	0.0008	0.1061	0.0041	0.0053	0.4092	0.0344	0.0007	0.0006		0.0005		0.0000		0.0047	0.0010		0.0001
2499	HLW98-14	BNFL HLW98	Fu and Pegg 1998	0.0871	0.1201	0.0190	0.0877		0.0019	0.0300	0.0114	0.1405	0.0016	0.0065	0.4173	0.0031	0.0011	0.0000		0.0059		0.0006		0.0004	0.0000		0.0007
2500	HLW98-15	BNFL HLW98	Fu and Pegg 1998	0.0871	0.1501	0.0190	0.0877		0.0019	0.0000	0.0114	0.1405	0.0016	0.0065	0.4173	0.0031	0.0011	0.0000		0.0059		0.0006		0.0004	0.0000		0.0007
2501	HLW98-16	BNFL HLW98	Fu and Pegg 1998	0.0721	0.1201	0.0148	0.1188		0.0043	0.0171	0.0085	0.0891	0.0043	0.0064	0.4361	0.0212	0.0000	0.0010		0.0043		0.0004		0.0034	0.0012		0.0009
2502	HLW98-17	BNFL HLW98	Fu and Pegg 1998	0.0704	0.1201	0.0145	0.1155		0.0042	0.0300	0.0083	0.0868	0.0042	0.0062	0.4328	0.0207	0.0000	0.0010		0.0042		0.0004		0.0033	0.0012		0.0009
2503	HLW98-18	BNFL HLW98	Fu and Pegg 1998	0.0773	0.0501	0.0028	0.1298		0.0031	0.0701	0.0009	0.0302	0.0048	0.0061	0.5109	0.0401	0.0000	0.0007		0.0006		0.0000		0.0054	0.0011		0.0001
2504	HLW98-19	BNFL HLW98	Fu and Pegg 1998	0.0916	0.1201	0.0200	0.0922		0.0020	0.0000	0.0120	0.1479	0.0017	0.0068	0.4260	0.0033	0.0012	0.0000		0.0062		0.0006		0.0004	0.0000		0.0007
2505	HLW98-20	BNFL HLW98	Fu and Pegg 1998	0.0892	0.1201	0.0195	0.0978		0.0020	0.0150	0.0117	0.1439	0.0016	0.0066	0.4363	0.0032	0.0000	0.0000		0.0061		0.0006		0.0004	0.0000		0.0007
2506	HLW98-21	BNFL HLW98	Fu and Pegg 1998	0.0678	0.0701	0.0024	0.1137		0.0027	0.0601	0.0008	0.0665	0.0042	0.0053	0.5093	0.0350	0.0000	0.0006		0.0005		0.0000		0.0048	0.0010		0.0001
2507	HLW98-22	BNFL HLW98	Fu and Pegg 1998	0.0535	0.1201	0.0117	0.1463		0.0012	0.0300	0.0070	0.0863	0.0010	0.0040	0.4028	0.0019	0.0000	0.0000		0.0036		0.0004		0.0002	0.0000		0.0004
2508	HLW98-23	BNFL HLW98	Fu and Pegg 1998	0.0485	0.1201	0.0106	0.1325		0.0011	0.0300	0.0064	0.0782	0.0009	0.0036	0.4431	0.0017	0.0000	0.0000		0.0033		0.0003		0.0002	0.0000		0.0004
2509	HLW98-24	BNFL HLW98	Fu and Pegg 1998	0.0678	0.1101	0.0024	0.1137		0.0027	0.0601	0.0008	0.0665	0.0042	0.0053	0.4693	0.0350	0.0000	0.0006		0.0005		0.0000		0.0048	0.0010		0.0001
2510	HLW98-25	BNFL HLW98	Fu and Pegg 1998	0.0667	0.1004	0.0024	0.1118		0.0026	0.0602	0.0008	0.0661	0.0041	0.0052	0.4706	0.0344	0.0007	0.0006		0.0005		0.0000		0.0047	0.0011		0.0001
2511	HLW98-26	BNFL HLW98	Fu and Pegg 1998	0.0785	0.0704	0.0026	0.1312		0.0018	0.0653	0.0007	0.0614	0.0057	0.0013	0.4650	0.0280	0.0000	0.0005		0.0004		0.0000		0.0039	0.0009		0.0001
2512	HLW98-27B	BNFL HLW98	Fu and Pegg 1998	0.0785	0.0402	0.0026	0.1312		0.0018	0.0452	0.0007	0.1442	0.0057	0.0013	0.4324	0.0280	0.0000	0.0005		0.0004		0.0000		0.0039	0.0009		0.0001
2513	HLW98-28	BNFL HLW98	Fu and Pegg 1998	0.0785	0.0201	0.0026	0.1312		0.0018	0.0402	0.0007	0.1442	0.0057	0.0013	0.4575	0.0280	0.0000	0.0005		0.0004		0.0000		0.0039	0.0009		0.0001
2514	HLW98-29	BNFL HLW98	Fu and Pegg 1998	0.0785	0.1295	0.0026	0.1312		0.0018	0.0402	0.0007	0.0800	0.0057	0.0013	0.4123	0.0280	0.0000	0.0005		0.0004		0.0000		0.0039	0.0009		0.0001
2515	HLW98-30	BNFL HLW98	Fu and Pegg 1998	0.0785	0.1005	0.0026	0.1102		0.0018	0.0603	0.0007	0.0664	0.0057	0.0013	0.4557	0.0280	0.0000	0.0005		0.0004		0.0000		0.0039	0.0009		0.0001
2516	HLW98-31	BNFL HLW98	Fu and Pegg 1998	0.0740	0.1000	0.0025	0.1039		0.0017	0.0600	0.0006	0.0659	0.0054	0.0013	0.4554	0.0356	0.0000	0.0005		0.0004		0.0000		0.0037	0.0008		0.0001
2517	HLW98-32A	BNFL HLW98	Fu and Pegg 1998	0.1368	0.0900	0.0024	0.1110		0.0005	0.0700	0.0007	0.0358	0.0067	0.0005	0.4552	0.0146	0.0000	0.0005		0.0003		0.0000		0.0078	0.0004		0.0001
2518	HLW98-33	BNFL HLW98	Fu and Pegg 1998	0.1003	0.0700	0.0067	0.1092		0.0003	0.0300	0.0020	0.0879	0.0014	0.0014	0.3773	0.0011	0.0022	0.0000		0.0006		0.0000		0.0004	0.0003		0.0003
2519	HLW98-35	BNFL HLW98	Fu and Pegg 1998	0.1034	0.0700	0.0176	0.1206		0.0006	0.0500	0.0008	0.0971	0.0073	0.0006	0.4355	0.0158	0.0000	0.0005		0.0003		0.0000		0.0085	0.0005		0.0002
2520	HLW98-36	BNFL HLW98	Fu and Pegg 1998	0.0938	0.0899	0.0281	0.0381		0.0008	0.0499	0.0003	0.1261	0.0024	0.0021	0.4344	0.0783	0.0000	0.0000		0.0000		0.0000		0.0006	0.0000		0.0001
2521	HLW98-37	BNFL HLW98	Fu and Pegg 1998	0.0442	0.0504	0.0045	0.0560		0.0000	0.0449	0.0005	0.1525	0.0020	0.0007	0.4169	0.1154	0.0000	0.0000		0.0000		0.0000		0.0009	0.0000		0.0000
2522	HLW98-38	BNFL HLW98	Fu and Pegg 1998	0.0335	0.0499	0.0064	0.0661		0.0010	0.0449	0.0008	0.1139	0.0033	0.0047	0.3811	0.0682	0.0009	0.0000		0.0003		0.0000		0.0009	0.0011		0.0000
2523	HLW98-39	BNFL HLW98	Fu and Pegg 1998	0.0369	0.0299	0.0070	0.0728		0.0011	0.0399	0.0009	0.1219	0.0036	0.0051	0.3684	0.0751	0.0010	0.0000		0.0003		0.0000		0.0009	0.0012		0.0000
2524	HLW98-40	BNFL HLW98	Fu and Pegg 1998	0.0823	0.0600	0.0026	0.1189		0.0006	0.0450	0.0008	0.1419	0.0072	0.0006	0.4352	0.0156	0.0004	0.0005		0.0003		0.0000		0.0084	0.0005		0.0000
2525	HLW98-41	BNFL HLW98	Fu and Pegg 1998	0.0342	0.0299	0.0065	0.0675		0.0010	0.0499	0.0008	0.1400	0.0033	0.0048	0.3617	0.0696	0.0009	0.0000		0.0003		0.0000		0.0009	0.0011		0.0000
2526	HLW98-42	BNFL HLW98	Fu and Pegg 1998	0.0797	0.0850	0.0025	0.1152		0.0006	0.0700	0.0007	0.0889	0.0069	0.0006	0.4476	0.0151	0.0004	0.0005		0.0003		0.0000		0.0081	0.0005		0.0000
2527	HLW98-43	BNFL HLW98	Fu and Pegg 1998	0.0324	0.0499	0.0062	0.0639		0.0010	0.0598	0.0008	0.1271	0.0032	0.0045	0.3655	0.0659	0.0009	0.0000		0.0003		0.0000		0.0008	0.0010		0.0000
2528	HLW98-44	BNFL HLW98	Fu and Pegg 1998	0.0324	0.0698	0.0062	0.0639		0.0010	0.0598	0.0008	0.1022	0.0032	0.0045	0.3705	0.0659	0.0009	0.0000		0.0003		0.0000		0.0008	0.0010		0.0000
2529	HLW98-45	BNFL HLW98	Fu and Pegg 1998	0.0313	0.0698	0.0060	0.0618		0.0010	0.0598	0.0007	0.1030	0.0031	0.0044	0.3823	0.0637	0.0009	0.0000		0.0003		0.0000		0.0008	0.0010		0.0000
2530	HLW98-46	BNFL HLW98	Fu and Pegg 1998	0.0299	0.0748	0.0057	0.0590		0.0009	0.0698	0.0007	0.0981	0.0029	0.0042	0.3889	0.0608	0.0008	0.0000		0.0002		0.0000		0.0008	0.0010		0.0000
2531	HLW98-47	BNFL HLW98	Fu and Pegg 1998	0.0286	0.0748	0.0055	0.0566		0.0009	0.0698	0.0007	0.1011	0.0028	0.0040	0.4006	0.0583	0.0008	0.0000		0.0002		0.0000		0.0007	0.0010		0.0000
2532	HLW98-48	BNFL HLW98	Fu and Pegg 1998	0.0448	0.0898	0.0047	0.0491		0.0008	0.0499	0.0006	0.1101	0.0024	0.0035	0.4206	0.0506	0.0007	0.0000		0.0002		0.0000		0.0006	0.0009		0.0000
2533	HLW98-49	BNFL HLW98	Fu and Pegg 1998	0.0587	0.0699	0.0045	0.0469		0.0007	0.0399	0.0006	0.1382	0.0023	0.0033	0.4200	0.0484	0.0007	0.0000		0.0002		0.0000		0.0006	0.0008		0.0000
2534	HLW98-50	BNFL HLW98	Fu and Pegg 1998	0.0249	0.1097	0.0043	0.0457		0.0002	0.0399	0.0006	0.1356	0.0026	0.0035	0.4533	0.0545	0.0007	0.0000		0.0002		0.0000		0.0007	0.0008		0.0000
2535	HLW98-51R	BNFL HLW98	Fu and Pegg 1998	0.0238	0.0898	0.0045	0.0469		0.0007	0.0499	0.0006	0.0858	0.0023	0.0033	0.4773	0.0484	0.0007	0.0000		0.0002		0.0000		0.0006	0.0008		0.0000
2536	HLW98-52	BNFL HLW98	Fu and Pegg 1998	0.0797	0.0700	0.0025	0.1152		0.0006	0.0600	0.0007	0.0989	0.0069	0.0006	0.4626	0.0151	0.0004	0.0005		0.0003		0.0000		0.0081	0.0005		0.0000
2537	HLW98-53A	BNFL HLW98	Fu and Pegg 1998	0.0811	0.0725	0.0025	0.1172		0.0006	0.0600	0.0007	0.0992	0.0071	0.0006	0.4639	0.0154	0.0004	0.0005		0.0003		0.0000		0.0083	0.0005		0.0000
2538	HLW98-54	BNFL HLW98	Fu and Pegg 1998	0.0797	0.1000	0.0025	0.1152		0.0006	0.0600	0.0007	0.0564	0.0069	0.0006	0.4751	0.0151	0.0004	0.0005		0.0003		0.0000		0.0081	0.0005		0.0000
2539	HLW98-55	BNFL HLW98	Fu and Pegg 1998	0.0797	0.0700	0.0025	0.1152		0.0006	0.0700	0.0007	0.0914	0.0069	0.0006	0.4888	0.0151	0.0004	0.0005		0.0003		0.0000		0.0081	0.0005		0.0000
2540	HLW98-56	BNFL HLW98	Fu and Pegg 1998	0.0755	0.0699	0.0057	0.1178		0.0000	0.0699	0.0012	0.0953	0.0077	0.0024	0.4967	0.0165	0.0002	0.0000		0.0004		0.0000		0.0137	0.0007		0.0005
2541	HLW98-57	BNFL HLW98	Fu and Pegg 1998	0.0743	0.0400	0.0062	0.1194		0.0003	0.0500	0.0012	0.1300	0.0075	0.0025	0.4708	0.0161	0.0002	0.0000		0.0004		0.0000		0.0133	0.0008		0.0005
2542	HLW98-58	BNFL HLW98	Fu and Pegg 1998	0.0763	0.0399	0.0061	0.1207		0.0003	0.0500	0.0012	0.1375	0.0077	0.0025	0.4782	0.0166	0.0002	0.0000		0.0004		0.0000		0.0137	0.0007		0.0005

#	Glass ID	CoO-t	Co2O3-t	Cr2O3-t	Cs2O-t	CuO-t	Dy2O3-t	Eu2O3-t	F-t	Ga2O3-t	Gd2O3-t	HfO2-t	HgO-t	I-t	La2O3-t	MnO2-t	MnO-t	MoO-t	MoO2-t	MoO3-t	Nb2O5-t	Nd2O3-t	NpO2-t	PbO-t	PdO2-t	PdO-t	Pr2O3-t	Pr6O11-t	Rb2O-t	ReO-t
2461	HTB725			0.0035					0.0043						0.0033		0.0115			0.0006		0.0676		0.0027						
2462	HTB750			0.0036					0.0044						0.0034		0.0119			0.0006		0.0700		0.0028						
2463	HTB775			0.0037					0.0046						0.0035		0.0123			0.0006		0.0723		0.0029						
2464	HTB800			0.0039					0.0047						0.0037		0.0127			0.0006		0.0746		0.0030						
2465	HTB825			0.0040					0.0049						0.0038		0.0131			0.0006		0.0770		0.0031						
2466	HTB850			0.0041					0.0050						0.0039		0.0135			0.0007		0.0793		0.0032						
2467	PFP-0P																													
2468	PFP-3.3P			0.0242	0.0000	0.0016			0.0011						0.0006		0.0124			0.0003		0.0018		0.0013		0.0014		0.0000	0.0000	
2469	PFP-5.3P			0.0237	0.0000	0.0016			0.0011						0.0006		0.0122			0.0003		0.0018		0.0013		0.0014		0.0000	0.0000	
2470	PFP-7.3P			0.0232	0.0000	0.0016			0.0011						0.0005		0.0119			0.0003		0.0017		0.0013		0.0014		0.0000	0.0000	
2471	PFP 5.3P/no Cr			0.0000	0.0000	0.0016			0.0011						0.0006		0.0125			0.0003		0.0018		0.0013		0.0014		0.0000	0.0000	
2472	PFP 3.3P/no Cr			0.0000	0.0000	0.0017			0.0012						0.0006		0.0127			0.0003		0.0019		0.0014		0.0014		0.0000	0.0000	
2473	PFP 3.3P/no Li			0.0242	0.0000	0.0016			0.0011						0.0006		0.0124			0.0003		0.0018		0.0013		0.0014		0.0000	0.0000	
2474	PFP 3.3P/3 Li			0.0242	0.0000	0.0016			0.0011						0.0006		0.0124			0.0003		0.0018		0.0013		0.0014		0.0000	0.0000	
2475	HTB651			0.0032																										
2476	HTB651			0.0032																										
2477	HTB651			0.0032																										
2478	HTB651Cr0.6			0.0060																										
2479	HTB651Cr0.8			0.0080																										
2480	HTB651P5			0.0031																										
2481	HTB651P7			0.0030																										
2482	HTB651P9			0.0030																										
2483	HTB651Ti1			0.0031																										
2484	HTB651Ti3			0.0031																										
2485	HTB651Ti5			0.0030																										
2486	HLW98-01	0.0013		0.0029	0.0014	0.0010			0.0010						0.0017		0.0080			0.0000		0.0000		0.0022		0.0000				
2487	HLW98-02	0.0013		0.0030	0.0014	0.0010			0.0010						0.0017		0.0083			0.0000		0.0000		0.0023		0.0000				
2488	HLW98-03	0.0009		0.0014	0.0024	0.0000			0.0005						0.0047		0.0038			0.0000		0.0047		0.0024		0.0000				
2489	HLW98-04	0.0009		0.0014	0.0024	0.0000			0.0005						0.0047		0.0038			0.0000		0.0047		0.0024		0.0000				
2490	HLW98-05	0.0009		0.0014	0.0023	0.0000			0.0005						0.0046		0.0038			0.0000		0.0046		0.0023		0.0000				
2491	HLW98-06	0.0000		0.0017	0.0017	0.0009			0.0009						0.0009		0.0035			0.0000		0.0000		0.0043		0.0000				
2492	HLW98-07	0.0000		0.0018	0.0018	0.0009			0.0009						0.0009		0.0036			0.0000		0.0000		0.0044		0.0000				
2493	HLW98-08	0.0000		0.0017	0.0063	0.0009			0.0009						0.0009		0.0036			0.0000		0.0044		0.0026		0.0000				
2494	HLW98-09	0.0000		0.0016	0.0032	0.0008			0.0008						0.0008		0.0033			0.0000		0.0040		0.0024		0.0000				
2495	HLW98-10	0.0000		0.0017	0.0059	0.0008			0.0008						0.0008		0.0033			0.0000		0.0041		0.0025		0.0000				
2496	HLW98-11	0.0000		0.0017	0.0062	0.0009			0.0009						0.0009		0.0035			0.0000		0.0043		0.0026		0.0000				
2497	HLW98-12	0.0000		0.0009	0.0048	0.0004			0.0005						0.0037		0.0032			0.0000		0.0000		0.0005		0.0000				
2498	HLW98-13	0.0000		0.0008	0.0042	0.0004			0.0005						0.0032		0.0029			0.0000		0.0000		0.0004		0.0000				
2499	HLW98-14	0.0000		0.0018	0.0078	0.0000			0.0000						0.0004		0.0034			0.0000		0.0000		0.0027		0.0000				
2500	HLW98-15	0.0000		0.0018	0.0078	0.0000			0.0000						0.0004		0.0034			0.0000		0.0000		0.0027		0.0000				
2501	HLW98-16	0.0000		0.0017	0.0061	0.0009			0.0009						0.0009		0.0035			0.0000		0.0043		0.0026		0.0000				
2502	HLW98-17	0.0000		0.0017	0.0060	0.0009			0.0009						0.0009		0.0034			0.0000		0.0042		0.0025		0.0000				
2503	HLW98-18	0.0000		0.0010	0.0044	0.0004			0.0006						0.0038		0.0033			0.0000		0.0000		0.0005		0.0000				
2504	HLW98-19	0.0000		0.0019	0.0082	0.0000			0.0000						0.0004		0.0036			0.0000		0.0000		0.0028		0.0000				
2505	HLW98-20	0.0000		0.0018	0.0038	0.0000			0.0000						0.0004		0.0035			0.0000		0.0000		0.0027		0.0000				
2506	HLW98-21	0.0000		0.0009	0.0039	0.0004			0.0005						0.0033		0.0029			0.0000		0.0000		0.0004		0.0000				
2507	HLW98-22	0.0000		0.0011	0.0023	0.0000			0.0000						0.0003		0.0021			0.0000		0.0000		0.0016		0.0000				
2508	HLW98-23	0.0000		0.0010	0.0021	0.0000			0.0000						0.0002		0.0019			0.0000		0.0000		0.0015		0.0000				
2509	HLW98-24	0.0000		0.0009	0.0039	0.0004			0.0005						0.0033		0.0029			0.0000		0.0000		0.0004		0.0000				
2510	HLW98-25	0.0000		0.0008	0.0038	0.0004			0.0005						0.0032		0.0157			0.0000		0.0000		0.0004		0.0000				
2511	HLW98-26	0.0000		0.0005	0.0008	0.0003			0.0004						0.0034		0.0222			0.0000		0.0000		0.0016		0.0000				
2512	HLW98-27B	0.0000		0.0005	0.0008	0.0003			0.0004						0.0034		0.0222			0.0000		0.0000		0.0016		0.0000				
2513	HLW98-28	0.0000		0.0005	0.0008	0.0003			0.0004						0.0034		0.0222			0.0000		0.0000		0.0016		0.0000				
2514	HLW98-29	0.0000		0.0005	0.0008	0.0003			0.0004						0.0034		0.0222			0.0000		0.0000		0.0016		0.0000				
2515	HLW98-30	0.0000		0.0005	0.0008	0.0003			0.0004						0.0034		0.0222			0.0000		0.0000		0.0016		0.0000				
2516	HLW98-31	0.0000		0.0004	0.0008	0.0003			0.0004						0.0032		0.0303			0.0000		0.0000		0.0015		0.0000				
2517	HLW98-32A	0.0000		0.0008	0.0009	0.0002			0.0001						0.0031		0.0141			0.0000		0.0000		0.0007		0.0000				
2518	HLW98-33	0.0000		0.0015	0.0009	0.0000			0.0003						0.0010		0.0664			0.0000		0.0000		0.0020		0.0000				
2519	HLW98-35	0.0000		0.0008	0.0010	0.0002			0.0002						0.0034		0.0153			0.0000		0.0000		0.0008		0.0000				
2520	HLW98-36	0.0005		0.0014	0.0000	0.0000			0.0001						0.0000		0.0059			0.0000		0.0000		0.0005		0.0000				
2521	HLW98-37	0.0007		0.0011	0.0011	0.0000			0.0000						0.0001		0.0244			0.0000		0.0000		0.0008		0.0000				
2522	HLW98-38	0.0000		0.0019	0.0000	0.0004			0.0000						0.0003		0.0363			0.0000		0.0007		0.0022		0.0000				
2523	HLW98-39	0.0000		0.0021	0.0000	0.0004			0.0000						0.0003		0.0400			0.0000		0.0009		0.0024		0.0002				
2524	HLW98-40	0.0000		0.0008	0.0010	0.0002			0.0002						0.0033		0.0151			0.0000		0.0000		0.0007		0.0000				
2525	HLW98-41	0.0000		0.0020	0.0000	0.0004			0.0000						0.0003		0.0371			0.0000		0.0008		0.0022		0.0002				
2526	HLW98-42	0.0000		0.0008	0.0009	0.0002			0.0002						0.0032		0.0146			0.0000		0.0000		0.0007		0.0000				
2527	HLW98-43	0.0000		0.0019	0.0000	0.0004			0.0000						0.0003		0.0351			0.0000		0.0008		0.0021		0.0002				
2528	HLW98-44	0.0000		0.0019	0.0000	0.0004			0.0000						0.0003		0.0351			0.0000		0.0008		0.0021		0.0002				
2529	HLW98-45	0.0000		0.0018	0.0000	0.0003			0.0000						0.0003		0.0339			0.0000		0.0008		0.0020		0.0002				
2530	HLW98-46	0.0000		0.0017	0.0000	0.0003			0.0000						0.0002		0.0324			0.0000		0.0007		0.0019		0.0001				
2531	HLW98-47	0.0000		0.0017	0.0000	0.0003			0.0000						0.0002		0.0310			0.0000		0.0007		0.0019		0.0001				
2532	HLW98-48	0.0000		0.0014	0.0000	0.0003			0.0000						0.0002		0.0269			0.0000		0.0006		0.0016		0.0001				
2533	HLW98-49	0.0000		0.0014	0.0000	0.0003			0.0000						0.0002		0.0257			0.0000		0.0006		0.0016		0.0001				
2534	HLW98-50	0.0000		0.0010	0.0000	0.0002			0.0000						0.0001		0.0091			0.0000		0.0004		0.0011		0.0000				
2535	HLW98-51R	0.0000		0.0014	0.0000	0.0003			0.0000						0.0002		0.0257			0.0000		0.0006		0.0016		0.0001				
2536	HLW98-52	0.0000		0.0008	0.0009	0.0002			0.0002						0.0032		0.0146			0.0000		0.0000		0.0007		0.0000				
2537	HLW98-53A	0.0000		0.0008	0.0010	0.0002			0.0002						0.0033		0.0149			0.0000		0.0000		0.0007		0.0000				
2538	HLW98-54	0.0000		0.0008	0.0009	0.0002			0.0002						0.0032		0.0146			0.0000		0.0000		0.0007		0.0000				
2539	HLW98-55	0.0000		0.0008	0.0009	0.0002			0.0002						0.0032		0.0146			0.0000		0.0000		0.0007		0.0000				
2540	HLW98-56	0.0000		0.0009	0.0000	0.0000			0.0001						0.0031		0.0026			0.0000		0.0001		0.0000		0.0000				
2541	HLW98-57	0.0001		0.0012	0.0000	0.0000			0.0001						0.0031		0.0162			0.0000		0.0003		0.0005		0.0001				
2542	HLW98-58	0.0001		0.0011	0.0000	0.0000			0.0001						0.0031		0.0097			0.0000		0.0002		0.0003		0.0000				

#	Glass ID	ReO2-t	Re2O7-t	Rh2O3-t	RhO2-t	RuO2-t	Ru2O3-t	Sb2O3-t	Sb2O5-t	SeO2-t	Sm2O3-t	SnO-t	SnO2-t	SO3-t	SrO-t	Tc2O7-t	TeO2-t	ThO2-t	TiO2-t	Tl2O-t	Tl2O3-t	U3O8-t	UO2-t	UO3-t	V2O5-t	WO3-t	Y2O3-t	ZnO-t	Sum-t	Al2O3-a
2461	HTB725					0.0004								0.0026	0.0032											0.0013			0.9999	
2462	HTB750					0.0004								0.0027	0.0033											0.0014			0.9998	
2463	HTB775					0.0004								0.0028	0.0034											0.0014			0.9998	
2464	HTB800					0.0004								0.0029	0.0035											0.0015			0.9999	
2465	HTB825					0.0004								0.0030	0.0036											0.0015			1.0001	
2466	HTB850					0.0005								0.0031	0.0038											0.0016			1.0002	
2467	PFP-0P																												0.9389	
2468	PFP-3.3P			0.0006		0.0006				0.0033	0.0000			0.0070	0.0000				0.0003								0.0000		0.9999	
2469	PFP-5.3P			0.0006		0.0010				0.0032	0.0000			0.0069	0.0000				0.0003								0.0000		1.0002	
2470	PFP-7.3P			0.0006		0.0010				0.0031	0.0000			0.0067	0.0000				0.0003								0.0000		1.0001	
2471	PFP 5.3P/no Cr			0.0006		0.0010				0.0033	0.0000			0.0071	0.0000				0.0003								0.0000		1.0002	
2472	PFP 3.3P/no Cr			0.0006		0.0011				0.0033	0.0000			0.0072	0.0000				0.0003								0.0000		1.0003	
2473	PFP 3.3P/no Li			0.0006		0.0010				0.0033	0.0000			0.0070	0.0000				0.0003								0.0000		0.9998	
2474	PFP 3.3P/3 Li			0.0006		0.0010				0.0033	0.0000			0.0070	0.0000				0.0003								0.0000		0.9998	
2475	HTB651																		0.0000										0.8813	
2476	HTB651																		0.0000										0.8813	
2477	HTB651																		0.0000										0.8813	
2478	HTB651Cr0.6																		0.0000										0.8817	
2479	HTB651Cr0.8																		0.0000										0.8819	
2480	HTB651P5																		0.0000										0.8834	
2481	HTB651P7																		0.0000										0.8859	
2482	HTB651P9																		0.0000										0.8883	
2483	HTB651Ti1																		0.0100										0.8825	
2484	HTB651Ti3																		0.0300										0.8849	
2485	HTB651Ti5																		0.0500										0.8873	
2486	HLW98-01			0.0000		0.0000		0.0017		0.0019			0.0000	0.0043	0.0264		0.0013	0.0000	0.0013	0.0041			0.0000	0.0000			0.0195	1.0000	
2487	HLW98-02			0.0000		0.0000		0.0018		0.0020			0.0000	0.0044	0.0272		0.0013	0.0000	0.0013	0.0042			0.0000	0.0000			0.0202	1.0000	
2488	HLW98-03			0.0000		0.0000		0.0005		0.0005			0.0000	0.0024	0.0118		0.0005	0.0000	0.0005	0.0005			0.0000	0.0005			0.0200	1.0000	
2489	HLW98-04			0.0000		0.0000		0.0005		0.0005			0.0000	0.0024	0.0118		0.0005	0.0000	0.0005	0.0005			0.0000	0.0005			0.0200	1.0000	
2490	HLW98-05			0.0000		0.0000		0.0004		0.0005			0.0000	0.0023	0.0115		0.0005	0.0000	0.0005	0.0004			0.0000	0.0005			0.0200	1.0000	
2491	HLW98-06			0.0000		0.0000		0.0039		0.0026			0.0000	0.0021	0.0085		0.0013	0.0000	0.0013	0.0019			0.0000	0.0009			0.0200	0.9991	
2492	HLW98-07			0.0000		0.0000		0.0040		0.0026			0.0000	0.0022	0.0088		0.0013	0.0000	0.0013	0.0020			0.0000	0.0009			0.0200	0.9991	
2493	HLW98-08			0.0000		0.0000		0.0020		0.0026			0.0000	0.0022	0.0229		0.0014	0.0000	0.0013	0.0020			0.0000	0.0009			0.0200	0.9991	
2494	HLW98-09			0.0000		0.0000		0.0018		0.0024			0.0000	0.0020	0.0104		0.0012	0.0000	0.0012	0.0019			0.0000	0.0008			0.0200	0.9992	
2495	HLW98-10			0.0000		0.0000		0.0019		0.0025			0.0000	0.0021	0.0216		0.0012	0.0000	0.0012	0.0020			0.0000	0.0008			0.0200	0.9992	
2496	HLW98-11			0.0000		0.0000		0.0019		0.0026			0.0000	0.0021	0.0225		0.0013	0.0000	0.0013	0.0020			0.0000	0.0009			0.0200	0.9991	
2497	HLW98-12			0.0000		0.0000		0.0027		0.0021			0.0000	0.0038	0.0175		0.0020	0.0000	0.0009	0.0056			0.0053	0.0000			0.0200	1.0000	
2498	HLW98-13			0.0000		0.0000		0.0024		0.0019			0.0000	0.0033	0.0156		0.0018	0.0000	0.0008	0.0049			0.0047	0.0000			0.0200	1.0000	
2499	HLW98-14			0.0000		0.0000		0.0000		0.0000			0.0000	0.0013	0.0275		0.0000	0.0000	0.0000	0.0000			0.0000	0.0000			0.0200	1.0000	
2500	HLW98-15			0.0000		0.0000		0.0000		0.0000			0.0000	0.0013	0.0275		0.0000	0.0000	0.0000	0.0000			0.0000	0.0000			0.0200	1.0000	
2501	HLW98-16			0.0000		0.0000		0.0019		0.0025			0.0000	0.0021	0.0222		0.0013	0.0000	0.0013	0.0020			0.0000	0.0009			0.0200	0.9991	
2502	HLW98-17			0.0000		0.0000		0.0019		0.0025			0.0000	0.0021	0.0217		0.0013	0.0000	0.0013	0.0020			0.0000	0.0009			0.0200	0.9991	
2503	HLW98-18			0.0000		0.0000		0.0028		0.0022			0.0000	0.0039	0.0143		0.0021	0.0000	0.0009	0.0058			0.0000	0.0000			0.0200	1.0000	
2504	HLW98-19			0.0000		0.0000		0.0000		0.0000			0.0000	0.0014	0.0290		0.0000	0.0000	0.0000	0.0000			0.0000	0.0000			0.0200	1.0000	
2505	HLW98-20			0.0000		0.0000		0.0000		0.0000			0.0000	0.0014	0.0116		0.0000	0.0000	0.0000	0.0000			0.0000	0.0000			0.0200	1.0000	
2506	HLW98-21			0.0000		0.0000		0.0024		0.0019			0.0000	0.0034	0.0125		0.0018	0.0000	0.0008	0.0000			0.0000	0.0000			0.0200	1.0000	
2507	HLW98-22			0.0000		0.0000		0.0000		0.0000			0.0000	0.0008	0.1013		0.0000	0.0000	0.0000	0.0000			0.0000	0.0000			0.0200	1.0000	
2508	HLW98-23			0.0000		0.0000		0.0000		0.0000			0.0000	0.0007	0.0917		0.0000	0.0000	0.0000	0.0000			0.0000	0.0000			0.0200	1.0000	
2509	HLW98-24			0.0000		0.0000		0.0024		0.0019			0.0000	0.0034	0.0125		0.0018	0.0000	0.0008	0.0000			0.0000	0.0000			0.0200	1.0000	
2510	HLW98-25			0.0000		0.0000		0.0024		0.0019			0.0000	0.0033	0.0117		0.0018	0.0000	0.0008	0.0000			0.0000	0.0000			0.0201	1.0000	
2511	HLW98-26			0.0000		0.0000		0.0020		0.0015			0.0000	0.0026	0.0246		0.0015	0.0000	0.0007	0.0000			0.0000	0.0000			0.0201	1.0000	
2512	HLW98-27B			0.0000		0.0000		0.0020		0.0015			0.0000	0.0026	0.0246		0.0015	0.0000	0.0007	0.0000			0.0000	0.0000			0.0201	1.0000	
2513	HLW98-28			0.0000		0.0000		0.0020		0.0015			0.0000	0.0026	0.0246		0.0015	0.0000	0.0007	0.0000			0.0000	0.0000			0.0201	1.0000	
2514	HLW98-29			0.0000		0.0000		0.0020		0.0015			0.0000	0.0026	0.0246		0.0015	0.0000	0.0007	0.0000			0.0000	0.0000			0.0201	1.0000	
2515	HLW98-30			0.0000		0.0000		0.0020		0.0015			0.0000	0.0026	0.0246		0.0015	0.0000	0.0007	0.0000			0.0000	0.0000			0.0201	1.0000	
2516	HLW98-31			0.0000		0.0000		0.0019		0.0015			0.0000	0.0025	0.0232		0.0014	0.0000	0.0006	0.0000			0.0000	0.0000			0.0200	1.0000	
2517	HLW98-32A			0.0000		0.0000		0.0031		0.0006			0.0000	0.0002	0.0226		0.0002	0.0000	0.0000	0.0000			0.0000	0.0000			0.0200	1.0000	
2518	HLW98-33			0.0000		0.0000		0.0000		0.0000			0.0000	0.0003	0.1156		0.0000	0.0000	0.0004	0.0000			0.0000	0.0000			0.0200	1.0000	
2519	HLW98-35			0.0000		0.0000		0.0033		0.0007			0.0000	0.0003	0.0245		0.0002	0.0000	0.0000	0.0000			0.0000	0.0000			0.0200	1.0000	
2520	HLW98-36			0.0000		0.0000		0.0000		0.0000			0.0000	0.0001	0.0000		0.0000	0.0000	0.0000	0.0000			0.0263	0.0000			0.0200	1.0000	
2521	HLW98-37			0.0000		0.0000		0.0000		0.0000			0.0000	0.0000	0.0295		0.0000	0.0000	0.0000	0.0000			0.0334	0.0000			0.0200	1.0000	
2522	HLW98-38			0.0005		0.0002		0.0000		0.0000			0.0010	0.0000	0.0479		0.0000	0.0577	0.0002	0.0000			0.0540	0.0000			0.0199	1.0000	
2523	HLW98-39			0.0005		0.0003		0.0000		0.0000			0.0011	0.0000	0.0528		0.0000	0.0635	0.0003	0.0000			0.0593	0.0000			0.0100	1.0000	
2524	HLW98-40			0.0000		0.0000		0.0033		0.0006			0.0000	0.0003	0.0242		0.0002	0.0000	0.0000	0.0000			0.0095	0.0000			0.0200	1.0000	
2525	HLW98-41			0.0005		0.0002		0.0000		0.0000			0.0010	0.0000	0.0489		0.0000	0.0589	0.0002	0.0000			0.0550	0.0000			0.0199	1.0000	
2526	HLW98-42			0.0000		0.0000		0.0032		0.0006			0.0000	0.0003	0.0234		0.0002	0.0000	0.0000	0.0000			0.0092	0.0000			0.0200	1.0000	
2527	HLW98-43			0.0004		0.0002		0.0000		0.0000			0.0009	0.0000	0.0463		0.0000	0.0558	0.0002	0.0000			0.0522	0.0000			0.0199	1.0000	
2528	HLW98-44			0.0004		0.0002		0.0000		0.0000			0.0009	0.0000	0.0463		0.0000	0.0558	0.0002	0.0000			0.0522	0.0000			0.0199	1.0000	
2529	HLW98-45			0.0004		0.0002		0.0000		0.0000			0.0009	0.0000	0.0448		0.0000	0.0539	0.0002	0.0000			0.0504	0.0000			0.0199	1.0000	
2530	HLW98-46			0.0004		0.0002		0.0000		0.0000			0.0009	0.0000	0.0427		0.0000	0.0515	0.0002	0.0000			0.0481	0.0000			0.0199	1.0000	
2531	HLW98-47			0.0004		0.0002		0.0000		0.0000			0.0008	0.0000	0.0409		0.0000	0.0493	0.0002	0.0000			0.0461	0.0000			0.0199	1.0000	
2532	HLW98-48			0.0003		0.0002		0.0000		0.0000			0.0007	0.0000	0.0355		0.0000	0.0428	0.0002	0.0000			0.0401	0.0000			0.0200	1.0000	
2533	HLW98-49			0.0003		0.0002		0.0000		0.0000			0.0007	0.0000	0.0339		0.0000	0.0409	0.0002	0.0000			0.0383	0.0000			0.0200	1.0000	
2534	HLW98-50			0.0004		0.0002		0.0000		0.0000			0.0008	0.0000	0.0001		0.0000	0.0462	0.0002	0.0000			0.0431	0.0000			0.0200	1.0000	
2535	HLW98-51R			0.0003		0.0002		0.0000		0.0000			0.0007	0.0000	0.0339		0.0000	0.0409	0.0002	0.0000			0.0383	0.0000			0.0200	1.0000	
2536	HLW98-52			0.0000		0.0000		0.0032		0.0006			0.0000	0.0003	0.0234		0.0002	0.0000	0.0000	0.0000			0.0092	0.0000			0.0200	1.0000	
2537	HLW98-53A			0.0000		0.0000		0.0032		0.0006			0.0000	0.0003	0.0238		0.0002	0.0000	0.0000	0.0000			0.0000	0.0000			0.0200	1.0000	
2538	HLW98-54			0.0000		0.0000		0.0032		0.0006			0.0000	0.0003	0.0234		0.0002	0.0000	0.0000	0.0000			0.0092	0.0000			0.0200	1.0000	
2539	HLW98-55			0.0000		0.0000		0.0032		0.0006			0.0000	0.0003	0.0234		0.0002	0.0000	0.0000	0.0000			0.0000	0.0000			0.0002	1.0000	
2540	HLW98-56			0.0000		0.0000		0.0000		0.0000			0.0000	0.0002	0.0000		0.0000	0.0000	0.0001	0.0000			0.0182	0.0000			0.0004	0.9999	
2541	HLW98-57			0.0000		0.0000		0.0000		0.0000			0.0000	0.0003	0.0262		0.0000	0.0001	0.0001	0.0000			0.0178	0.0000			0.0005	0.9999	
2542	HLW98-58			0.0000		0.0000		0.0000		0.0000			0.0000	0.0003	0.0136		0.0000	0.0001	0.0001	0.0000			0.0184	0.0000			0.0005	0.9999	

#	Glass ID	B2O3-a	CaO-a	Fe2O3-a	FeO-a	K2O-a	Li2O-a	MgO-a	Na2O-a	NiO-a	P2O5-a	SiO2-a	ZrO2-a	Ag2O-a	As2O3-a	As2O5-a	BaO-a	BeO-a	Bi2O3-a	Br-a	CdO-a	Ce2O3-a	CeO2-a	Cl-a	CoO-a	Co2O3-a	Cr2O3-a	Cs2O-a	CuO-a	F-a
2461	HTB725																													
2462	HTB750																													
2463	HTB775																													
2464	HTB800																													
2465	HTB825																													
2466	HTB850																													
2467	PFP-0P																													
2468	PFP-3.3P																													
2469	PFP-5.3P																													
2470	PFP-7.3P																													
2471	PFP 5.3P/no Cr																													
2472	PFP 3.3P/no Cr																													
2473	PFP 3.3P/no Li																													
2474	PFP 3.3P/3 Li																													
2475	HTB651																													
2476	HTB651																													
2477	HTB651																													
2478	HTB651Cr0.6																													
2479	HTB651Cr0.8																													
2480	HTB651P5																													
2481	HTB651P7																													
2482	HTB651P9																													
2483	HTB651Ti1																													
2484	HTB651Ti3																													
2485	HTB651Ti5																													
2486	HLW98-01																													
2487	HLW98-02																													
2488	HLW98-03																													
2489	HLW98-04																													
2490	HLW98-05																													
2491	HLW98-06																													
2492	HLW98-07																													
2493	HLW98-08																													
2494	HLW98-09																													
2495	HLW98-10																													
2496	HLW98-11																													
2497	HLW98-12																													
2498	HLW98-13																													
2499	HLW98-14																													
2500	HLW98-15																													
2501	HLW98-16																													
2502	HLW98-17																													
2503	HLW98-18																													
2504	HLW98-19																													
2505	HLW98-20																													
2506	HLW98-21																													
2507	HLW98-22																													
2508	HLW98-23																													
2509	HLW98-24																													
2510	HLW98-25																													
2511	HLW98-26																													
2512	HLW98-27B																													
2513	HLW98-28																													
2514	HLW98-29																													
2515	HLW98-30																													
2516	HLW98-31																													
2517	HLW98-32A																													
2518	HLW98-33																													
2519	HLW98-35																													
2520	HLW98-36																													
2521	HLW98-37																													
2522	HLW98-38																													
2523	HLW98-39																													
2524	HLW98-40																													
2525	HLW98-41																													
2526	HLW98-42																													
2527	HLW98-43																													
2528	HLW98-44																													
2529	HLW98-45																													
2530	HLW98-46																													
2531	HLW98-47																													
2532	HLW98-48																													
2533	HLW98-49																													
2534	HLW98-50																													
2535	HLW98-51R																													
2536	HLW98-52																													
2537	HLW98-53A																													
2538	HLW98-54																													
2539	HLW98-55																													
2540	HLW98-56																													
2541	HLW98-57																													
2542	HLW98-58																													

#	Glass ID	Ga2O3-a	Gd2O3-a	I-a	La2O3-a	MnO2-a	MnO-a	MoO-a	MoO3-a	Nb2O5-a	Nd2O3-a	NpO2-a	PbO-a	PdO2-a	PdO-a	Pr2O3-a	Pr6O11-a	PuO2-a	Rb2O-a	ReO-a	ReO2-a	Re2O7-a	Rh2O3-a	RhO2-a	RuO2-a	Sb2O3-a	Sb2O5-a	SeO2-a
2461	HTB725																											
2462	HTB750																											
2463	HTB775																											
2464	HTB800																											
2465	HTB825																											
2466	HTB850																											
2467	PFP-0P																											
2468	PFP-3.3P																											
2469	PFP-5.3P																											
2470	PFP-7.3P																											
2471	PFP 5.3P/no Cr																											
2472	PFP 3.3P/no Cr																											
2473	PFP 3.3P/no Li																											
2474	PFP 3.3P/3 Li																											
2475	HTB651																											
2476	HTB651																											
2477	HTB651																											
2478	HTB651Cr0.6																											
2479	HTB651Cr0.8																											
2480	HTB651P5																											
2481	HTB651P7																											
2482	HTB651P9																											
2483	HTB651Ti1																											
2484	HTB651Ti3																											
2485	HTB651Ti5																											
2486	HLW98-01																											
2487	HLW98-02																											
2488	HLW98-03																											
2489	HLW98-04																											
2490	HLW98-05																											
2491	HLW98-06																											
2492	HLW98-07																											
2493	HLW98-08																											
2494	HLW98-09																											
2495	HLW98-10																											
2496	HLW98-11																											
2497	HLW98-12																											
2498	HLW98-13																											
2499	HLW98-14																											
2500	HLW98-15																											
2501	HLW98-16																											
2502	HLW98-17																											
2503	HLW98-18																											
2504	HLW98-19																											
2505	HLW98-20																											
2506	HLW98-21																											
2507	HLW98-22																											
2508	HLW98-23																											
2509	HLW98-24																											
2510	HLW98-25																											
2511	HLW98-26																											
2512	HLW98-27B																											
2513	HLW98-28																											
2514	HLW98-29																											
2515	HLW98-30																											
2516	HLW98-31																											
2517	HLW98-32A																											
2518	HLW98-33																											
2519	HLW98-35																											
2520	HLW98-36																											
2521	HLW98-37																											
2522	HLW98-38																											
2523	HLW98-39																											
2524	HLW98-40																											
2525	HLW98-41																											
2526	HLW98-42																											
2527	HLW98-43																											
2528	HLW98-44																											
2529	HLW98-45																											
2530	HLW98-46																											
2531	HLW98-47																											
2532	HLW98-48																											
2533	HLW98-49																											
2534	HLW98-50																											
2535	HLW98-51R																											
2536	HLW98-52																											
2537	HLW98-53A																											
2538	HLW98-54																											
2539	HLW98-55																											
2540	HLW98-56																											
2541	HLW98-57																											
2542	HLW98-58																											

#	Glass ID	Sm2O3-a	SnO-a	SnO2-a	SO3-a	SrO-a	Tc2O7-a	TeO2-a	ThO2-a	TiO2-a	Tl2O-a	Tl2O3-a	U3O8-a	UO2-a	UO3-a	V2O5-a	WO3-a	Y2O3-a	ZnO-a	Sum-a	T_M (°C)	$T_{L,G}$ (°C)	$T_{L,U}$ (°C)	$T_{1\%}$ (°C)	Primary Phase	$C_{650°C}$	$C_{700°C}$	$C_{750°C}$
2461	HTB725																			0.0000	1350							
2462	HTB750																			0.0000	1215							
2463	HTB775																			0.0000	1350							
2464	HTB800																			0.0000	1250							
2465	HTB825																			0.0000	1350							
2466	HTB850																			0.0000	1300							
2467	PFP-0P																			0.0000	1150							
2468	PFP-3.3P																			0.0000	1150							
2469	PFP-5.3P																			0.0000	1250							
2470	PFP-7.3P																			0.0000	1250							
2471	PFP 5.3P/no Cr																			0.0000	1150							
2472	PFP 3.3P/no Cr																			0.0000	1144							
2473	PFP 3.3P/no Li																			0.0000	1130							
2474	PFP 3.3P/3 Li																			0.0000	1150							
2475	HTB651																			0.0000								
2476	HTB651																			0.0000								
2477	HTB651																			0.0000								
2478	HTB651Cr0.6																			0.0000								
2479	HTB651Cr0.8																			0.0000								
2480	HTB651P5																			0.0000								
2481	HTB651P7																			0.0000								
2482	HTB651P9																			0.0000								
2483	HTB651Ti1																			0.0000								
2484	HTB651Ti3																			0.0000								
2485	HTB651Ti5																			0.0000								
2486	HLW98-01																			0.0000			> 1050					
2487	HLW98-02																			0.0000			> 1050					
2488	HLW98-03																			0.0000			< 1050					
2489	HLW98-04																			0.0000			> 1050					
2490	HLW98-05																			0.0000			> 1050					
2491	HLW98-06																			0.0000			< 1050					
2492	HLW98-07																			0.0000			> 1050					
2493	HLW98-08																			0.0000			< 1050					
2494	HLW98-09																			0.0000			< 1050					
2495	HLW98-10																			0.0000			~ 950					
2496	HLW98-11																			0.0000			~ 950					
2497	HLW98-12																			0.0000			< 950					
2498	HLW98-13																			0.0000								
2499	HLW98-14																			0.0000			< 950					
2500	HLW98-15																			0.0000			< 950					
2501	HLW98-16																			0.0000			< 950					
2502	HLW98-17																			0.0000			< 950					
2503	HLW98-18																			0.0000			> 950					
2504	HLW98-19																			0.0000			< 950					
2505	HLW98-20																			0.0000			< 950					
2506	HLW98-21																			0.0000			< 950					
2507	HLW98-22																			0.0000			< 950					
2508	HLW98-23																			0.0000			< 950					
2509	HLW98-24																			0.0000			< 950					
2510	HLW98-25																			0.0000			< 950					
2511	HLW98-26																			0.0000			> 950					
2512	HLW98-27B																			0.0000			> 950					
2513	HLW98-28																			0.0000			> 950					
2514	HLW98-29																			0.0000			> 950					
2515	HLW98-30																			0.0000			< 950					
2516	HLW98-31																			0.0000			< 950					
2517	HLW98-32A																			0.0000			> 950					
2518	HLW98-33																			0.0000			> 950					
2519	HLW98-35																			0.0000								
2520	HLW98-36																			0.0000			< 950					
2521	HLW98-37																			0.0000			> 950					
2522	HLW98-38																			0.0000			> 950					
2523	HLW98-39																			0.0000			> 950					
2524	HLW98-40																			0.0000								
2525	HLW98-41																			0.0000			> 950					
2526	HLW98-42																			0.0000			< 950					
2527	HLW98-43																			0.0000			> 950					
2528	HLW98-44																			0.0000			> 950					
2529	HLW98-45																			0.0000			> 950					
2530	HLW98-46																			0.0000			< 950					
2531	HLW98-47																			0.0000			< 950					
2532	HLW98-48																			0.0000			< 950					
2533	HLW98-49																			0.0000			< 950					
2534	HLW98-50																			0.0000			< 950					
2535	HLW98-51R																			0.0000			< 950					
2536	HLW98-52																			0.0000			< 950					
2537	HLW98-53A																			0.0000			< 950					
2538	HLW98-54																			0.0000			< 950					
2539	HLW98-55																			0.0000								
2540	HLW98-56																			0.0000			< 950					
2541	HLW98-57																			0.0000			< 950					
2542	HLW98-58																			0.0000			< 950					

#	Glass ID	$C_{800°C}$	$C_{850°C}$	$C_{900°C}$	$C_{950°C}$	$C_{1000°C}$	$C_{1050°C}$	$C_{1100°C}$	$C_{1150°C}$	$C_{1200°C}$	Quenched Visual/OM	Quenched XRD	CCC XRD	ρ (g/cm³)	Fulc Visc A	Fulc Visc B	Fulc Visc To	Arrh Visc E	Arrh Visc F	T1 (°C)	V1 (Pa·s)
2461	HTB725										amorphous				-8.380	11662.2	23.2	-11.110	18930.2		
2462	HTB750														-8.500	11712.2	5.9	-11.130	18617.1		
2463	HTB775										undissolved Zr patches, Zr-Nd-Ce, many voids and cracks				-8.620	11762.1	-11.4	-11.140	18303.9		
2464	HTB800														-8.740	11812.1	-28.7	-11.150	17990.8		
2465	HTB825										lots of dendrites, undissolved Zr, Zr-Nd-Ce,unidentified agglomerates				-8.860	11862.1	-45.9	-11.170	17677.7		
2466	HTB850														-8.980	11912.0	-63.2	-11.180	17364.5		
2467	PFP-0P																				
2468	PFP-3.3P																				
2469	PFP-5.3P																				
2470	PFP-7.3P																				
2471	PFP 5.3P/no Cr																				
2472	PFP 3.3P/no Cr																				
2473	PFP 3.3P/no Li																				
2474	PFP 3.3P/3 Li																				
2475	HTB651																				
2476	HTB651																				
2477	HTB651																				
2478	HTB651Cr0.6																				
2479	HTB651Cr0.8																				
2480	HTB651P5																				
2481	HTB651P7																				
2482	HTB651P9																				
2483	HTB651Ti1																				
2484	HTB651Ti3																				
2485	HTB651Ti5																				
2486	HLW98-01																				
2487	HLW98-02																				
2488	HLW98-03																				
2489	HLW98-04																				
2490	HLW98-05																				
2491	HLW98-06																				
2492	HLW98-07																				
2493	HLW98-08																				
2494	HLW98-09																				
2495	HLW98-10																				
2496	HLW98-11																				
2497	HLW98-12																				
2498	HLW98-13																				
2499	HLW98-14																				
2500	HLW98-15																				
2501	HLW98-16																				
2502	HLW98-17																				
2503	HLW98-18																				
2504	HLW98-19																				
2505	HLW98-20																				
2506	HLW98-21																				
2507	HLW98-22																				
2508	HLW98-23																				
2509	HLW98-24																				
2510	HLW98-25																				
2511	HLW98-26																				
2512	HLW98-27B																				
2513	HLW98-28																				
2514	HLW98-29																				
2515	HLW98-30																				
2516	HLW98-31													2.750							
2517	HLW98-32A																				
2518	HLW98-33																				
2519	HLW98-35																				
2520	HLW98-36																				
2521	HLW98-37																				
2522	HLW98-38																				
2523	HLW98-39																				
2524	HLW98-40																				
2525	HLW98-41																				
2526	HLW98-42																				
2527	HLW98-43																				
2528	HLW98-44																				
2529	HLW98-45																				
2530	HLW98-46																				
2531	HLW98-47																				
2532	HLW98-48																				
2533	HLW98-49																				
2534	HLW98-50																				
2535	HLW98-51R													2.888							
2536	HLW98-52																				
2537	HLW98-53A													2.770							
2538	HLW98-54																				
2539	HLW98-55																				
2540	HLW98-56													2.690							
2541	HLW98-57													2.790							
2542	HLW98-58																				

#	Glass ID	T2 (°C)	V2 (Pa·s)	T3 (°C)	V3 (Pa·s)	T4 (°C)	V4 (Pa·s)	T5 (°C)	V5 (Pa·s)	T6 (°C)	V6 (Pa·s)	T7 (°C)	V7 (Pa·s)	T8 (°C)	V8 (Pa·s)	T9 (°C)	V9 (Pa·s)	T10 (°C)	V10 (Pa·s)	TCLP Ag	TCLP As	TCLP Ba	TCLP Cd	TCLP Cr	TCLP Ni	TCLP Pb
2461	HTB725																									
2462	HTB750																									
2463	HTB775																									
2464	HTB800																									
2465	HTB825																									
2466	HTB850																									
2467	PFP-0P																									
2468	PFP-3.3P																									
2469	PFP-5.3P																									
2470	PFP-7.3P																									
2471	PFP 5.3P/no Cr																									
2472	PFP 3.3P/no Cr																									
2473	PFP 3.3P/no Li																									
2474	PFP 3.3P/3 Li																									
2475	HTB651																									
2476	HTB651																									
2477	HTB651																									
2478	HTB651Cr0.6																									
2479	HTB651Cr0.8																									
2480	HTB651P5																									
2481	HTB651P7																									
2482	HTB651P9																									
2483	HTB651Ti1																									
2484	HTB651Ti3																									
2485	HTB651Ti5																									
2486	HLW98-01																			0.071	0.05	0.285	0.318	0.025	0.136	0.121
2487	HLW98-02																			0.098	0.07	0.317	0.365	0.023	0.17	0.137
2488	HLW98-03																			0.015	0.05	0.091	0.064	0.014	0.052	0.089
2489	HLW98-04																			0.013	0.05	0.097	0.067	0.019	0.05	0.087
2490	HLW98-05																			0.015	0.05	0.082	0.116	0.012	0.04	0.09
2491	HLW98-06																			0.014	0.05	0.112	0.072	0.01	0.07	0.08
2492	HLW98-07																			0.017	0.05	0.098	0.06	<0.006	0.04	0.08
2493	HLW98-08																			0.03	0.05	0.13	0.08	0.01	0.08	0.07
2494	HLW98-09																			0.02	0.05	0.22	0.07	<0.01	0.06	0.06
2495	HLW98-10																									
2496	HLW98-11																									
2497	HLW98-12																			0.02	0.05	0.03	0.11	0.01	0.06	<0.03
2498	HLW98-13																			0	0	0	0.179	0.01	0	0
2499	HLW98-14																			0.037	0.075	0.303	0.05	0.02	0.05	0.11
2500	HLW98-15																			0.029	0.08	0.224	0.03	0.01	0.03	0.1
2501	HLW98-16																									
2502	HLW98-17																									
2503	HLW98-18																			0	0	0	0.076	0.011	0	0
2504	HLW98-19																			0.023	0.05	0.228	0.01	0.01	0.015	0.08
2505	HLW98-20																			<0.004	0.05	0.208	0.009	0.008	0.032	0.09
2506	HLW98-21																			<0.003	0.05	0.022	0.058	<0.006	0.04	0.036
2507	HLW98-22																			<0.003	0.05	0.2	0.008	0.01	0.04	0.065
2508	HLW98-23																			<0.003	0.05	0.16	0.004	<0.006	0.01	0.057
2509	HLW98-24																			<0.003	0.05	0.027	0.071	<0.006	0.046	<0.03
2510	HLW98-25																			0.014	0.05	0.039	0.091	0.009	0.06	<0.03
2511	HLW98-26																			0.01	0.05	0.02	0.06	<0.006	0.06	0.04
2512	HLW98-27B																			<.0031	0.05	0.04	0.09	0.03	0.11	0.06
2513	HLW98-28																			<.0031	0.05	0.03	0.08	0.02	0.09	0.07
2514	HLW98-29																			0	0.05	0.03	0.08	0.01	0.1	0.04
2515	HLW98-30																			0.01	0.06	0.16	0.15	0.01	0.15	0.03
2516	HLW98-31																			<0.0031	0.05	0.03	0.07	0.02	0.09	0.03
2517	HLW98-32A																			<0.0031	0.061	0.097	0.172	<0.0055	0.088	0.026
2518	HLW98-33																			0.07	0.05	0.118	0.014	0.007	0.034	0.203
2519	HLW98-35																									
2520	HLW98-36																									
2521	HLW98-37																									
2522	HLW98-38																									
2523	HLW98-39																									
2524	HLW98-40																									
2525	HLW98-41																			0.02	0.05	0.126	0.082	0.024	0.291	0.162
2526	HLW98-42																			0.02		0.09	0.484	0.011	0.179	0.635
2527	HLW98-43																			0.06		0.122	0.077	0.017	0.213	0.242
2528	HLW98-44																			0.065		0.106	0.072	0.013	0.201	0.249
2529	HLW98-45																									
2530	HLW98-46																									
2531	HLW98-47																			0.061		0.106	0.066	0.011	0.183	0.232
2532	HLW98-48																									
2533	HLW98-49																									
2534	HLW98-50																									
2535	HLW98-51R																			0.025	0.05	0.038	0.029	0.02	0.247	0.101
2536	HLW98-52																									
2537	HLW98-53A																									
2538	HLW98-54																			0.014	0.05	0.041	0.203	0.014	0.187	0.06
2539	HLW98-55																									
2540	HLW98-56																									
2541	HLW98-57																									
2542	HLW98-58																			<0.0031	0.05	0.465	0.268	<0.0055	0.11	0.081

#	Glass ID	TCLP Se	TCLP Zn	TCLP Al	TCLP B	TCLP Sb	TCLP Tl	TCLP V	Q PCT B (g/m²)	Q PCT Li (g/m²)	Q PCT Na (g/m²)	Q PCT Si (g/m²)	Q PCT pH	CCC PCT B (g/m²)	CCC PCT Li (g/m²)	CCC PCT Na (g/m²)	CCC PCT Si (g/m²)	CCC PCT pH	T1 (°C)
2461	HTB725								0.431		0.607	0.208	11.620	1.889		1.904	0.518	12.010	
2462	HTB750								1.286		0.914	0.267	11.730	2.438		4.288	0.736	12.340	
2463	HTB775								0.622		1.031	0.259	11.860	1.876		4.792	0.522	12.280	
2464	HTB800								0.670		1.828	0.520	12.110	32.288		14.041	1.288	12.870	
2465	HTB825								4.559		3.900	0.719	12.400	22.253		13.356	1.146	12.780	
2466	HTB850								0.000		13.410	1.240	12.850	12.494		13.524	1.497	12.950	
2467	PFP-0P								0.278	0.350	0.051	0.202	9.910	0.687	0.639	0.183	0.227	9.990	
2468	PFP-3.3P								0.240	0.331	0.024	0.189	9.660	1.160	0.931	0.192	0.220	9.760	
2469	PFP-5.3P								0.223	0.310	0.021	0.175	9.570	0.679	0.632	0.090	0.218	9.630	
2470	PFP-7.3P								0.221	0.332	0.021	0.172	9.330	2.022	1.009	0.092	0.180	9.490	
2471	PFP 5.3P/no Cr																		
2472	PFP 3.3P/no Cr																		
2473	PFP 3.3P/no Li																		
2474	PFP 3.3P/3 Li																		
2475	HTB651										0.485	0.150							
2476	HTB651										0.485	0.150							
2477	HTB651										0.485	0.150							
2478	HTB651Cr0.6										0.480	0.150							
2479	HTB651Cr0.8										0.515	0.160							
2480	HTB651P5										0.405	0.160							
2481	HTB651P7										0.290	0.140							
2482	HTB651P9										0.265	0.140							
2483	HTB651Ti1										0.460	0.150							
2484	HTB651Ti3										0.440	0.150							
2485	HTB651Ti5										0.435	0.150							
2486	HLW98-01	0.0532				<0.04	0.068												
2487	HLW98-02	0.0532				<0.04	0.083		0.024	0.024	0.026	0.008							
2488	HLW98-03	0.0532				<0.04	<0.05												
2489	HLW98-04	0.0532				<0.04	<0.05		0.015		0.017	0.006							
2490	HLW98-05	0.0532				<0.04	<0.05												
2491	HLW98-06	0.0532				<0.04	<0.05												
2492	HLW98-07	0.0532				<0.04	<0.05												
2493	HLW98-08	0.0532				<0.04	<0.05												
2494	HLW98-09	0.0532				<0.04	<0.05												
2495	HLW98-10																		
2496	HLW98-11																		
2497	HLW98-12	0.0532				0.04	0.067		0.020	0.022	0.011	0.010							
2498	HLW98-13					0	0												
2499	HLW98-14	0.0532				<0.04	<0.05												
2500	HLW98-15	0.0532				0.05	<0.05												
2501	HLW98-16																		
2502	HLW98-17																		
2503	HLW98-18					0	0												
2504	HLW98-19	0.0532				<0.04	<0.002												
2505	HLW98-20	0.0532				<0.04	<0.05		0.021	0.016	0.018	0.010							
2506	HLW98-21	0.0532				0.04	<0.05		0.020	0.021	0.010	0.012							
2507	HLW98-22	0.0532				<0.04	<0.05		0.015	0.017	0.015	0.007							
2508	HLW98-23	0.0532				<0.04	<0.05		0.016	0.017	0.015	0.008							
2509	HLW98-24	0.0532				<0.04	<0.05												
2510	HLW98-25	0.0532				0.04	<0.05												
2511	HLW98-26	0.0532				0.07	<0.05												
2512	HLW98-27B	0.0532				<.0338	<.0417		0.026	0.024	0.030	0.016							
2513	HLW98-28	0.0532				<.0338	<.0417												
2514	HLW98-29	0.0532				<.0338	<.0417												
2515	HLW98-30	0.0532				<0.0338	<0.0417												
2516	HLW98-31	0.09				<0.0338	<0.0417		0.026	0.019	0.013	0.011							
2517	HLW98-32A	0.0532				<0.0338	<0.0417		0.017	0.015	0.005	0.011							
2518	HLW98-33	0.0532				<0.0338	<0.0417												
2519	HLW98-35																		
2520	HLW98-36																		
2521	HLW98-37																		
2522	HLW98-38																		
2523	HLW98-39																		
2524	HLW98-40																		
2525	HLW98-41	0.0532				0.188	0.043												
2526	HLW98-42					<0.0338													
2527	HLW98-43					<0.0338													
2528	HLW98-44					<0.0338													
2529	HLW98-45																		
2530	HLW98-46																		
2531	HLW98-47					<0.0338			0.126	0.091	0.078	0.032							
2532	HLW98-48																		
2533	HLW98-49																		
2534	HLW98-50																		
2535	HLW98-51R	0.068				0.282	0.089		0.097	0.077	0.065	0.029							
2536	HLW98-52																		
2537	HLW98-53A								0.030	0.029	0.025	0.016							
2538	HLW98-54	0.062				0.0338	0.046												
2539	HLW98-55																		
2540	HLW98-56								0.050	0.032	0.033	0.019							
2541	HLW98-57																		
2542	HLW98-58	0.0532							0.034	0.039	0.048	0.024							

#	Glass ID	EC1 (S/cm)	T2 (°C)	EC2 (S/cm)	T3 (°C)	EC3 (S/cm)	T4 (°C)	EC4 (S/cm)	T5 (°C)	EC5 (S/cm)	T6 (°C)	EC6 (S/cm)	A	B	To
2461	HTB725														
2462	HTB750														
2463	HTB775														
2464	HTB800														
2465	HTB825														
2466	HTB850														
2467	PFP-0P														
2468	PFP-3.3P														
2469	PFP-5.3P														
2470	PFP-7.3P														
2471	PFP 5.3P/no Cr														
2472	PFP 3.3P/no Cr														
2473	PFP 3.3P/no Li														
2474	PFP 3.3P/3 Li														
2475	HTB651														
2476	HTB651														
2477	HTB651														
2478	HTB651Cr0.6														
2479	HTB651Cr0.8														
2480	HTB651P5														
2481	HTB651P7														
2482	HTB651P9														
2483	HTB651Ti1														
2484	HTB651Ti3														
2485	HTB651Ti5														
2486	HLW98-01														
2487	HLW98-02														
2488	HLW98-03														
2489	HLW98-04														
2490	HLW98-05														
2491	HLW98-06														
2492	HLW98-07														
2493	HLW98-08														
2494	HLW98-09														
2495	HLW98-10														
2496	HLW98-11														
2497	HLW98-12														
2498	HLW98-13														
2499	HLW98-14														
2500	HLW98-15														
2501	HLW98-16														
2502	HLW98-17														
2503	HLW98-18														
2504	HLW98-19														
2505	HLW98-20														
2506	HLW98-21														
2507	HLW98-22														
2508	HLW98-23														
2509	HLW98-24														
2510	HLW98-25														
2511	HLW98-26														
2512	HLW98-27B														
2513	HLW98-28														
2514	HLW98-29														
2515	HLW98-30														
2516	HLW98-31														
2517	HLW98-32A														
2518	HLW98-33														
2519	HLW98-35														
2520	HLW98-36														
2521	HLW98-37														
2522	HLW98-38														
2523	HLW98-39														
2524	HLW98-40														
2525	HLW98-41														
2526	HLW98-42														
2527	HLW98-43														
2528	HLW98-44														
2529	HLW98-45														
2530	HLW98-46														
2531	HLW98-47														
2532	HLW98-48														
2533	HLW98-49														
2534	HLW98-50														
2535	HLW98-51R														
2536	HLW98-52														
2537	HLW98-53A														
2538	HLW98-54														
2539	HLW98-55														
2540	HLW98-56														
2541	HLW98-57														
2542	HLW98-58														

#	Glass ID	Study	Reference	Al2O3-t	B2O3-t	CaO-t	Fe2O3-t	FeO-t	K2O-t	Li2O-t	MgO-t	Na2O-t	NiO-t	P2O5-t	SiO2-t	ZrO2-t	Ag2O-t	As2O3-t	As2O5-t	BaO-t	BeO-t	Bi2O3-t	Br-t	CdO-t	Ce2O3-t	CeO2-t	Cl-t
2543	HLW98-59	BNFL HLW98	Fu and Pegg 1998	0.0800	0.0400	0.0025	0.1156		0.0006	0.0500	0.0007	0.1315	0.0070	0.0006	0.4776	0.0152	0.0004	0.0005		0.0003		0.0000		0.0082	0.0005		0.0002
2544	HLW98-60	BNFL HLW98	Fu and Pegg 1998	0.0760	0.0400	0.0059	0.1193		0.0003	0.0500	0.0012	0.1324	0.0077	0.0024	0.4762	0.0166	0.0002	0.0000		0.0004		0.0000		0.0137	0.0007		0.0005
2545	HLW98-62	BNFL HLW98	Fu and Pegg 1998	0.0967	0.1200	0.0231	0.0393		0.0008	0.0500	0.0003	0.0964	0.0025	0.0022	0.4255	0.0808	0.0000	0.0000		0.0000		0.0000		0.0006	0.0000		0.0002
2546	HLW98-63	BNFL HLW98	Fu and Pegg 1998	0.1185	0.0627	0.0079	0.1290		0.0003	0.0358	0.0024	0.1010	0.0017	0.0017	0.3783	0.0013	0.0026	0.0000		0.0007		0.0000		0.0005	0.0003		0.0003
2547	HLW98-64	BNFL HLW98	Fu and Pegg 1998	0.0814	0.0956	0.0027	0.1143		0.0019	0.0574	0.0007	0.0639	0.0059	0.0014	0.4355	0.0392	0.0000	0.0005		0.0005		0.0000		0.0041	0.0009		0.0001
2548	C4A-03	Fernald	Gimpel 1996	0.0589	0.1289	0.0508	0.0398		0.0061	0.0152	0.0132	0.0568	0.0038	0.0063	0.4690	0.0009				0.0447							
2549	C4C-03	Fernald	Gimpel 1996	0.1235	0.1223	0.0943	0.0572		0.0135	0.0213	0.0718	0.0786	0.0037	0.0673	0.3356					0.0003							
2550	C4C-08	Fernald	Gimpel 1996	0.1443	0.0600	0.0861	0.0770		0.0174	0.0188	0.0963	0.0527	0.0050	0.0895	0.3393					0.0003							
2551	C4D-04	Fernald	Gimpel 1996	0.0963	0.1496	0.0697	0.0533		0.0113	0.0020	0.0451	0.0666	0.0041	0.0348	0.3658	0.0010				0.0246							
2552	C4D-15	Fernald	Gimpel 1996	0.1513	0.1006	0.0770	0.0558		0.0110	0.0018	0.0503	0.0701	0.0040	0.0387	0.3656	0.0006				0.0245							
2553	C4D-01	Fernald	Gimpel 1996	0.1398	0.1004	0.1388	0.0433		0.0079	0.0108	0.0276	0.0709	0.0010	0.0246	0.3366					0.0266							
2554	S12-04 (C4A-03 mod.)	Fernald	Gimpel 1996	0.0615	0.1051	0.1331	0.0360		0.0058	0.0128	0.0123	0.0733	0.0056	0.0056	0.4338					0.0409							
2555	SB4-NEPH-01ccc	DWPF Nepheline -1	Peeler et al. 2005	0.1258	0.0468	0.0089	0.0844		0.0073	0.0460	0.0069	0.1709	0.0050	0.0000	0.4311	0.0009	0.0000			0.0004					0.0006		
2556	SB4-NEPH-02ccc	DWPF Nepheline -1	Peeler et al. 2005	0.1189	0.0457	0.0081	0.0791		0.0071	0.0466	0.0061	0.1746	0.0046	0.0000	0.4289	0.0008	0.0000			0.0004					0.0006		
2557	SB4-NEPH-03ccc	DWPF Nepheline -1	Peeler et al. 2005	0.0858	0.0475	0.0085	0.0924		0.0043	0.0469	0.0067	0.1709	0.0122	0.0000	0.4327	0.0010	0.0000			0.0006					0.0006		
2558	SB4-NEPH-04ccc	DWPF Nepheline -1	Peeler et al. 2005	0.1279	0.0475	0.0087	0.0837		0.0077	0.0469	0.0068	0.1442	0.0049	0.0000	0.4610	0.0008	0.0000			0.0004					0.0006		
2559	SB4-NEPH-05ccc	DWPF Nepheline -1	Peeler et al. 2005	0.0922	0.0474	0.0090	0.0967		0.0048	0.0470	0.0071	0.1655	0.0130	0.0000	0.4343	0.0010	0.0000			0.0006					0.0007		
2560	SB4-NEPH-06ccc	DWPF Nepheline -1	Peeler et al. 2005	0.0855	0.0464	0.0074	0.0839		0.0048	0.0470	0.0039	0.1702	0.0192	0.0000	0.4327	0.0011	0.0000			0.0006					0.0006		
2561	SB4-NEPH-07ccc	DWPF Nepheline -1	Peeler et al. 2005	0.0934	0.0472	0.0074	0.0887		0.0049	0.0475	0.0044	0.1634	0.0205	0.0000	0.4364	0.0011	0.0000			0.0008					0.0006		
2562	SB4-NEPH-08ccc	DWPF Nepheline -1	Peeler et al. 2005	0.1201	0.0467	0.0082	0.0786		0.0072	0.0472	0.0062	0.1517	0.0048	0.0000	0.4589	0.0009	0.0000			0.0004					0.0006		
2563	SB4-NEPH-09ccc	DWPF Nepheline -1	Peeler et al. 2005	0.1123	0.0509	0.0076	0.0762		0.0067	0.0508	0.0058	0.1621	0.0044	0.0000	0.4712	0.0007	0.0000			0.0003					0.0005		
2564	SB4-NEPH-10ccc	DWPF Nepheline -1	Peeler et al. 2005	0.0826	0.0473	0.0086	0.0941		0.0038	0.0469	0.0072	0.1722	0.0125	0.0000	0.4327	0.0010	0.0000			0.0006					0.0007		
2565	SB4-NEPH-11ccc	DWPF Nepheline -1	Peeler et al. 2005	0.0889	0.0474	0.0089	0.0974		0.0038	0.0470	0.0082	0.1634	0.0131	0.0000	0.4359	0.0010	0.0000			0.0006					0.0006		
2566	SB4-NEPH-12ccc	DWPF Nepheline -1	Peeler et al. 2005	0.1043	0.0503	0.0073	0.0691		0.0060	0.0506	0.0056	0.1682	0.0041	0.0000	0.4632	0.0008	0.0000			0.0003					0.0006		
2567	NEPH2-13	DWPF Nepheline -2	Peeler et al. 2006	0.1021	0.0488	0.0078	0.0865		0.0055	0.0488	0.0055	0.1770	0.0119	0.0000	0.4496	0.0010	0.0000			0.0005					0.0007		
2568	NEPH2-14	DWPF Nepheline -2	Peeler et al. 2006	0.1100	0.0464	0.0084	0.0931		0.0059	0.0464	0.0059	0.1813	0.0128	0.0000	0.4288	0.0011	0.0000			0.0006					0.0008		
2569	NEPH2-15	DWPF Nepheline -2	Peeler et al. 2006	0.1047	0.0480	0.0080	0.0887		0.0056	0.0480	0.0056	0.1724	0.0122	0.0000	0.4487	0.0010	0.0000			0.0005					0.0008		
2570	NEPH2-16	DWPF Nepheline -2	Peeler et al. 2006	0.1126	0.0456	0.0086	0.0954		0.0060	0.0456	0.0060	0.1771	0.0131	0.0000	0.4276	0.0011	0.0000			0.0006					0.0008		
2571	NEPH2-17	DWPF Nepheline -2	Peeler et al. 2006	0.1178	0.0440	0.0090	0.0998		0.0063	0.0440	0.0063	0.1802	0.0138	0.0000	0.4136	0.0012	0.0000			0.0006					0.0008		
2572	NEPH2-18	DWPF Nepheline -2	Peeler et al. 2006	0.1073	0.0472	0.0082	0.0909		0.0057	0.0472	0.0058	0.1681	0.0125	0.0000	0.4476	0.0011	0.0000			0.0006					0.0008		
2573	NEPH2-19	DWPF Nepheline -2	Peeler et al. 2006	0.1152	0.0448	0.0088	0.0976		0.0062	0.0448	0.0062	0.1731	0.0135	0.0000	0.4262	0.0011	0.0000			0.0006					0.0008		
2574	NEPH2-20	DWPF Nepheline -2	Peeler et al. 2006	0.1230	0.0424	0.0094	0.1042		0.0066	0.0424	0.0066	0.1780	0.0144	0.0000	0.4048	0.0012	0.0000			0.0006					0.0009		
2575	NEPH2-21	DWPF Nepheline -2	Peeler et al. 2006	0.1100	0.0464	0.0084	0.0931		0.0059	0.0464	0.0059	0.1639	0.0128	0.0000	0.4462	0.0011	0.0000			0.0006					0.0008		
2576	NEPH2-22	DWPF Nepheline -2	Peeler et al. 2006	0.1204	0.0432	0.0092	0.1020		0.0064	0.0432	0.0065	0.1710	0.0141	0.0000	0.4173	0.0012	0.0000			0.0006					0.0009		
2577	NEPH2-23	DWPF Nepheline -2	Peeler et al. 2006	0.1283	0.0408	0.0098	0.1087		0.0069	0.0408	0.0069	0.1763	0.0150	0.0000	0.3956	0.0013	0.0000			0.0007					0.0009		
2578	NEPH2-24	DWPF Nepheline -2	Peeler et al. 2006	0.1126	0.0456	0.0086	0.0954		0.0060	0.0456	0.0060	0.1600	0.0131	0.0000	0.4447	0.0011	0.0000			0.0006					0.0008		
2579	NEPH2-25	DWPF Nepheline -2	Peeler et al. 2006	0.1230	0.0424	0.0094	0.1042		0.0066	0.0424	0.0066	0.1674	0.0144	0.0000	0.4154	0.0012	0.0000			0.0006					0.0009		
2580	NEPH2-26	DWPF Nepheline -2	Peeler et al. 2006	0.1335	0.0392	0.0102	0.1131		0.0071	0.0392	0.0072	0.1749	0.0156	0.0000	0.3861	0.0013	0.0000			0.0007					0.0010		
2581	NEPH2-27	DWPF Nepheline -2	Peeler et al. 2006	0.1164	0.0488	0.0075	0.0833		0.0067	0.0488	0.0042	0.1651	0.0136	0.0000	0.4499	0.0011	0.0000			0.0006					0.0008		
2582	NEPH2-28	DWPF Nepheline -2	Peeler et al. 2006	0.1313	0.0448	0.0085	0.0940		0.0076	0.0448	0.0047	0.1709	0.0153	0.0000	0.4152	0.0012	0.0000			0.0006					0.0009		
2583	NEPH2-29	DWPF Nepheline -2	Peeler et al. 2006	0.1463	0.0408	0.0094	0.1047		0.0084	0.0408	0.0052	0.1767	0.0171	0.0000	0.3806	0.0013	0.0000			0.0007					0.0010		
2584	NEPH2-30	DWPF Nepheline -2	Peeler et al. 2006	0.1194	0.0480	0.0077	0.0854		0.0069	0.0480	0.0043	0.1603	0.0139	0.0000	0.4489	0.0011	0.0000			0.0006					0.0008		
2585	NEPH2-31	DWPF Nepheline -2	Peeler et al. 2006	0.1313	0.0448	0.0085	0.0940		0.0076	0.0448	0.0047	0.1653	0.0153	0.0000	0.4208	0.0012	0.0000			0.0006					0.0009		
2586	NEPH2-32	DWPF Nepheline -2	Peeler et al. 2006	0.1433	0.0416	0.0092	0.1025		0.0082	0.0416	0.0051	0.1704	0.0167	0.0000	0.3927	0.0013	0.0000			0.0007					0.0009		
2587	NEPH2-33	DWPF Nepheline -2	Peeler et al. 2006	0.1224	0.0472	0.0079	0.0876		0.0070	0.0472	0.0044	0.1557	0.0143	0.0000	0.4478	0.0011	0.0000			0.0006					0.0008		
2588	NEPH2-34	DWPF Nepheline -2	Peeler et al. 2006	0.1343	0.0440	0.0087	0.0961		0.0077	0.0440	0.0048	0.1611	0.0157	0.0000	0.4193	0.0012	0.0000			0.0007					0.0009		
2589	NEPH2-35	DWPF Nepheline -2	Peeler et al. 2006	0.1433	0.0416	0.0092	0.1025		0.0082	0.0416	0.0051	0.1652	0.0167	0.0000	0.3979	0.0013	0.0000			0.0007					0.0009		
2590	NEPH2-36	DWPF Nepheline -2	Peeler et al. 2006	0.1254	0.0464	0.0081	0.0897		0.0072	0.0464	0.0045	0.1512	0.0146	0.0000	0.4465	0.0012	0.0000			0.0006					0.0008		
2591	NEPH2-37	DWPF Nepheline -2	Peeler et al. 2006	0.1343	0.0440	0.0087	0.0961		0.0077	0.0440	0.0048	0.1556	0.0157	0.0000	0.4248	0.0012	0.0000			0.0007					0.0009		
2592	NEPH2-38	DWPF Nepheline -2	Peeler et al. 2006	0.1403	0.0424	0.0090	0.1004		0.0081	0.0424	0.0050	0.1585	0.0164	0.0000	0.4104	0.0013	0.0000			0.0007					0.0009		
2593	NEPH2-39	DWPF Nepheline -2	Peeler et al. 2006	0.1284	0.0456	0.0083	0.0918		0.0074	0.0456	0.0046	0.1470	0.0150	0.0000	0.4450	0.0012	0.0000			0.0006					0.0008		
2594	NEPH2-40	DWPF Nepheline -2	Peeler et al. 2006	0.1373	0.0432	0.0088	0.0983		0.0079	0.0432	0.0049	0.1516	0.0160	0.0000	0.4230	0.0013	0.0000			0.0007					0.0009		
2595	NEPH3-41	DWPF Nepheline -3	Fox et al. 2006	0.0868	0.0520	0.0084	0.0930		0.0012	0.0520	0.0087	0.1293	0.0055	0.0000	0.5084	0.0008	0.0000			0.0004					0.0005		
2596	NEPH3-42	DWPF Nepheline -3	Fox et al. 2006	0.0992	0.0480	0.0096	0.1063		0.0014	0.0480	0.0100	0.1363	0.0063	0.0000	0.4725	0.0010	0.0000			0.0005					0.0006		
2597	NEPH3-43	DWPF Nepheline -3	Fox et al. 2006	0.1141	0.0432	0.0110	0.1222		0.0016	0.0432	0.0115	0.1448	0.0073	0.0000	0.4293	0.0011	0.0000			0.0006					0.0007		
2598	NEPH3-44	DWPF Nepheline -3	Fox et al. 2006	0.1240	0.0400	0.0119	0.1328		0.0017	0.0400	0.0125	0.1504	0.0079	0.0000	0.4006	0.0012	0.0000			0.0006					0.0008		
2599	NEPH3-45	DWPF Nepheline -3	Fox et al. 2006	0.0868	0.0585	0.0084	0.0930		0.0012	0.0650	0.0087	0.1098	0.0055	0.0000	0.5084	0.0008	0.0000			0.0004					0.0005		
2600	NEPH3-46	DWPF Nepheline -3	Fox et al. 2006	0.0992	0.0540	0.0096	0.1063		0.0014	0.0600	0.0100	0.1183	0.0063	0.0000	0.4725	0.0010	0.0000			0.0005					0.0006		
2601	NEPH3-47	DWPF Nepheline -3	Fox et al. 2006	0.1166	0.0477	0.0112	0.1249		0.0016	0.0530	0.0117	0.1303	0.0074	0.0000	0.4221	0.0011	0.0000			0.0006					0.0007		
2602	NEPH3-48	DWPF Nepheline -3	Fox et al. 2006	0.1265	0.0441	0.0122	0.1355		0.0018	0.0490	0.0127	0.1371	0.0080	0.0000	0.3934	0.0012	0.0000			0.0006					0.0008		
2603	NEPH3-49	DWPF Nepheline -3	Fox et al. 2006	0.0868	0.0520	0.0084	0.0930		0.0012	0.0520	0.0087	0.1423	0.0055	0.0000	0.4954	0.0008	0.0000			0.0004					0.0005		
2604	NEPH3-50	DWPF Nepheline -3	Fox et al. 2006	0.0992	0.0480	0.0096	0.1063		0.0014	0.0480	0.0100	0.1483	0.0063	0.0000	0.4605	0.0010	0.0000			0.0005					0.0006		
2605	NEPH3-51	DWPF Nepheline -3	Fox et al. 2006	0.1092	0.0448	0.0105	0.1169		0.0015	0.0448	0.0110	0.1532	0.0069	0.0000	0.4325	0.0010	0.0000			0.0006					0.0007		
2606	NEPH3-52	DWPF Nepheline -3	Fox et al. 2006	0.1191	0.0416	0.0115	0.1275		0.0017	0.0416	0.0120	0.1580	0.0076	0.0000	0.4045	0.0011	0.0000			0.0006					0.0007		
2607	NEPH3-53	DWPF Nepheline -3	Fox et al. 2006	0.0868	0.0520	0.0084	0.0930		0.0012	0.0715	0.0087	0.1098	0.0055	0.0000	0.5084	0.0008	0.0000			0.0004					0.0005		
2608	NEPH3-54	DWPF Nepheline -3	Fox et al. 2006	0.0992	0.0480	0.0096	0.1063		0.0014	0.0660	0.0100	0.1183	0.0063	0.0000	0.4725	0.0010	0.0000			0.0005					0.0006		
2609	NEPH3-55	DWPF Nepheline -3	Fox et al. 2006	0.1191	0.0416	0.0115	0.1275		0.0017	0.0572	0.0120	0.1320	0.0076	0.0000	0.4149	0.0011	0.0000			0.0006					0.0007		
2610	NEPH3-56	DWPF Nepheline -3	Fox et al. 2006	0.1265	0.0392	0.0122	0.1355		0.0018	0.0539	0.0127	0.1371	0.0080	0.0000	0.3934	0.0012	0.0000			0.0006					0.0008		
2611	HLW98-77	HLW Comparison Study	Kot et al. 2005a	0.0520	0.1191	0.0028	0.1222		0.0003	0.0353	0.0011	0.1166	0.0061	0.0000	0.4745	0.0381	0.0002	0.0000		0.0000		0.0000		0.0006	0.0000		0.0000
2612	HLW98-77R2	HLW Comparison Study	Kot et al. 2005a	0.0520	0.1191	0.0028	0.1222		0.0003	0.0353	0.0011	0.1166	0.0061	0.0000	0.4745	0.0381	0.0002	0.0000		0.0000		0.0000		0.0006	0.0000		0.0000
2613	HLW98-77CG	HLW Comparison Study	Kot et al. 2005a	0.0520	0.1191	0.0028	0.1222		0.0003	0.0353	0.0011	0.1166	0.0061	0.0000	0.4745	0.0381	0.0002	0.0000		0.0000		0.0000		0.0006	0.0000		0.0000
2614	HLW04-07RE39	HLW Comparison Study	Kot et al. 2005a	0.0488	0.1037	0.0046	0.1400		0.0001	0.0264	0.0014	0.1253	0.0041	0.0056	0.4745	0.0046	0.0019			0.0007					0.0001	0.0010	
2615	HLW04-07RE39CCC	HLW Comparison Study	Kot et al. 2005a	0.0488	0.1037	0.0046	0.1400		0.0001	0.0264	0.0014	0.1253	0.0041	0.0056	0.4745	0.0046	0.0019			0.0007					0.0001	0.0010	
2616	HLW04-07NRE9	HLW Comparison Study	Kot et al. 2005a	0.0488	0.1037	0.0046	0.1401		0.0001	0.0264	0.0014	0.1253	0.0041	0.0056	0.4747	0.0046	0.0005			0.0007					0.0001	0.0010	
2617	HLW04-07NRE9CCC	HLW Comparison Study	Kot et al. 2005a	0.0488	0.1037	0.0046	0.1401		0.0001	0.0264	0.0014	0.1253	0.0041	0.0056	0.4747	0.0046	0.0005			0.0007					0.0001	0.0010	
2618	A12-G-122A	HLW Comparison Study	Kot et al. 2005a	0.0519	0.1190	0.0028	0.1221		0.0003	0.0352	0.0011	0.1165	0.0061		0.4740	0.0380				0.0002				0.0006			
2619	BLF-G-87A	HLW Comparison Study	Kot et al. 2005a	0.0358	0.1081	0.0048	0.0954			0.0331		0.1149	0.0047	0.0004	0.4640	0.0943											
2620	HLW98-51AW	HLW Comparison Study	Kot et al. 2005a	0.0265	0.0923	0.0068	0.0455		0.0006	0.0566	0.0006	0.0908	0.0024	0.0037	0.4710	0.0425	0.0005			0.0002				0.0006	0.0008		
2621	HLW98-51AWCG	HLW Comparison Study	Kot et al. 2005a	0.0265	0.0923	0.0068	0.0455		0.0006	0.0566	0.0006	0.0908	0.0024	0.0037	0.4710	0.0425	0.0005			0.0002				0.0006	0.0008		
2622	HLW02-01	HLW02 Initial M	Piepel et al. 2008	0.0617	0.0993	0.0050	0.1090		0.0006	0.0400	0.0012	0.1096	0.0052	0.0050	0.4361	0.0297	0.0011		0.0012	0.0016		0.0001		0.0077	0.0005		0.0020
2623	HLW02-02	HLW02 Initial M	Piepel et al. 2008	0.0400	0.1400	0.0050	0.1400		0.0006	0.0600	0.0012	0.0400	0.0010	0.0050	0.5045	0.0000	0.0020		0.0023	0.0030		0.0001		0.0150	0.0005		0.0020
2624	HLW02-03	HLW02 Initial M	Piepel et al. 2008	0.0400	0.1400	0.0050	0.0800		0.0006	0.0200	0.0012	0.1500	0.0100	0.0050	0.3799	0.0600	0.0020		0.0023	0.0030		0.0001		0.0150	0.0005		0.0020

#	Glass ID	CoO-t	Co2O3-t	Cr2O3-t	Cs2O-t	CuO-t	Dy2O3-t	Eu2O3-t	F-t	Ga2O3-t	Gd2O3-t	HfO2-t	HgO-t	I-t	La2O3-t	MnO2-t	MnO-t	MoO-t	MoO2-t	MoO3-t	Nb2O5-t	Nd2O3-t	NpO2-t	PbO-t	PdO2-t	PdO-t	Pr2O3-t	Pr6O11-t	Rb2O-t	ReO-t
2543	HLW98-59	0.0000		0.0008	0.0009	0.0002			0.0002						0.0033		0.0147			0.0000		0.0000		0.0007		0.0000				
2544	HLW98-60	0.0001		0.0010	0.0000	0.0000			0.0001						0.0031		0.0061			0.0000		0.0002		0.0001		0.0000				
2545	HLW98-62	0.0005		0.0014	0.0007	0.0000			0.0002						0.0000		0.0171			0.0000		0.0000		0.0005		0.0000				
2546	HLW98-63	0.0000		0.0018	0.0011	0.0000			0.0003						0.0012		0.0488			0.0000		0.0000		0.0024		0.0000				
2547	HLW98-64	0.0000		0.0005	0.0009	0.0003			0.0004						0.0036		0.0333			0.0000		0.0000		0.0017		0.0000				
2548	C4A-03														0.0034									0.0863						
2549	C4C-03																0.0048							0.0020						
2550	C4C-08																0.0064							0.0020						
2551	C4D-04																							0.0553						
2552	C4D-15																							0.0485						
2553	C4D-01																							0.0522						
2554	S12-04 (C4A-03 mod.)																							0.0798						
2555	SB4-NEPH-01ccc			0.0010		0.0003									0.0003		0.0179							0.0007						
2556	SB4-NEPH-02ccc			0.0009		0.0003									0.0003		0.0172							0.0006						
2557	SB4-NEPH-03ccc			0.0010		0.0003									0.0003		0.0217							0.0006						
2558	SB4-NEPH-04ccc			0.0009		0.0003									0.0003		0.0179							0.0007						
2559	SB4-NEPH-05ccc			0.0010		0.0003									0.0003		0.0222							0.0006						
2560	SB4-NEPH-06ccc			0.0010		0.0003									0.0002		0.0219							0.0006						
2561	SB4-NEPH-07ccc			0.0010		0.0004									0.0003		0.0226							0.0006						
2562	SB4-NEPH-08ccc			0.0009		0.0003									0.0003		0.0172							0.0006						
2563	SB4-NEPH-09ccc			0.0008		0.0002									0.0002		0.0157							0.0006						
2564	SB4-NEPH-10ccc			0.0010		0.0003									0.0003		0.0227							0.0006						
2565	SB4-NEPH-11ccc			0.0010		0.0004									0.0003		0.0231							0.0006						
2566	SB4-NEPH-12ccc			0.0009		0.0002									0.0002		0.0151							0.0006						
2567	NEPH2-13			0.0009		0.0003									0.0003		0.0190							0.0007						
2568	NEPH2-14			0.0010		0.0003									0.0003		0.0205							0.0007						
2569	NEPH2-15			0.0009		0.0003									0.0003		0.0195							0.0007						
2570	NEPH2-16			0.0010		0.0003									0.0004		0.0210							0.0008						
2571	NEPH2-17			0.0011		0.0003									0.0004		0.0219							0.0008						
2572	NEPH2-18			0.0010		0.0003									0.0003		0.0200							0.0007						
2573	NEPH2-19			0.0010		0.0003									0.0004		0.0214							0.0008						
2574	NEPH2-20			0.0011		0.0003									0.0004		0.0229							0.0008						
2575	NEPH2-21			0.0010		0.0003									0.0003		0.0205							0.0007						
2576	NEPH2-22			0.0011		0.0003									0.0004		0.0224							0.0008						
2577	NEPH2-23			0.0011		0.0004									0.0004		0.0239							0.0009						
2578	NEPH2-24			0.0010		0.0003									0.0004		0.0210							0.0008						
2579	NEPH2-25			0.0011		0.0003									0.0004		0.0229							0.0008						
2580	NEPH2-26			0.0012		0.0004									0.0004		0.0249							0.0009						
2581	NEPH2-27			0.0010		0.0003									0.0003		0.0187							0.0008						
2582	NEPH2-28			0.0011		0.0003									0.0004		0.0211							0.0009						
2583	NEPH2-29			0.0012		0.0004									0.0004		0.0235							0.0010						
2584	NEPH2-30			0.0010		0.0003									0.0003		0.0192							0.0008						
2585	NEPH2-31			0.0011		0.0003									0.0004		0.0211							0.0009						
2586	NEPH2-32			0.0012		0.0004									0.0004		0.0230							0.0009						
2587	NEPH2-33			0.0010		0.0003									0.0003		0.0197							0.0008						
2588	NEPH2-34			0.0011		0.0003									0.0004		0.0216							0.0009						
2589	NEPH2-35			0.0012		0.0004									0.0004		0.0230							0.0009						
2590	NEPH2-36			0.0011		0.0003									0.0003		0.0202							0.0008						
2591	NEPH2-37			0.0011		0.0003									0.0004		0.0216							0.0009						
2592	NEPH2-38			0.0012		0.0004									0.0004		0.0226							0.0009						
2593	NEPH2-39			0.0011		0.0003									0.0004		0.0206							0.0008						
2594	NEPH2-40			0.0012		0.0003									0.0004		0.0221							0.0009						
2595	NEPH3-41			0.0007		0.0002									0.0004		0.0192							0.0003						
2596	NEPH3-42			0.0009		0.0002									0.0004		0.0219							0.0004						
2597	NEPH3-43			0.0010		0.0003									0.0005		0.0252							0.0004						
2598	NEPH3-44			0.0011		0.0003									0.0005		0.0274							0.0005						
2599	NEPH3-45			0.0007		0.0002									0.0004		0.0192							0.0003						
2600	NEPH3-46			0.0009		0.0002									0.0004		0.0219							0.0004						
2601	NEPH3-47			0.0010		0.0003									0.0005		0.0258							0.0004						
2602	NEPH3-48			0.0011		0.0003									0.0006		0.0280							0.0005						
2603	NEPH3-49			0.0007		0.0002									0.0004		0.0192							0.0003						
2604	NEPH3-50			0.0009		0.0002									0.0004		0.0219							0.0004						
2605	NEPH3-51			0.0009		0.0003									0.0005		0.0241							0.0004						
2606	NEPH3-52			0.0010		0.0003									0.0005		0.0263							0.0004						
2607	NEPH3-53			0.0007		0.0002									0.0004		0.0192							0.0003						
2608	NEPH3-54			0.0009		0.0002									0.0004		0.0219							0.0004						
2609	NEPH3-55			0.0010		0.0003									0.0005		0.0263							0.0004						
2610	NEPH3-56			0.0011		0.0003									0.0006		0.0280							0.0005						
2611	HLW98-77	0.0000		0.0000	0.0000	0.0003			0.0004			0.0000			0.0041		0.0017			0.0000		0.0031		0.0003		0.0000	0.0000				
2612	HLW98-77R2	0.0000		0.0000	0.0000	0.0003			0.0004			0.0000			0.0041		0.0017			0.0000		0.0031		0.0003		0.0000	0.0000				
2613	HLW98-77CG	0.0000		0.0000	0.0000	0.0003			0.0004			0.0000			0.0041		0.0017			0.0000		0.0031		0.0003		0.0000	0.0000				
2614	HLW04-07RE39			0.0022		0.0003									0.0007		0.0282			0.0003				0.0054						
2615	HLW04-07RE39CCC			0.0022		0.0003									0.0007		0.0282			0.0003				0.0054						
2616	HLW04-07NRE9			0.0022		0.0003									0.0007		0.0282			0.0003				0.0054		0.0000				
2617	HLW04-07NRE9CCC			0.0022		0.0003									0.0007		0.0282			0.0003				0.0054		0.0000				
2618	A12-G-122A					0.0003			0.0004					0.0010	0.0041		0.0017					0.0031		0.0003							
2619	BLF-G-87A			0.0006	0.0005	0.0003			0.0012					0.0010	0.0015		0.0152					0.0011		0.0012							
2620	HLW98-51AW	0.0000		0.0014		0.0003									0.0002		0.0245			0.0000		0.0004		0.0020		0.0001				
2621	HLW98-51AWCG	0.0000		0.0014		0.0003									0.0002		0.0245			0.0000		0.0004		0.0020		0.0001				
2622	HLW02-01	0.0001		0.0011	0.0001	0.0005			0.0005						0.0030		0.0239							0.0022		0.0012				
2623	HLW02-02	0.0001		0.0020	0.0001	0.0010			0.0005						0.0030		0.0000							0.0040		0.0012				
2624	HLW02-03	0.0001		0.0020	0.0001	0.0010			0.0005						0.0030		0.0000							0.0040		0.0012				

#	Glass ID	ReO2-t	Re2O7-t	Rh2O3-t	RhO2-t	RuO2-t	Ru2O3-t	Sb2O3-t	Sb2O5-t	SeO2-t	Sm2O3-t	SnO-t	SnO2-t	SO3-t	SrO-t	Tc2O7-t	TeO2-t	ThO2-t	TiO2-t	Tl2O-t	Tl2O3-t	U3O8-t	UO2-t	UO3-t	V2O5-t	WO3-t	Y2O3-t	ZnO-t	Sum-t	Al2O3-a
2543	HLW98-59			0.0000		0.0000		0.0032		0.0006			0.0000	0.0003	0.0235		0.0002	0.0000	0.0000	0.0000			0.0000	0.0000			0.0200	1.0000	
2544	HLW98-60			0.0000		0.0000		0.0000		0.0000			0.0000	0.0002	0.0068		0.0000	0.0000	0.0001	0.0000			0.0183	0.0000			0.0204	0.9999	
2545	HLW98-62			0.0000		0.0000		0.0000		0.0000			0.0000	0.0002	0.0208		0.0000	0.0000	0.0000	0.0000			0.0000	0.0000			0.0201	1.0000	
2546	HLW98-63			0.0000		0.0000		0.0000		0.0000			0.0000	0.0003	0.0808		0.0000	0.0000	0.0004	0.0000			0.0000	0.0000			0.0179	1.0000	
2547	HLW98-64			0.0000		0.0000		0.0021		0.0016			0.0000	0.0027	0.0255		0.0016	0.0000	0.0007	0.0000			0.0000	0.0000			0.0191	1.0000	
2548	C4A-03													0.0162														1.0003	0.0608
2549	C4C-03																							0.0036				0.9998	0.1198
2550	C4C-08																							0.0048				0.9999	0.1375
2551	C4D-04													0.0205														1.0000	0.0934
2552	C4D-15																											0.9998	0.1269
2553	C4D-01													0.0197														1.0002	0.1337
2554	S12-04 (C4A-03 mod.)																											1.0056	
2555	SB4-NEPH-01ccc							0.0000		0.0000				0.0033				0.0009	0.0001			0.0200					0.0004	0.9799	
2556	SB4-NEPH-02ccc							0.0000		0.0000				0.0035				0.0009	0.0097			0.0200					0.0004	0.9753	
2557	SB4-NEPH-03ccc							0.0000		0.0000				0.0039				0.0013	0.0091			0.0335					0.0007	0.9824	
2558	SB4-NEPH-04ccc							0.0000		0.0000				0.0033				0.0009	0.0001			0.0200					0.0004	0.9858	
2559	SB4-NEPH-05ccc							0.0000		0.0000				0.0033				0.0014	0.0001			0.0346					0.0005	0.9834	
2560	SB4-NEPH-06ccc							0.0000		0.0000				0.0037				0.0015	0.0091			0.0372					0.0006	0.9794	
2561	SB4-NEPH-07ccc							0.0000		0.0000				0.0033				0.0017	0.0001			0.0421					0.0006	0.9891	
2562	SB4-NEPH-08ccc							0.0000		0.0000				0.0036				0.0009	0.0092			0.0195					0.0004	0.9842	
2563	SB4-NEPH-09ccc							0.0000		0.0000				0.0028				0.0008	0.0001			0.0181					0.0004	0.9891	
2564	SB4-NEPH-10ccc							0.0000		0.0000				0.0038				0.0013	0.0093			0.0340					0.0005	0.9840	
2565	SB4-NEPH-11ccc							0.0000		0.0000				0.0032				0.0015	0.0002			0.0369					0.0005	0.9841	
2566	SB4-NEPH-12ccc							0.0000		0.0000				0.0032				0.0008	0.0081			0.0172					0.0004	0.9771	
2567	NEPH2-13							0.0000		0.0000				0.0035				0.0002	0.0001			0.0284					0.0004	0.9993	
2568	NEPH2-14							0.0000		0.0000				0.0037				0.0002	0.0001			0.0305					0.0005	0.9993	
2569	NEPH2-15							0.0000		0.0000				0.0036				0.0002	0.0001			0.0291					0.0004	0.9993	
2570	NEPH2-16							0.0000		0.0000				0.0038				0.0002	0.0001			0.0313					0.0005	0.9992	
2571	NEPH2-17							0.0000		0.0000				0.0040				0.0002	0.0001			0.0327					0.0005	0.9992	
2572	NEPH2-18							0.0000		0.0000				0.0037				0.0002	0.0001			0.0298					0.0004	0.9993	
2573	NEPH2-19							0.0000		0.0000				0.0039				0.0002	0.0001			0.0320					0.0005	0.9992	
2574	NEPH2-20							0.0000		0.0000				0.0042				0.0002	0.0001			0.0342					0.0005	0.9992	
2575	NEPH2-21							0.0000		0.0000				0.0037				0.0002	0.0001			0.0305					0.0005	0.9993	
2576	NEPH2-22							0.0000		0.0000				0.0041				0.0002	0.0001			0.0335					0.0005	0.9992	
2577	NEPH2-23							0.0000		0.0000				0.0044				0.0002	0.0001			0.0356					0.0005	0.9992	
2578	NEPH2-24							0.0000		0.0000				0.0038				0.0002	0.0001			0.0313					0.0005	0.9992	
2579	NEPH2-25							0.0000		0.0000				0.0042				0.0002	0.0001			0.0342					0.0005	0.9992	
2580	NEPH2-26							0.0000		0.0000				0.0046				0.0002	0.0001			0.0371					0.0006	0.9991	
2581	NEPH2-27							0.0000		0.0000				0.0034				0.0002	0.0001			0.0277					0.0004	0.9993	
2582	NEPH2-28							0.0000		0.0000				0.0038				0.0002	0.0001			0.0312					0.0005	0.9992	
2583	NEPH2-29							0.0000		0.0000				0.0042				0.0002	0.0001			0.0347					0.0005	0.9992	
2584	NEPH2-30							0.0000		0.0000				0.0034				0.0002	0.0001			0.0284					0.0004	0.9993	
2585	NEPH2-31							0.0000		0.0000				0.0038				0.0002	0.0001			0.0312					0.0005	0.9992	
2586	NEPH2-32							0.0000		0.0000				0.0041				0.0002	0.0001			0.0340					0.0005	0.9992	
2587	NEPH2-33							0.0000		0.0000				0.0035				0.0002	0.0001			0.0291					0.0004	0.9993	
2588	NEPH2-34							0.0000		0.0000				0.0039				0.0002	0.0001			0.0319					0.0005	0.9993	
2589	NEPH2-35							0.0000		0.0000				0.0041				0.0002	0.0001			0.0340					0.0005	0.9992	
2590	NEPH2-36							0.0000		0.0000				0.0036				0.0002	0.0001			0.0298					0.0005	0.9993	
2591	NEPH2-37							0.0000		0.0000				0.0039				0.0002	0.0001			0.0319					0.0005	0.9993	
2592	NEPH2-38							0.0000		0.0000				0.0040				0.0002	0.0001			0.0333					0.0005	0.9992	
2593	NEPH2-39							0.0000		0.0000				0.0037				0.0002	0.0001			0.0305					0.0005	0.9993	
2594	NEPH2-40							0.0000		0.0000				0.0040				0.0002	0.0001			0.0326					0.0005	0.9992	
2595	NEPH3-41							0.0000		0.0000				0.0039				0.0002	0.0001			0.0267					0.0003	0.9992	
2596	NEPH3-42							0.0000		0.0000				0.0045				0.0003	0.0001			0.0306					0.0004	0.9991	
2597	NEPH3-43							0.0000		0.0000				0.0051				0.0003	0.0001			0.0352					0.0005	0.9990	
2598	NEPH3-44							0.0000		0.0000				0.0056				0.0003	0.0001			0.0382					0.0005	0.9989	
2599	NEPH3-45							0.0000		0.0000				0.0039				0.0002	0.0001			0.0267					0.0003	0.9992	
2600	NEPH3-46							0.0000		0.0000				0.0045				0.0003	0.0001			0.0306					0.0004	0.9991	
2601	NEPH3-47							0.0000		0.0000				0.0052				0.0003	0.0001			0.0359					0.0005	0.9990	
2602	NEPH3-48							0.0000		0.0000				0.0057				0.0003	0.0001			0.0390					0.0005	0.9989	
2603	NEPH3-49							0.0000		0.0000				0.0039				0.0002	0.0001			0.0267					0.0003	0.9992	
2604	NEPH3-50							0.0000		0.0000				0.0045				0.0003	0.0001			0.0306					0.0004	0.9991	
2605	NEPH3-51							0.0000		0.0000				0.0049				0.0003	0.0001			0.0336					0.0004	0.9990	
2606	NEPH3-52							0.0000		0.0000				0.0054				0.0003	0.0001			0.0367					0.0005	0.9989	
2607	NEPH3-53							0.0000		0.0000				0.0039				0.0002	0.0001			0.0267					0.0003	0.9992	
2608	NEPH3-54							0.0000		0.0000				0.0045				0.0003	0.0001			0.0306					0.0004	0.9991	
2609	NEPH3-55							0.0000		0.0000				0.0054				0.0003	0.0001			0.0367					0.0005	0.9989	
2610	NEPH3-56							0.0000		0.0000				0.0057				0.0003	0.0001			0.0390					0.0005	0.9989	
2611	HLW98-77			0.0000		0.0000		0.0000		0.0000			0.0000	0.0008	0.0003		0.0000	0.0000	0.0000	0.0000			0.0000	0.0000			0.0202	1.0000	0.0528
2612	HLW98-77R2			0.0000		0.0000		0.0000		0.0000			0.0000	0.0008	0.0003		0.0000	0.0000	0.0000	0.0000			0.0000	0.0000			0.0202	1.0000	0.0510
2613	HLW98-77CG			0.0000		0.0000		0.0000		0.0000			0.0000	0.0008	0.0003		0.0000	0.0000	0.0000	0.0000			0.0000	0.0000			0.0202	1.0000	0.0517
2614	HLW04-07RE39							0.0004					0.0006	0.0019	0.0017				0.0003					0.0001			0.0148	1.0000	
2615	HLW04-07RE39CCC							0.0004					0.0006	0.0019	0.0017				0.0003					0.0001			0.0148	1.0000	
2616	HLW04-07NRE9			0.0000		0.0007		0.0004					0.0006	0.0019	0.0017				0.0003					0.0001			0.0148	1.0000	
2617	HLW04-07NRE9CCC			0.0000		0.0007		0.0004					0.0006	0.0019	0.0017				0.0003					0.0001			0.0148	1.0000	
2618	A12-G-122A													0.0007	0.0003												0.0201	0.9998	0.0538
2619	BLF-G-87A																		0.0002								0.0216	0.9999	0.0407
2620	HLW98-51AW			0.0003		0.0002							0.0007		0.0293			0.0380	0.0003				0.0410	0.0000		0.0000	0.0199	1.0000	0.0331
2621	HLW98-51AWCG			0.0003		0.0002							0.0007		0.0293			0.0380	0.0003				0.0410	0.0000		0.0000	0.0199	1.0000	0.0331
2622	HLW02-01			0.0005		0.0008		0.0011		0.0011				0.0010	0.0244		0.0001		0.0003	0.0010				0.0005			0.0200	1.0000	
2623	HLW02-02			0.0005		0.0008		0.0020		0.0002				0.0010	0.0000		0.0001		0.0003	0.0002				0.0010			0.0200	1.0000	
2624	HLW02-03			0.0005		0.0008		0.0002		0.0020				0.0010	0.0438		0.0001		0.0003	0.0019				0.0010			0.0200	1.0000	

#	Glass ID	B2O3-a	CaO-a	Fe2O3-a	FeO-a	K2O-a	Li2O-a	MgO-a	Na2O-a	NiO-a	P2O5-a	SiO2-a	ZrO2-a	Ag2O-a	As2O3-a	As2O5-a	BaO-a	BeO-a	Bi2O3-a	Br-a	CdO-a	Ce2O3-a	CeO2-a	Cl-a	CoO-a	Co2O3-a	Cr2O3-a	Cs2O-a	CuO-a	F-a
2543	HLW98-59																													
2544	HLW98-60																													
2545	HLW98-62																													
2546	HLW98-63																													
2547	HLW98-64																													
2548	C4A-03	0.1184	0.0549	0.0360		0.0055	0.0144	0.0120	0.0466	0.0033	0.0065	0.4070	0.0011				0.0411													
2549	C4C-03	0.1177	0.0908	0.0547		0.0138	0.0197	0.0674	0.0691	0.0035	0.0667	0.3368					0.0004													
2550	C4C-08	0.0579	0.0809	0.0702		0.0163	0.0182	0.0907	0.0488	0.0043	0.0641	0.3333					0.0004													
2551	C4D-04	0.1398	0.0678	0.0501		0.0104	0.0025	0.0364	0.0593	0.0040	0.0320	0.3438	0.0011				0.0211													
2552	C4D-15	0.0787	0.0691	0.0501		0.0106	0.0024	0.0428	0.0592	0.0036	0.0342	0.3359	0.0007				0.0230													
2553	C4D-01	0.0960	0.1318	0.0415		0.0067	0.0122	0.0241	0.0612	0.0010	0.0233	0.3427					0.0232													
2554	S12-04 (C4A-03 mod.)																													
2555	SB4-NEPH-01ccc																													
2556	SB4-NEPH-02ccc																													
2557	SB4-NEPH-03ccc																													
2558	SB4-NEPH-04ccc																													
2559	SB4-NEPH-05ccc																													
2560	SB4-NEPH-06ccc																													
2561	SB4-NEPH-07ccc																													
2562	SB4-NEPH-08ccc																													
2563	SB4-NEPH-09ccc																													
2564	SB4-NEPH-10ccc																													
2565	SB4-NEPH-11ccc																													
2566	SB4-NEPH-12ccc																													
2567	NEPH2-13																													
2568	NEPH2-14																													
2569	NEPH2-15																													
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2586	NEPH2-32																													
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2599	NEPH3-45																													
2600	NEPH3-46																													
2601	NEPH3-47																													
2602	NEPH3-48																													
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2604	NEPH3-50																													
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2607	NEPH3-53																													
2608	NEPH3-54																													
2609	NEPH3-55																													
2610	NEPH3-56																													
2611	HLW98-77		0.0029	0.1263		0.0009		0.0008	0.1174	0.0066		0.4646	0.0394	0.0002							0.0007									0.0009
2612	HLW98-77R2	0.1171	0.0029	0.1302		0.0009	0.0324	0.0013	0.1221	0.0065	0.0002	0.4552	0.0410	0.0003							0.0009			0.0007	0.0001					0.0004
2613	HLW98-77CG		0.0029	0.1332		0.0010		0.0009	0.1132	0.0071	0.0002	0.4595	0.0410	0.0002							0.0007			0.0003	0.0000					0.0008
2614	HLW04-07RE39																													
2615	HLW04-07RE39CCC																													
2616	HLW04-07NRE9																													
2617	HLW04-07NRE9CCC																													
2618	A12-G-122A	0.1209	0.0037	0.1121		0.0012	0.0314	0.0007	0.1191	0.0054	0.0002	0.4734	0.0461				0.0005				0.0007	<0.0001					0.0001		0.0003
2619	BLF-G-87A	0.1059	0.0052	0.0920		0.0011	0.0279	0.0020	0.1048	0.0037	0.0009	0.4675	0.0978														0.0009	0.0006	0.0003
2620	HLW98-51AW	0.0966	0.0069	0.0472		0.0030	0.0544	0.0007	0.0838	0.0026	0.0029	0.4667	0.0461	0.0004							0.0006	0.0008					0.0016		0.0004
2621	HLW98-51AWCG	0.0966	0.0069	0.0472		0.0030	0.0544	0.0007	0.0838	0.0026	0.0029	0.4667	0.0461	0.0004							0.0006	0.0008					0.0016		0.0004
2622	HLW02-01																													
2623	HLW02-02																													
2624	HLW02-03																													

#	Glass ID	Ga2O3-a	Gd2O3-a	I-a	La2O3-a	MnO2-a	MnO-a	MoO-a	MoO3-a	Nb2O5-a	Nd2O3-a	NpO2-a	PbO-a	PdO2-a	PdO-a	Pr2O3-a	Pr6O11-a	PuO2-a	Rb2O-a	ReO-a	ReO2-a	Re2O7-a	Rh2O3-a	RhO2-a	RuO2-a	Sb2O3-a	Sb2O5-a	SeO2-a
2543	HLW98-59																											
2544	HLW98-60																											
2545	HLW98-62																											
2546	HLW98-63																											
2547	HLW98-64																											
2548	C4A-03				0.0002								0.0787															
2549	C4C-03						0.0053						0.0024															
2550	C4C-08						0.0064						0.0025															
2551	C4D-04												0.0502															
2552	C4D-15												0.0461															
2553	C4D-01												0.0541															
2554	S12-04 (C4A-03 mod.)																											
2555	SB4-NEPH-01ccc																											
2556	SB4-NEPH-02ccc																											
2557	SB4-NEPH-03ccc																											
2558	SB4-NEPH-04ccc																											
2559	SB4-NEPH-05ccc																											
2560	SB4-NEPH-06ccc																											
2561	SB4-NEPH-07ccc																											
2562	SB4-NEPH-08ccc																											
2563	SB4-NEPH-09ccc																											
2564	SB4-NEPH-10ccc																											
2565	SB4-NEPH-11ccc																											
2566	SB4-NEPH-12ccc																											
2567	NEPH2-13																											
2568	NEPH2-14																											
2569	NEPH2-15																											
2570	NEPH2-16																											
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2572	NEPH2-18																											
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2580	NEPH2-26																											
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2582	NEPH2-28																											
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2584	NEPH2-30																											
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2596	NEPH3-42																											
2597	NEPH3-43																											
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2599	NEPH3-45																											
2600	NEPH3-46																											
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2602	NEPH3-48																											
2603	NEPH3-49																											
2604	NEPH3-50																											
2605	NEPH3-51																											
2606	NEPH3-52																											
2607	NEPH3-53																											
2608	NEPH3-54																											
2609	NEPH3-55																											
2610	NEPH3-56																											
2611	HLW98-77				0.0042		0.0018				0.0032		0.0003															
2612	HLW98-77R2				0.0045		0.0019				0.0033		0.0005															
2613	HLW98-77CG				0.0040		0.0019				0.0032		0.0004															
2614	HLW04-07RE39																											
2615	HLW04-07RE39CCC																											
2616	HLW04-07NRE9																											
2617	HLW04-07NRE9CCC																											
2618	A12-G-122A				0.0041		0.0017				0.0031		0.0002															
2619	BLF-G-87A			<0.0001	0.0019		0.0177				0.0011		0.0010															
2620	HLW98-51AW				0.0005		0.0269				0.0004		0.0019										0.0006					
2621	HLW98-51AWCG				0.0005		0.0269				0.0004		0.0019										0.0006					
2622	HLW02-01																											
2623	HLW02-02																											
2624	HLW02-03																											

#	Glass ID	Sm2O3-a	SnO-a	SnO2-a	SO3-a	SrO-a	Tc2O7-a	TeO2-a	ThO2-a	TiO2-a	Tl2O-a	Tl2O3-a	U3O8-a	UO2-a	UO3-a	V2O5-a	WO3-a	Y2O3-a	ZnO-a	Sum-a	T_M (°C)	$T_{L,G}$ (°C)	$T_{L,U}$ (°C)	$T_{1\%}$ (°C)	Primary Phase	$C_{650°C}$	$C_{700°C}$	$C_{750°C}$
2543	HLW98-59																			0.0000			< 950					
2544	HLW98-60																			0.0000			~ 950					
2545	HLW98-62																			0.0000			< 950					
2546	HLW98-63																			0.0000			> 1050					
2547	HLW98-64																			0.0000			~ 1050					
2548	C4A-03				0.0144															0.9009			< 1100					
2549	C4C-03															0.0036				0.9717			< 1000					
2550	C4C-08															0.0048				0.9363			~ 1050					
2551	C4D-04				0.0205															0.9324			< 1100					
2552	C4D-15																			0.8833			< 1050					
2553	C4D-01				0.0156															0.9671			< 1050					
2554	S12-04 (C4A-03 mod.)																			0.0000								
2555	SB4-NEPH-01ccc																			0.0000								
2556	SB4-NEPH-02ccc																			0.0000								
2557	SB4-NEPH-03ccc																			0.0000								
2558	SB4-NEPH-04ccc																			0.0000								
2559	SB4-NEPH-05ccc																			0.0000								
2560	SB4-NEPH-06ccc																			0.0000								
2561	SB4-NEPH-07ccc																			0.0000								
2562	SB4-NEPH-08ccc																			0.0000								
2563	SB4-NEPH-09ccc																			0.0000								
2564	SB4-NEPH-10ccc																			0.0000								
2565	SB4-NEPH-11ccc																			0.0000								
2566	SB4-NEPH-12ccc																			0.0000								
2567	NEPH2-13																			0.0000								
2568	NEPH2-14																			0.0000								
2569	NEPH2-15																			0.0000								
2570	NEPH2-16																			0.0000								
2571	NEPH2-17																			0.0000								
2572	NEPH2-18																			0.0000								
2573	NEPH2-19																			0.0000								
2574	NEPH2-20																			0.0000								
2575	NEPH2-21																			0.0000								
2576	NEPH2-22																			0.0000								
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2578	NEPH2-24																			0.0000								
2579	NEPH2-25																			0.0000								
2580	NEPH2-26																			0.0000								
2581	NEPH2-27																			0.0000								
2582	NEPH2-28																			0.0000								
2583	NEPH2-29																			0.0000								
2584	NEPH2-30																			0.0000								
2585	NEPH2-31																			0.0000								
2586	NEPH2-32																			0.0000								
2587	NEPH2-33																			0.0000								
2588	NEPH2-34																			0.0000								
2589	NEPH2-35																			0.0000								
2590	NEPH2-36																			0.0000								
2591	NEPH2-37																			0.0000								
2592	NEPH2-38																			0.0000								
2593	NEPH2-39																			0.0000								
2594	NEPH2-40																			0.0000								
2595	NEPH3-41																			0.0000								
2596	NEPH3-42																			0.0000								
2597	NEPH3-43																			0.0000								
2598	NEPH3-44																			0.0000								
2599	NEPH3-45																			0.0000								
2600	NEPH3-46																			0.0000								
2601	NEPH3-47																			0.0000								
2602	NEPH3-48																			0.0000								
2603	NEPH3-49																			0.0000								
2604	NEPH3-50																			0.0000								
2605	NEPH3-51																			0.0000								
2606	NEPH3-52																			0.0000								
2607	NEPH3-53																			0.0000								
2608	NEPH3-54																			0.0000								
2609	NEPH3-55																			0.0000								
2610	NEPH3-56																			0.0000								
2611	HLW98-77				0.0007	0.0003													0.0192	0.8432			975					
2612	HLW98-77R2				0.0006	0.0004				0.0003								0.0001	0.0193	0.9941								
2613	HLW98-77CG				0.0006	0.0005				0.0002									0.0208	0.8443								
2614	HLW04-07RE39																			0.0000								
2615	HLW04-07RE39CCC																			0.0000								
2616	HLW04-07NRE9																			0.0000								
2617	HLW04-07NRE9CCC																			0.0000								
2618	A12-G-122A				0.0008	0.0003				0.0009									0.0174	0.9981								
2619	BLF-G-87A				0.0003	0.0013				0.0014									0.0185	0.9945								
2620	HLW98-51AW			0.0008		0.0334			0.0340	0.0003				0.0377					0.0187	1.0030								
2621	HLW98-51AWCG			0.0008		0.0334			0.0340	0.0003				0.0377					0.0187	1.0030								
2622	HLW02-01																			0.0000				906	Spinel			3
2623	HLW02-02																			0.0000				888	Spinel			
2624	HLW02-03																			0.0000				838	Spinel			1.8

#	Glass ID	$C_{800°C}$	$C_{850°C}$	$C_{900°C}$	$C_{950°C}$	$C_{1000°C}$	$C_{1050°C}$	$C_{1100°C}$	$C_{1150°C}$	$C_{1200°C}$	Quenched Visual/OM	Quenched XRD	CCC XRD	ρ (g/cm³)	Fulc Visc A	Fulc Visc B	Fulc Visc To	Arrh Visc E	Arrh Visc F	T1 (°C)	V1 (Pa·s)
2543	HLW98-59																				
2544	HLW98-60																				
2545	HLW98-62													2.640							
2546	HLW98-63																				
2547	HLW98-64																				
2548	C4A-03													2.760						1150.0	23.400
2549	C4C-03													2.490						1150.0	4.007
2550	C4C-08													2.700						1150.0	5.347
2551	C4D-04													2.710						1100.0	20.515
2552	C4D-15																			1100.0	31.410
2553	C4D-01													2.790						1100.0	8.745
2554	S12-04 (C4A-03 mod.)																			1100.0	25.800
2555	SB4-NEPH-01ccc												Nepheline / Homogeneous								
2556	SB4-NEPH-02ccc												Homogeneous / Homogeneous								
2557	SB4-NEPH-03ccc												Trevorite / Homogeneous								
2558	SB4-NEPH-04ccc												Carnegeite / Homogeneous								
2559	SB4-NEPH-05ccc												Homogeneous								
2560	SB4-NEPH-06ccc												Homogeneous								
2561	SB4-NEPH-07ccc												Homogeneous								
2562	SB4-NEPH-08ccc												Homogeneous								
2563	SB4-NEPH-09ccc												Homogeneous / Homogeneous								
2564	SB4-NEPH-10ccc												Homogeneous								
2565	SB4-NEPH-11ccc												Homogeneous								
2566	SB4-NEPH-12ccc												Homogeneous								
2567	NEPH2-13												amorphous								
2568	NEPH2-14												Trevorite, Nepheline								
2569	NEPH2-15												amorphous								
2570	NEPH2-16												Nepheline, Trevorite								
2571	NEPH2-17												Trevorite, Nepheline, Lithium Silicate								
2572	NEPH2-18												Trevorite								
2573	NEPH2-19												Trevorite, Nepheline								
2574	NEPH2-20												Trevorite, Nepheline, Lithium Silicate								
2575	NEPH2-21												amorphous								
2576	NEPH2-22												Trevorite, Nepheline								
2577	NEPH2-23												Trevorite, Nepheline, Lithium Silicate								
2578	NEPH2-24												amorphous								
2579	NEPH2-25												Nepheline, Trevorite								
2580	NEPH2-26												Nepheline, Trevorite, Lithium Silicate								
2581	NEPH2-27												amorphous								
2582	NEPH2-28												Trevorite								
2583	NEPH2-29												Trevorite, Nepheline, Lithium Silicate								
2584	NEPH2-30												amorphous								
2585	NEPH2-31												Trevorite, Nepheline, Lithium Silicate								
2586	NEPH2-32												Trevorite, Nepheline, Lithium Silicate								
2587	NEPH2-33												Trevorite								
2588	NEPH2-34												Trevorite, Nepheline, Lithium Silicate								
2589	NEPH2-35												Trevorite, Nepheline, Lithium Silicate								
2590	NEPH2-36												Trevorite								
2591	NEPH2-37												Trevorite, Nepheline								
2592	NEPH2-38												Trevorite, Nepheline, Lithium Silicate								
2593	NEPH2-39												Trevorite								
2594	NEPH2-40												Trevorite								
2595	NEPH3-41																				
2596	NEPH3-42																				
2597	NEPH3-43																				
2598	NEPH3-44																				
2599	NEPH3-45																				
2600	NEPH3-46																				
2601	NEPH3-47																				
2602	NEPH3-48																				
2603	NEPH3-49																				
2604	NEPH3-50																				
2605	NEPH3-51																				
2606	NEPH3-52																				
2607	NEPH3-53																				
2608	NEPH3-54																				
2609	NEPH3-55																				
2610	NEPH3-56																				
2611	HLW98-77														-3.665	6816.8	250.0			1259.0	2.208
2612	HLW98-77R2																				
2613	HLW98-77CG																				
2614	HLW04-07RE39																				
2615	HLW04-07RE39CCC																				
2616	HLW04-07NRE9																				
2617	HLW04-07NRE9CCC																				
2618	A12-G-122A																				
2619	BLF-G-87A																				
2620	HLW98-51AW																				
2621	HLW98-51AWCG																				
2622	HLW02-01		1.88		0.27										-4.771	8199.9	150.0			1245.0	1.513
2623	HLW02-02		1.1	1.1	0.5										-4.022	7707.1	150.0			1247.0	2.039
2624	HLW02-03		0.7		0.2										-5.347	7839.3	200.0			1245.0	0.854

#	Glass ID	T2 (°C)	V2 (Pa·s)	T3 (°C)	V3 (Pa·s)	T4 (°C)	V4 (Pa·s)	T5 (°C)	V5 (Pa·s)	T6 (°C)	V6 (Pa·s)	T7 (°C)	V7 (Pa·s)	T8 (°C)	V8 (Pa·s)	T9 (°C)	V9 (Pa·s)	T10 (°C)	V10 (Pa·s)	TCLP Ag	TCLP As	TCLP Ba	TCLP Cd	TCLP Cr	TCLP Ni	TCLP Pb
2543	HLW98-59																			0.007	0.118	0.469	0.157	<0.0055	0.095	<0.0243
2544	HLW98-60																									
2545	HLW98-62																									
2546	HLW98-63																									
2547	HLW98-64																									
2548	C4A-03	1200	12.310	1250	7.6	1300.0	5.3	1350.0	3.9													2.06			0.1	2.6
2549	C4C-03	1200	2.521	1250	1.7	1300.0	1.2	1350.0	0.9													0.24			0.47	0.5
2550	C4C-08	1200	3.496	1250	2.4	1300.0	1.6	1350.0	1.1													0.88			0.71	0.07
2551	C4D-04	1150	11.492	1200	7.0	1250.0	4.5	1300.0	3.1	1350.0	2.2											1.56			0.32	2.43
2552	C4D-15	1150	16.130	1200	9.3	1250.0	5.8	1300.0	3.9	1350.0	2.7											1.2			0.12	1.4
2553	C4D-01	1150	5.316	1200	3.5	1250.0	2.4	1300.0	1.7	1350.0	1.3											1.88			0.1	3.15
2554	S12-04 (C4A-03 mod.)	1150	14.000	1200	8.4	1250.0	5.3	1300.0	3.5	1350.0	2.3	1400.0	1.7													
2555	SB4-NEPH-01ccc																									
2556	SB4-NEPH-02ccc																									
2557	SB4-NEPH-03ccc																									
2558	SB4-NEPH-04ccc																									
2559	SB4-NEPH-05ccc																									
2560	SB4-NEPH-06ccc																									
2561	SB4-NEPH-07ccc																									
2562	SB4-NEPH-08ccc																									
2563	SB4-NEPH-09ccc																									
2564	SB4-NEPH-10ccc																									
2565	SB4-NEPH-11ccc																									
2566	SB4-NEPH-12ccc																									
2567	NEPH2-13																									
2568	NEPH2-14																									
2569	NEPH2-15																									
2570	NEPH2-16																									
2571	NEPH2-17																									
2572	NEPH2-18																									
2573	NEPH2-19																									
2574	NEPH2-20																									
2575	NEPH2-21																									
2576	NEPH2-22																									
2577	NEPH2-23																									
2578	NEPH2-24																									
2579	NEPH2-25																									
2580	NEPH2-26																									
2581	NEPH2-27																									
2582	NEPH2-28																									
2583	NEPH2-29																									
2584	NEPH2-30																									
2585	NEPH2-31																									
2586	NEPH2-32																									
2587	NEPH2-33																									
2588	NEPH2-34																									
2589	NEPH2-35																									
2590	NEPH2-36																									
2591	NEPH2-37																									
2592	NEPH2-38																									
2593	NEPH2-39																									
2594	NEPH2-40																									
2595	NEPH3-41																									
2596	NEPH3-42																									
2597	NEPH3-43																									
2598	NEPH3-44																									
2599	NEPH3-45																									
2600	NEPH3-46																									
2601	NEPH3-47																									
2602	NEPH3-48																									
2603	NEPH3-49																									
2604	NEPH3-50																									
2605	NEPH3-51																									
2606	NEPH3-52																									
2607	NEPH3-53																									
2608	NEPH3-54																									
2609	NEPH3-55																									
2610	NEPH3-56																									
2611	HLW98-77	1159	4.550	1059	11.9	959.0	38.1													0.009			0.016			0.027
2612	HLW98-77R2																			0.0165		0.004	0.024		0.161	0.0132
2613	HLW98-77CG																			<0.07	<0.20	0.64	<0.03	<0.01	0.12	<0.10
2614	HLW04-07RE39																									
2615	HLW04-07RE39CCC																									
2616	HLW04-07NRE9																									
2617	HLW04-07NRE9CCC																									
2618	A12-G-122A																			<0.07	<0.20	0.1	<0.03	<0.01	0.07	<0.10
2619	BLF-G-87A																			<0.07	<0.20	0.09	<0.03	<0.01	0.06	<0.10
2620	HLW98-51AW																			<0.07	<0.20	0.43	<0.03	<0.01	0.06	<0.10
2621	HLW98-51AWCG																									
2622	HLW02-01	1148	3.172	1050	7.5	952.0	23.5													0.0392		0.0684	0.257		0.135	0.0656
2623	HLW02-02	1146	4.063	1047	9.6	946.0	28.9													0.0368		0.0607	0.288	0.0075		0.0748
2624	HLW02-03	1148	1.903	1050	4.7	953.0	15.9													0.14	0.0357	0.328	1.24	0.0453	0.63	0.233

#	Glass ID	TCLP Se	TCLP Zn	TCLP Al	TCLP B	TCLP Sb	TCLP Tl	TCLP V	Q PCT B (g/m²)	Q PCT Li (g/m²)	Q PCT Na (g/m²)	Q PCT Si (g/m²)	Q PCT pH	CCC PCT B (g/m²)	CCC PCT Li (g/m²)	CCC PCT Na (g/m²)	CCC PCT Si (g/m²)	CCC PCT pH	T1 (°C)
2543	HLW98-59	0.0532																	
2544	HLW98-60								0.035	0.036	0.042	0.021							
2545	HLW98-62								0.020	0.022	0.017	0.010							
2546	HLW98-63																		
2547	HLW98-64																		
2548	C4A-03																		1150
2549	C4C-03																		1150
2550	C4C-08																		1150
2551	C4D-04																		1100
2552	C4D-15																		1100
2553	C4D-01																		1100
2554	S12-04 (C4A-03 mod.)																		
2555	SB4-NEPH-01ccc													1.233	1.363	0.736	0.522		
2556	SB4-NEPH-02ccc													0.741	0.677	0.652	0.404		
2557	SB4-NEPH-03ccc													0.558	0.561	0.662	0.400		
2558	SB4-NEPH-04ccc													0.353	0.374	0.354	0.249		
2559	SB4-NEPH-05ccc													0.532	0.536	0.611	0.371		
2560	SB4-NEPH-06ccc													0.520	0.607	0.691	0.434		
2561	SB4-NEPH-07ccc													0.481	0.565	0.626	0.383		
2562	SB4-NEPH-08ccc													0.329	0.364	0.379	0.264		
2563	SB4-NEPH-09ccc													0.440	0.546	0.512	0.350		
2564	SB4-NEPH-10ccc													0.574	0.585	0.672	0.409		
2565	SB4-NEPH-11ccc													0.556	0.555	0.622	0.371		
2566	SB4-NEPH-12ccc													0.404	0.459	0.531	0.353		
2567	NEPH2-13													0.502	0.567	0.692	0.379		
2568	NEPH2-14													0.985	0.899	0.894	0.491		
2569	NEPH2-15													0.495	0.554	0.639	0.360		
2570	NEPH2-16													0.906	0.837	0.841	0.457		
2571	NEPH2-17													1.702	1.764	1.331	0.637		
2572	NEPH2-18													0.461	0.511	0.610	0.340		
2573	NEPH2-19													1.044	0.942	0.878	0.482		
2574	NEPH2-20													4.472	3.182	2.591	0.875		
2575	NEPH2-21													0.456	0.483	0.580	0.318		
2576	NEPH2-22													1.217	1.323	0.924	0.552		
2577	NEPH2-23													5.013	3.481	2.798	0.836		
2578	NEPH2-24													0.445	0.481	0.552	0.308		
2579	NEPH2-25													2.360	2.175	1.547	0.671		
2580	NEPH2-26													18.911	6.438	8.456	2.717		
2581	NEPH2-27													1.008	1.158	0.814	0.491		
2582	NEPH2-28													1.199	1.010	0.828	0.485		
2583	NEPH2-29													20.057	5.394	8.793	2.275		
2584	NEPH2-30													0.521	0.448	0.521	0.301		
2585	NEPH2-31													2.765	2.216	1.300	0.696		
2586	NEPH2-32													16.620	5.535	7.341	2.197		
2587	NEPH2-33													0.654	0.643	0.612	0.294		
2588	NEPH2-34													3.905	3.144	2.068	0.752		
2589	NEPH2-35													17.240	5.736	7.674	2.299		
2590	NEPH2-36													0.524	0.514	0.510	0.308		
2591	NEPH2-37													1.823	1.784	0.986	0.558		
2592	NEPH2-38													4.660	3.141	1.724	0.739		
2593	NEPH2-39													0.565	0.521	0.485	0.306		
2594	NEPH2-40													1.094	1.149	0.735	0.442		
2595	NEPH3-41													0.306	0.370	0.361	0.248		
2596	NEPH3-42													0.384	0.395	0.412	0.255		
2597	NEPH3-43													0.455	0.494	0.494	0.291		
2598	NEPH3-44													0.503	0.517	0.554	0.296		
2599	NEPH3-45													0.356	0.431	0.366	0.277		
2600	NEPH3-46													0.413	0.476	0.417	0.291		
2601	NEPH3-47													0.464	0.519	0.498	0.303		
2602	NEPH3-48													0.768	0.801	0.666	0.378		
2603	NEPH3-49													0.390	0.421	0.452	0.272		
2604	NEPH3-50													0.442	0.439	0.488	0.283		
2605	NEPH3-51													0.661	0.590	0.583	0.330		
2606	NEPH3-52													0.559	0.526	0.618	0.324		
2607	NEPH3-53													0.541	0.871	0.535	0.457		
2608	NEPH3-54													0.511	0.584	0.512	0.342		
2609	NEPH3-55													0.773	0.851	0.639	0.416		
2610	NEPH3-56													1.497	1.506	0.825	0.589		
2611	HLW98-77								0.266	0.293	0.212	0.155	10.180						1226
2612	HLW98-77R2		0.646	0.287	1.36														
2613	HLW98-77CG	<0.90	0.44	0.32	0.92	<0.50			0.353	0.364	0.274			0.353	0.364	0.274	0.179		
2614	HLW04-07RE39								0.289	0.346	0.311								
2615	HLW04-07RE39CCC													0.230	0.283	0.255			
2616	HLW04-07NRE9								0.177	0.263	0.202								
2617	HLW04-07NRE9CCC													0.190	0.252	0.190			
2618	A12-G-122A	<0.90	0.27	0.16	0.51				0.258	0.332	0.228	0.145							
2619	BLF-G-87A	<0.90	0.37	0.14	0.63				0.194	0.265	0.196	0.132							
2620	HLW98-51AW	<0.90	0.68	0.03	1.02				0.868	0.712	0.643	0.285							
2621	HLW98-51AWCG													0.697	0.607	0.556			
2622	HLW02-01	0.0281	0.653	0.389	1.1				0.350	0.343	0.314		10.640						1260
2623	HLW02-02		0.377	0.168	0.874				0.453	0.399	0.199		9.860						1251
2624	HLW02-03	0.0923	1.6	0.413	4.03		0.0626	0.0183	1.418	1.070	1.008		10.680						1257

#	Glass ID	EC1 (S/cm)	T2 (°C)	EC2 (S/cm)	T3 (°C)	EC3 (S/cm)	T4 (°C)	EC4 (S/cm)	T5 (°C)	EC5 (S/cm)	T6 (°C)	EC6 (S/cm)	A	B	To
2543	HLW98-59														
2544	HLW98-60														
2545	HLW98-62														
2546	HLW98-63														
2547	HLW98-64														
2548	C4A-03	0.07	1250	0.08											
2549	C4C-03	0.11	1200	0.15	1250	0.21	1300	0.28	1350	0.38					
2550	C4C-08	0.055	1200	0.084	1250	0.125	1300	0.18	1350	0.255					
2551	C4D-04	0.017	1150	0.026	1200	0.038	1250	0.055	1300	0.077	1350	0.106			
2552	C4D-15	0.02	1150	0.032	1200	0.051	1250	0.078	1300	0.116	1350	0.169			
2553	C4D-01	0.046	1150	0.067	1200	0.095	1250	0.133	1300	0.181	1350	0.243			
2554	S12-04 (C4A-03 mod.)														
2555	SB4-NEPH-01ccc														
2556	SB4-NEPH-02ccc														
2557	SB4-NEPH-03ccc														
2558	SB4-NEPH-04ccc														
2559	SB4-NEPH-05ccc														
2560	SB4-NEPH-06ccc														
2561	SB4-NEPH-07ccc														
2562	SB4-NEPH-08ccc														
2563	SB4-NEPH-09ccc														
2564	SB4-NEPH-10ccc														
2565	SB4-NEPH-11ccc														
2566	SB4-NEPH-12ccc														
2567	NEPH2-13														
2568	NEPH2-14														
2569	NEPH2-15														
2570	NEPH2-16														
2571	NEPH2-17														
2572	NEPH2-18														
2573	NEPH2-19														
2574	NEPH2-20														
2575	NEPH2-21														
2576	NEPH2-22														
2577	NEPH2-23														
2578	NEPH2-24														
2579	NEPH2-25														
2580	NEPH2-26														
2581	NEPH2-27														
2582	NEPH2-28														
2583	NEPH2-29														
2584	NEPH2-30														
2585	NEPH2-31														
2586	NEPH2-32														
2587	NEPH2-33														
2588	NEPH2-34														
2589	NEPH2-35														
2590	NEPH2-36														
2591	NEPH2-37														
2592	NEPH2-38														
2593	NEPH2-39														
2594	NEPH2-40														
2595	NEPH3-41														
2596	NEPH3-42														
2597	NEPH3-43														
2598	NEPH3-44														
2599	NEPH3-45														
2600	NEPH3-46														
2601	NEPH3-47														
2602	NEPH3-48														
2603	NEPH3-49														
2604	NEPH3-50														
2605	NEPH3-51														
2606	NEPH3-52														
2607	NEPH3-53														
2608	NEPH3-54														
2609	NEPH3-55														
2610	NEPH3-56														
2611	HLW98-77	0.454	1131	0.351	1036	0.219	942	0.141					2.1863	-2918.65	240
2612	HLW98-77R2														
2613	HLW98-77CG														
2614	HLW04-07RE39														
2615	HLW04-07RE39CCC														
2616	HLW04-07NRE9														
2617	HLW04-07NRE9CCC														
2618	A12-G-122A														
2619	BLF-G-87A														
2620	HLW98-51AW														
2621	HLW98-51AWCG														
2622	HLW02-01	0.48	1166	0.356	1071	0.252	978	0.157					1.7397	-2254.37	350
2623	HLW02-02	0.326	1155	0.24	1054	0.167	957	0.104					1.9954	-3430.57	150
2624	HLW02-03	0.532	1165	0.402	1070	0.276	977	0.173					2.3003	-2945.51	250

#	Glass ID	Study	Reference	Al2O3-t	B2O3-t	CaO-t	Fe2O3-t	FeO-t	K2O-t	Li2O-t	MgO-t	Na2O-t	NiO-t	P2O5-t	SiO2-t	ZrO2-t	Ag2O-t	As2O3-t	As2O5-t	BaO-t	BeO-t	Bi2O3-t	Br-t	CdO-t	Ce2O3-t	CeO2-t	Cl-t
2625	HLW02-04	HLW02 Initial M	Piepel et al. 2008	0.0400	0.0500	0.0050	0.1400		0.0006	0.0200	0.0012	0.1500	0.0010	0.0050	0.5294	0.0000	0.0002		0.0002	0.0003		0.0001		0.0150	0.0005		0.0020
2626	HLW02-05	HLW02 Initial M	Piepel et al. 2008	0.0400	0.0500	0.0050	0.0800		0.0006	0.0600	0.0012	0.1379	0.0010	0.0050	0.5265	0.0600	0.0002		0.0002	0.0003		0.0001		0.0005	0.0005		0.0020
2627	HLW02-06	HLW02 Initial M	Piepel et al. 2008	0.0850	0.0500	0.0050	0.0800		0.0006	0.0474	0.0012	0.1500	0.0100	0.0050	0.4050	0.0600	0.0002		0.0002	0.0003		0.0001		0.0150	0.0005		0.0020
2628	HLW02-07	HLW02 Initial M	Piepel et al. 2008	0.0850	0.0500	0.0050	0.0800		0.0006	0.0600	0.0012	0.1170	0.0010	0.0050	0.5299	0.0153	0.0020		0.0023	0.0030		0.0001		0.0005	0.0005		0.0020
2629	HLW02-08	HLW02 Initial M	Piepel et al. 2008	0.0400	0.1400	0.0050	0.0921		0.0006	0.0331	0.0012	0.1500	0.0010	0.0050	0.3874	0.0600	0.0002		0.0002	0.0003		0.0001		0.0005	0.0005		0.0020
2630	HLW02-09	HLW02 Initial M	Piepel et al. 2008	0.0850	0.1159	0.0050	0.1400		0.0006	0.0227	0.0012	0.1500	0.0100	0.0050	0.3800	0.0000	0.0002		0.0002	0.0003		0.0001		0.0005	0.0005		0.0020
2631	HLW02-10	HLW02 Initial M	Piepel et al. 2008	0.0850	0.1400	0.0050	0.0800		0.0006	0.0600	0.0012	0.1051	0.0010	0.0050	0.3800	0.0600	0.0002		0.0002	0.0003		0.0001		0.0150	0.0005		0.0020
2632	HLW02-11	HLW02 Initial M	Piepel et al. 2008	0.0400	0.1400	0.0050	0.0800		0.0006	0.0600	0.0012	0.1086	0.0100	0.0050	0.4515	0.0600	0.0002		0.0002	0.0003		0.0001		0.0005	0.0005		0.0020
2633	HLW02-12	HLW02 Initial M	Piepel et al. 2008	0.0400	0.0500	0.0050	0.1138		0.0006	0.0600	0.0012	0.1276	0.0100	0.0050	0.4140	0.0600	0.0020		0.0023	0.0030		0.0001		0.0150	0.0005		0.0020
2634	HLW02-13	HLW02 Initial M	Piepel et al. 2008	0.0400	0.0500	0.0050	0.1400		0.0006	0.0600	0.0012	0.1043	0.0010	0.0050	0.4311	0.0118	0.0020		0.0023	0.0030		0.0001		0.0005	0.0005		0.0020
2635	HLW02-14	HLW02 Initial M	Piepel et al. 2008	0.0400	0.0500	0.0050	0.0800		0.0006	0.0600	0.0012	0.0414	0.0010	0.0050	0.5301	0.0600	0.0002		0.0002	0.0003		0.0001		0.0150	0.0005		0.0020
2636	HLW02-15	HLW02 Initial M	Piepel et al. 2008	0.0850	0.1400	0.0050	0.1400		0.0006	0.0200	0.0012	0.1254	0.0010	0.0050	0.3799	0.0000	0.0020		0.0023	0.0030		0.0001		0.0005	0.0005		0.0020
2637	HLW02-16	HLW02 Initial M	Piepel et al. 2008	0.0850	0.0500	0.0050	0.0800		0.0006	0.0600	0.0012	0.0965	0.0010	0.0050	0.3911	0.0600	0.0020		0.0023	0.0030		0.0001		0.0150	0.0005		0.0020
2638	HLW02-17	HLW02 Initial M	Piepel et al. 2008	0.0850	0.0500	0.0050	0.1384		0.0006	0.0600	0.0012	0.0769	0.0010	0.0050	0.5296	0.0000	0.0002		0.0002	0.0003		0.0001		0.0150	0.0005		0.0020
2639	HLW02-18	HLW02 Initial M	Piepel et al. 2008	0.0400	0.0500	0.0050	0.1113		0.0006	0.0201	0.0012	0.1500	0.0100	0.0050	0.4985	0.0600	0.0020		0.0023	0.0030		0.0001		0.0005	0.0005		0.0020
2640	HLW02-19	HLW02 Initial M	Piepel et al. 2008	0.0400	0.1400	0.0050	0.1078		0.0006	0.0200	0.0012	0.0885	0.0010	0.0050	0.3800	0.0600	0.0002		0.0002	0.0003		0.0001		0.0150	0.0005		0.0020
2641	HLW02-20, HLW02-20R1	HLW02 Initial M	Piepel et al. 2008	0.0400	0.1400	0.0050	0.1400		0.0006	0.0200	0.0012	0.0645	0.0010	0.0050	0.5173	0.0000	0.0002		0.0002	0.0003		0.0001		0.0005	0.0005		0.0020
2642	HLW02-21, HLW02-21R1	HLW02 Initial M	Piepel et al. 2008	0.0850	0.1400	0.0050	0.0800		0.0006	0.0200	0.0012	0.1500	0.0010	0.0050	0.4644	0.0150	0.0002		0.0002	0.0003		0.0001		0.0005	0.0005		0.0020
2643	HLW02-22	HLW02 Initial M	Piepel et al. 2008	0.0850	0.1400	0.0050	0.0950		0.0006	0.0600	0.0012	0.0400	0.0010	0.0050	0.5300	0.0000	0.0002		0.0002	0.0003		0.0001		0.0005	0.0005		0.0020
2644	HLW02-23, HLW02-23R1	HLW02 Initial M	Piepel et al. 2008	0.0850	0.1400	0.0050	0.0800		0.0006	0.0600	0.0012	0.0559	0.0100	0.0050	0.3933	0.0150	0.0002		0.0002	0.0003		0.0001		0.0150	0.0005		0.0020
2645	HLW02-24	HLW02 Initial M	Piepel et al. 2008	0.0850	0.0500	0.0050	0.0800		0.0006	0.0200	0.0012	0.1219	0.0010	0.0050	0.4705	0.0150	0.0015		0.0018	0.0023		0.0001		0.0005	0.0005		0.0020
2646	HLW02-25, HLW02-25R1	HLW02 Initial M	Piepel et al. 2008	0.0850	0.1400	0.0050	0.0950		0.0006	0.0200	0.0012	0.0688	0.0010	0.0050	0.4740	0.0000	0.0002		0.0002	0.0003		0.0001		0.0150	0.0005		0.0020
2647	HLW02-26	HLW02 Initial M	Piepel et al. 2008	0.0400	0.0500	0.0050	0.1250		0.0006	0.0200	0.0012	0.1500	0.0010	0.0050	0.3799	0.0600	0.0020		0.0023	0.0030		0.0001		0.0150	0.0005		0.0020
2648	HLW02-27	HLW02 Initial M	Piepel et al. 2008	0.0400	0.1400	0.0050	0.1250		0.0006	0.0600	0.0012	0.0427	0.0010	0.0050	0.3995	0.0600	0.0002		0.0002	0.0003		0.0001		0.0005	0.0005		0.0020
2649	HLW02-28	HLW02 Initial M	Piepel et al. 2008	0.0750	0.0800	0.0050	0.1045		0.0006	0.0250	0.0012	0.1500	0.0030	0.0050	0.4100	0.0450	0.0004		0.0005	0.0006		0.0001		0.0100	0.0005		0.0020
2650	HLW02-29, HLW02-29R1	HLW02 Initial M	Piepel et al. 2008	0.0750	0.1300	0.0050	0.1000		0.0006	0.0375	0.0012	0.0900	0.0030	0.0050	0.4099	0.0450	0.0013		0.0015	0.0020		0.0001		0.0050	0.0005		0.0020
2651	HLW02-30	HLW02 Initial M	Piepel et al. 2008	0.0550	0.0972	0.0050	0.1000		0.0006	0.0500	0.0012	0.1123	0.0030	0.0050	0.4100	0.0450	0.0004		0.0005	0.0006		0.0001		0.0100	0.0005		0.0020
2652	HLW02-31	HLW02 Initial M	Piepel et al. 2008	0.0550	0.1300	0.0050	0.1000		0.0006	0.0250	0.0012	0.1498	0.0030	0.0050	0.4100	0.0437	0.0004		0.0005	0.0006		0.0001		0.0050	0.0005		0.0020
2653	HLW02-32, HLW02-32R1	HLW02 Initial M	Piepel et al. 2008	0.0750	0.0800	0.0050	0.1000		0.0006	0.0500	0.0012	0.1073	0.0030	0.0050	0.4612	0.0150	0.0004		0.0005	0.0006		0.0001		0.0100	0.0005		0.0020
2654	HLW02-33	HLW02 Initial M	Piepel et al. 2008	0.0634	0.0800	0.0050	0.1200		0.0006	0.0250	0.0012	0.1500	0.0080	0.0050	0.4100	0.0201	0.0004		0.0005	0.0006		0.0001		0.0050	0.0005		0.0020
2655	HLW02-34, HLW02-34R1	HLW02 Initial M	Piepel et al. 2008	0.0550	0.1300	0.0050	0.1200		0.0006	0.0396	0.0012	0.1089	0.0080	0.0050	0.4099	0.0150	0.0013		0.0015	0.0020		0.0001		0.0100	0.0005		0.0020
2656	HLW02-35	HLW02 Initial M	Piepel et al. 2008	0.0649	0.1300	0.0050	0.1200		0.0006	0.0500	0.0012	0.0916	0.0080	0.0050	0.4100	0.0150	0.0013		0.0015	0.0020		0.0001		0.0050	0.0005		0.0020
2657	HLW02-36	HLW02 Initial M	Piepel et al. 2008	0.0550	0.0867	0.0050	0.1200		0.0006	0.0250	0.0012	0.1500	0.0030	0.0050	0.4507	0.0150	0.0013		0.0015	0.0020		0.0001		0.0100	0.0005		0.0020
2658	HLW02-37	HLW02 Initial M	Piepel et al. 2008	0.0676	0.1300	0.0050	0.1000		0.0006	0.0250	0.0012	0.1119	0.0080	0.0050	0.4100	0.0450	0.0004		0.0005	0.0006		0.0001		0.0050	0.0005		0.0020
2659	HLW02-38	HLW02 Initial M	Piepel et al. 2008	0.0689	0.1300	0.0050	0.1200		0.0006	0.0426	0.0012	0.0900	0.0080	0.0050	0.4099	0.0150	0.0013		0.0015	0.0020		0.0001		0.0100	0.0005		0.0020
2660	HLW02-39	HLW02 Initial M	Piepel et al. 2008	0.0750	0.0899	0.0050	0.1000		0.0006	0.0250	0.0012	0.1106	0.0080	0.0050	0.4900	0.0150	0.0004		0.0005	0.0006		0.0001		0.0100	0.0005		0.0020
2661	HLW02-40	HLW02 Initial M	Piepel et al. 2008	0.0750	0.0983	0.0050	0.1000		0.0006	0.0263	0.0012	0.0968	0.0030	0.0050	0.4900	0.0150	0.0013		0.0015	0.0020		0.0001		0.0100	0.0005		0.0020
2662	HLW02-41	HLW02 Initial M	Piepel et al. 2008	0.0650	0.1300	0.0050	0.1000		0.0006	0.0250	0.0012	0.0900	0.0030	0.0050	0.4895	0.0150	0.0004		0.0005	0.0006		0.0001		0.0050	0.0005		0.0020
2663	HLW02-42	HLW02 Initial M	Piepel et al. 2008	0.0550	0.1300	0.0050	0.1000		0.0006	0.0500	0.0012	0.0900	0.0030	0.0050	0.4445	0.0250	0.0004		0.0005	0.0006		0.0001		0.0050	0.0005		0.0020
2664	HLW02-43	HLW02 Initial M	Piepel et al. 2008	0.0650	0.1300	0.0050	0.1000		0.0006	0.0250	0.0012	0.1245	0.0030	0.0050	0.4100	0.0150	0.0004		0.0005	0.0006		0.0001		0.0100	0.0005		0.0020
2665	HLW02-44	HLW02 Initial M	Piepel et al. 2008	0.0550	0.0907	0.0050	0.1000		0.0006	0.0250	0.0012	0.1500	0.0030	0.0050	0.4367	0.0250	0.0013		0.0015	0.0020		0.0001		0.0100	0.0005		0.0020
2666	HLW02-45	HLW02 Initial M	Piepel et al. 2008	0.0550	0.0800	0.0050	0.1100		0.0006	0.0250	0.0012	0.0962	0.0030	0.0050	0.4883	0.0150	0.0004		0.0005	0.0006		0.0001		0.0100	0.0005		0.0020
2667	HLW02-46	HLW02 Initial M	Piepel et al. 2008	0.0550	0.0915	0.0050	0.1000		0.0006	0.0370	0.0012	0.0900	0.0080	0.0050	0.4900	0.0250	0.0004		0.0005	0.0006		0.0001		0.0050	0.0005		0.0020
2668	HLW02-47	HLW02 Initial M	Piepel et al. 2008	0.0550	0.0981	0.0050	0.1000		0.0006	0.0250	0.0012	0.0944	0.0030	0.0050	0.4900	0.0250	0.0013		0.0015	0.0020		0.0001		0.0050	0.0005		0.0020
2669	HLW02-48	HLW02 Initial M	Piepel et al. 2008	0.0600	0.0800	0.0050	0.1200		0.0006	0.0334	0.0012	0.1500	0.0080	0.0050	0.4100	0.0450	0.0013		0.0015	0.0020		0.0001		0.0050	0.0005		0.0020
2670	HLW02-49	HLW02 Initial M	Piepel et al. 2008	0.0750	0.0874	0.0050	0.1200		0.0006	0.0500	0.0012	0.0900	0.0030	0.0050	0.4421	0.0300	0.0004		0.0005	0.0006		0.0001		0.0050	0.0005		0.0020
2671	HLW02-50	HLW02 Initial M	Piepel et al. 2008	0.0600	0.1300	0.0050	0.1200		0.0006	0.0250	0.0012	0.0982	0.0030	0.0050	0.4353	0.0450	0.0004		0.0005	0.0006		0.0001		0.0050	0.0005		0.0020
2672	HLW02-51, HLW02-51R1	HLW02 Initial M	Piepel et al. 2008	0.0750	0.0800	0.0050	0.1050		0.0006	0.0459	0.0012	0.0900	0.0030	0.0050	0.4516	0.0450	0.0004		0.0005	0.0006		0.0001		0.0050	0.0005		0.0020
2673	HLW02-52	HLW02 Initial M	Piepel et al. 2008	0.0617	0.0993	0.0050	0.1090		0.0006	0.0400	0.0012	0.1096	0.0052	0.0050	0.4361	0.0297	0.0011		0.0012	0.0016		0.0001		0.0077	0.0005		0.0020
2674	HLW02-53	HLW02 Initial M	Piepel et al. 2008	0.0850	0.0500	0.0050	0.1384		0.0006	0.0600	0.0012	0.0769	0.0010	0.0050	0.5296	0.0000	0.0002		0.0002	0.0003		0.0001		0.0150	0.0005		0.0020
2675	HLW02-54	HLW02 Initial M	Piepel et al. 2008	0.0400	0.0500	0.0050	0.1400		0.0006	0.0200	0.0012	0.1500	0.0010	0.0050	0.5294	0.0000	0.0002		0.0002	0.0003		0.0001		0.0150	0.0005		0.0020
2676	HLW02-55	HLW02 Initial M	Piepel et al. 2008	0.0550	0.1300	0.0050	0.1000		0.0006	0.0500	0.0012	0.0900	0.0030	0.0050	0.4445	0.0250	0.0004		0.0005	0.0006		0.0001		0.0050	0.0005		0.0020
2677	HLW02-56	HLW02 Initial M	Piepel et al. 2008	0.0550	0.0907	0.0050	0.1000		0.0006	0.0250	0.0012	0.1500	0.0030	0.0050	0.4367	0.0250	0.0013		0.0015	0.0020		0.0001		0.0100	0.0005		0.0020
2678	HLW02-57	HLW02 Initial M	Piepel et al. 2008	0.0400	0.1400	0.0050	0.0921		0.0006	0.0331	0.0012	0.1500	0.0010	0.0050	0.3874	0.0600	0.0002		0.0002	0.0003		0.0001		0.0005	0.0005		0.0020
2679	HLW03-01	HLW03 Augmentation M	Piepel et al. 2008	0.0833	0.1373	0.0050	0.1373		0.0006	0.0588	0.0012	0.0392	0.0010	0.0050	0.3530	0.0298	0.0020		0.0023	0.0030		0.0001		0.0005	0.0005		0.0020
2680	HLW03-02	HLW03 Augmentation M	Piepel et al. 2008	0.0195	0.1366	0.0050	0.1366		0.0006	0.0247	0.0012	0.1118	0.0098	0.0050	0.3513	0.0909	0.0002		0.0002	0.0003		0.0001		0.0160	0.0005		0.0020
2681	HLW03-03	HLW03 Augmentation M	Piepel et al. 2008	0.0195	0.0488	0.0050	0.1368		0.0006	0.0268	0.0012	0.1076	0.0098	0.0050	0.3517	0.0640	0.0002		0.0002	0.0003		0.0001		0.0160	0.0005		0.0020
2682	HLW03-04	HLW03 Augmentation M	Piepel et al. 2008	0.0195	0.0489	0.0050	0.1368		0.0006	0.0586	0.0012	0.0444	0.0010	0.0050	0.4242	0.0293	0.0020		0.0023	0.0030		0.0001		0.0005	0.0005		0.0020
2683	HLW03-05	HLW03 Augmentation M	Piepel et al. 2008	0.0818	0.0481	0.0050	0.0192		0.0006	0.0192	0.0012	0.1443	0.0010	0.0050	0.4784	0.0000	0.0020		0.0023	0.0030		0.0001		0.0160	0.0005		0.0020
2684	HLW03-06	HLW03 Augmentation M	Piepel et al. 2008	0.0834	0.0491	0.0050	0.0196		0.0006	0.0589	0.0012	0.0393	0.0098	0.0050	0.5203	0.0410	0.0002		0.0002	0.0003		0.0001		0.0160	0.0005		0.0020
2685	HLW03-07	HLW03 Augmentation M	Piepel et al. 2008	0.0496	0.0496	0.0050	0.1389		0.0006	0.0475	0.0012	0.1169	0.0010	0.0050	0.3983	0.0000	0.0002		0.0002	0.0003		0.0001		0.0005	0.0005		0.0020
2686	HLW03-08	HLW03 Augmentation M	Piepel et al. 2008	0.0803	0.0483	0.0050	0.0193		0.0006	0.0515	0.0012	0.1450	0.0010	0.0050	0.3480	0.0967	0.0020		0.0023	0.0030		0.0001		0.0160	0.0005		0.0020
2687	HLW03-09	HLW03 Augmentation M	Piepel et al. 2008	0.0767	0.1370	0.0050	0.0349		0.0006	0.0198	0.0012	0.1485	0.0010	0.0050	0.5246	0.0000	0.0002		0.0002	0.0003		0.0001		0.0005	0.0005		0.0020
2688	HLW03-10, HLW03-10R1	HLW03 Augmentation M	Piepel et al. 2008	0.0837	0.0492	0.0050	0.0998		0.0006	0.0591	0.0012	0.1285	0.0099	0.0050	0.3545	0.0725	0.0020		0.0023	0.0030		0.0001		0.0005	0.0005		0.0020
2689	HLW03-11	HLW03 Augmentation M	Piepel et al. 2008	0.0198	0.0496	0.0050	0.0954		0.0006	0.0198	0.0012	0.1488	0.0010	0.0050	0.5259	0.0000	0.0002		0.0002	0.0003		0.0001		0.0005	0.0005		0.0020
2690	HLW03-12	HLW03 Augmentation M	Piepel et al. 2008	0.0198	0.0496	0.0050	0.0198		0.0006	0.0501	0.0012	0.0397	0.0010	0.0050	0.4428	0.0368	0.0002		0.0002	0.0003		0.0001		0.0005	0.0005		0.0020
2691	HLW03-13	HLW03 Augmentation M	Piepel et al. 2008	0.0843	0.0496	0.0050	0.0863		0.0006	0.0521	0.0012	0.0397	0.0099	0.0050	0.3572	0.0085	0.0002		0.0002	0.0003		0.0001		0.0005	0.0005		0.0020
2692	HLW03-14	HLW03 Augmentation M	Piepel et al. 2008	0.0199	0.0497	0.0050	0.0905		0.0006	0.0250	0.0012	0.1043	0.0099	0.0050	0.3581	0.0651	0.0002		0.0002	0.0003		0.0001		0.0005	0.0005		0.0020
2693	HLW03-15	HLW03 Augmentation M	Piepel et al. 2008	0.0195	0.1366	0.0050	0.1366		0.0006	0.0195	0.0012	0.0525	0.0010	0.0050	0.5172	0.0000	0.0002		0.0002	0.0003		0.0001		0.0160	0.0005		0.0020
2694	HLW03-16	HLW03 Augmentation M	Piepel et al. 2008	0.0195	0.0489	0.0050	0.0791		0.0006	0.0286	0.0012	0.0391	0.0098	0.0050	0.4424	0.0100	0.0020		0.0023	0.0030		0.0001		0.0005	0.0005		0.0020
2695	HLW03-17	HLW03 Augmentation M	Piepel et al. 2008	0.0835	0.1376	0.0050	0.0197		0.0006	0.0197	0.0012	0.0446	0.0029	0.0050	0.4609	0.0164	0.0020		0.0023	0.0030		0.0001		0.0005	0.0005		0.0020
2696	HLW03-18	HLW03 Augmentation M	Piepel et al. 2008	0.0199	0.0497	0.0050	0.1392		0.0006	0.0592	0.0012	0.1053	0.0098	0.0050	0.5248	0.0000	0.0002		0.0002	0.0003		0.0001		0.0005	0.0005		0.0020
2697	HLW03-19	HLW03 Augmentation M	Piepel et al. 2008	0.0196	0.0491	0.0050	0.0963		0.0006	0.0589	0.0012	0.1014	0.0098	0.0050	0.5203	0.0000	0.0002		0.0002	0.0003		0.0001		0.0160	0.0005		0.0020
2698	HLW03-20	HLW03 Augmentation M	Piepel et al. 2008	0.0192	0.0481	0.0050	0.1346		0.0006	0.0577	0.0012	0.1010	0.0096	0.0050	0.5068	0.0000	0.0020		0.0023	0.0030		0.0001		0.0160	0.0005		0.0020
2699	HLW03-21	HLW03 Augmentation M	Piepel et al. 2008	0.0496	0.0694	0.0050	0.0496		0.0006	0.0248	0.0012	0.1083	0.0030	0.0050	0.4859	0.0595	0.0004		0.0005	0.0006		0.0001		0.0030	0.0005		0.0020
2700	HLW03-22	HLW03 Augmentation M	Piepel et al. 2008	0.0491	0.0688	0.0050	0.0975		0.0006	0.0246	0.0012	0.1180	0.0030	0.0050	0.4030	0.0590	0.0013		0.0016	0.0020		0.0001		0.0030	0.0005		0.0020
2701	HLW03-23	HLW03 Augmentation M	Piepel et al. 2008	0.0496	0.1190	0.0050	0.0773		0.0006	0.0248	0.0012	0.1190	0.0030	0.0050	0.4065	0.0595	0.0004		0.0005	0.0006		0.0001		0.0010	0.0005		0.0020
2702	HLW03-24	HLW03 Augmentation M	Piepel et al. 2008	0.0297	0.0694	0.0050	0.0496		0.0006	0.0496	0.0012	0.0815	0.0050	0.0050	0.4859	0.0595	0.0004		0.0005	0.0006		0.0001		0.0030	0.0005		0.0020
2703	HLW03-25	HLW03 Augmentation M	Piepel et al. 2008	0.0296	0.1182	0.0050	0.0493		0.0006	0.0246	0.0012	0.1182	0.0049	0.0050	0.4209	0.0591	0.0013		0.0016	0.0020		0.0001		0.0010	0.0005		0.0020
2704	HLW03-26	HLW03 Augmentation M	Piepel et al. 2008	0.0492	0.0689	0.0050	0.0492		0.0006	0.0492	0.0012	0.1043	0.0049	0.0050	0.4035	0.0590	0.0013		0.0016	0.0020		0.0001		0.0010	0.0005		0.0020
2705	HLW03-27	HLW03 Augmentation M	Piepel et al. 2008	0.0493	0.0690	0.0050	0.0936		0.0006	0.0404	0.0012	0.1182	0.0049	0.0050	0.4039	0.0591	0.0013		0.0016	0.0020		0.0001		0.0010	0.0005		0.0020
2706	HLW03-28	HLW03 Augmentation M	Piepel et al. 2008	0.0363	0.1191	0.0050	0.0993		0.0006	0.0496	0.0012	0.1049	0.0050	0.0050	0.4069	0.0596	0.0004		0.0005	0.0006		0.0001		0.0010	0.0005		0.0020

#	Glass ID	CoO-t	Co2O3-t	Cr2O3-t	Cs2O-t	CuO-t	Dy2O3-t	Eu2O3-t	F-t	Ga2O3-t	Gd2O3-t	HfO2-t	HgO-t	I-t	La2O3-t	MnO2-t	MnO-t	MoO-t	MoO2-t	MoO3-t	Nb2O5-t	Nd2O3-t	NpO2-t	PbO-t	PdO2-t	PdO-t	Pr2O3-t	Pr6O11-t	Rb2O-t	ReO-t
2625	HLW02-04	0.0001		0.0002	0.0001	0.0001			0.0005						0.0030		0.0052							0.0004		0.0012				
2626	HLW02-05	0.0001		0.0002	0.0001	0.0001			0.0005						0.0030		0.0000							0.0004		0.0012				
2627	HLW02-06	0.0001		0.0002	0.0001	0.0001			0.0005						0.0030		0.0500							0.0004		0.0012				
2628	HLW02-07	0.0001		0.0020	0.0001	0.0010			0.0005						0.0030		0.0000							0.0040		0.0012				
2629	HLW02-08	0.0001		0.0002	0.0001	0.0001			0.0005						0.0030		0.0500							0.0004		0.0012				
2630	HLW02-09	0.0001		0.0002	0.0001	0.0001			0.0005						0.0030		0.0000							0.0004		0.0012				
2631	HLW02-10	0.0001		0.0002	0.0001	0.0001			0.0005						0.0030		0.0000							0.0004		0.0012				
2632	HLW02-11	0.0001		0.0002	0.0001	0.0001			0.0005						0.0030		0.0000							0.0004		0.0012				
2633	HLW02-12	0.0001		0.0020	0.0001	0.0010			0.0005						0.0030		0.0500							0.0040		0.0012				
2634	HLW02-13	0.0001		0.0020	0.0001	0.0010			0.0005						0.0030		0.0500							0.0040		0.0012				
2635	HLW02-14	0.0001		0.0002	0.0001	0.0001			0.0005						0.0030		0.0249							0.0004		0.0012				
2636	HLW02-15	0.0001		0.0020	0.0001	0.0010			0.0005						0.0030		0.0469							0.0040		0.0012				
2637	HLW02-16	0.0001		0.0020	0.0001	0.0010			0.0005						0.0030		0.0500							0.0040		0.0012				
2638	HLW02-17	0.0001		0.0002	0.0001	0.0001			0.0005						0.0030		0.0000							0.0004		0.0012				
2639	HLW02-18	0.0001		0.0020	0.0001	0.0010			0.0005						0.0030		0.0000							0.0040		0.0012				
2640	HLW02-19	0.0001		0.0002	0.0001	0.0001			0.0005						0.0030		0.0500							0.0004		0.0012				
2641	HLW02-20, HLW02-20R1	0.0001		0.0002	0.0001	0.0001			0.0005						0.0030		0.0000							0.0004		0.0012				
2642	HLW02-21, HLW02-21R1	0.0001		0.0002	0.0001	0.0001			0.0005						0.0030		0.0000							0.0004		0.0012				
2643	HLW02-22	0.0001		0.0002	0.0001	0.0001			0.0005						0.0030		0.0000							0.0004		0.0012				
2644	HLW02-23, HLW02-23R1	0.0001		0.0002	0.0001	0.0001			0.0005						0.0030		0.0500							0.0004		0.0012				
2645	HLW02-24	0.0001		0.0015	0.0001	0.0008			0.0005						0.0030		0.0500							0.0031		0.0012				
2646	HLW02-25, HLW02-25R1	0.0001		0.0002	0.0001	0.0001			0.0005						0.0030		0.0035							0.0004		0.0012				
2647	HLW02-26	0.0001		0.0020	0.0001	0.0010			0.0005						0.0030		0.0496							0.0040		0.0012				
2648	HLW02-27	0.0001		0.0002	0.0001	0.0001			0.0005						0.0030		0.0337							0.0004		0.0012				
2649	HLW02-28	0.0001		0.0004	0.0001	0.0002			0.0005						0.0030		0.0150							0.0008		0.0012				
2650	HLW02-29, HLW02-29R1	0.0001		0.0013	0.0001	0.0007			0.0005						0.0030		0.0150							0.0027		0.0012				
2651	HLW02-30	0.0001		0.0004	0.0001	0.0002			0.0005						0.0030		0.0350							0.0008		0.0012				
2652	HLW02-31	0.0001		0.0004	0.0001	0.0002			0.0005						0.0030		0.0150							0.0008		0.0012				
2653	HLW02-32, HLW02-32R1	0.0001		0.0004	0.0001	0.0002			0.0005						0.0030		0.0150							0.0008		0.0012				
2654	HLW02-33	0.0001		0.0004	0.0001	0.0002			0.0005						0.0030		0.0350							0.0008		0.0012				
2655	HLW02-34, HLW02-34R1	0.0001		0.0013	0.0001	0.0007			0.0005						0.0030		0.0150							0.0027		0.0012				
2656	HLW02-35	0.0001		0.0013	0.0001	0.0007			0.0005						0.0030		0.0350							0.0027		0.0012				
2657	HLW02-36	0.0001		0.0013	0.0001	0.0007			0.0005						0.0030		0.0150							0.0027		0.0012				
2658	HLW02-37	0.0001		0.0004	0.0001	0.0002			0.0005						0.0030		0.0350							0.0008		0.0012				
2659	HLW02-38	0.0001		0.0013	0.0001	0.0007			0.0005						0.0030		0.0150							0.0027		0.0012				
2660	HLW02-39	0.0001		0.0004	0.0001	0.0002			0.0005						0.0030		0.0150							0.0008		0.0012				
2661	HLW02-40	0.0001		0.0013	0.0001	0.0007			0.0005						0.0030		0.0150							0.0027		0.0012				
2662	HLW02-41	0.0001		0.0004	0.0001	0.0002			0.0005						0.0030		0.0150							0.0008		0.0012				
2663	HLW02-42	0.0001		0.0004	0.0001	0.0002			0.0005						0.0030		0.0150							0.0008		0.0012				
2664	HLW02-43	0.0001		0.0004	0.0001	0.0002			0.0005						0.0030		0.0350							0.0008		0.0012				
2665	HLW02-44	0.0001		0.0013	0.0001	0.0007			0.0005						0.0030		0.0350							0.0027		0.0012				
2666	HLW02-45	0.0001		0.0004	0.0001	0.0002			0.0005						0.0030		0.0350							0.0008		0.0012				
2667	HLW02-46	0.0001		0.0004	0.0001	0.0002			0.0005						0.0030		0.0350							0.0008		0.0012				
2668	HLW02-47	0.0001		0.0013	0.0001	0.0007			0.0005						0.0030		0.0350							0.0027		0.0012				
2669	HLW02-48	0.0001		0.0013	0.0001	0.0007			0.0005						0.0030		0.0150							0.0027		0.0012				
2670	HLW02-49	0.0001		0.0004	0.0001	0.0002			0.0005						0.0030		0.0350							0.0008		0.0012				
2671	HLW02-50	0.0001		0.0004	0.0001	0.0002			0.0005						0.0030		0.0150							0.0008		0.0012				
2672	HLW02-51, HLW02-51R1	0.0001		0.0004	0.0001	0.0002			0.0005						0.0030		0.0150							0.0008		0.0012				
2673	HLW02-52	0.0001		0.0011	0.0001	0.0005			0.0005						0.0030		0.0239							0.0022		0.0012				
2674	HLW02-53	0.0001		0.0002	0.0001	0.0001			0.0005						0.0030		0.0000							0.0004		0.0012				
2675	HLW02-54	0.0001		0.0002	0.0001	0.0001			0.0005						0.0030		0.0052							0.0004		0.0012				
2676	HLW02-55	0.0001		0.0004	0.0001	0.0002			0.0005						0.0030		0.0150							0.0008		0.0012				
2677	HLW02-56	0.0001		0.0013	0.0001	0.0007			0.0005						0.0030		0.0350							0.0027		0.0012				
2678	HLW02-57	0.0001		0.0002	0.0001	0.0001			0.0005						0.0030		0.0500							0.0004		0.0012				
2679	HLW03-01	0.0001		0.0002	0.0001	0.0010			0.0005						0.0030		0.0608							0.0040		0.0012				
2680	HLW03-02	0.0001		0.0049	0.0001	0.0001			0.0005						0.0030		0.0683							0.0004		0.0012				
2681	HLW03-03	0.0001		0.0049	0.0001	0.0001			0.0005						0.0030		0.0684							0.0004		0.0012				
2682	HLW03-04	0.0001		0.0049	0.0001	0.0010			0.0005						0.0030		0.0316							0.0040		0.0012				
2683	HLW03-05	0.0001		0.0048	0.0001	0.0010			0.0005						0.0030		0.0673							0.0040		0.0012				
2684	HLW03-06	0.0001		0.0049	0.0001	0.0001			0.0005						0.0030		0.0687							0.0004		0.0012				
2685	HLW03-07	0.0001		0.0050	0.0001	0.0001			0.0005						0.0030		0.0695							0.0004		0.0012				
2686	HLW03-08	0.0001		0.0048	0.0001	0.0010			0.0005						0.0030		0.0677							0.0040		0.0012				
2687	HLW03-09	0.0001		0.0002	0.0001	0.0001			0.0005						0.0030		0.0000							0.0004		0.0012				
2688	HLW03-10, HLW03-10R1	0.0001		0.0002	0.0001	0.0010			0.0005						0.0030		0.0689							0.0040		0.0012				
2689	HLW03-11	0.0001		0.0002	0.0001	0.0001			0.0005						0.0030		0.0000							0.0004		0.0012				
2690	HLW03-12	0.0001		0.0050	0.0001	0.0001			0.0005						0.0030		0.0694							0.0004		0.0012				
2691	HLW03-13	0.0001		0.0050	0.0001	0.0001			0.0005						0.0030		0.0695							0.0004		0.0012				
2692	HLW03-14	0.0001		0.0002	0.0001	0.0001			0.0005						0.0030		0.0696							0.0004		0.0012				
2693	HLW03-15	0.0001		0.0002	0.0001	0.0001			0.0005						0.0030		0.0135							0.0004		0.0012				
2694	HLW03-16	0.0001		0.0002	0.0001	0.0010			0.0005						0.0030		0.0684							0.0040		0.0012				
2695	HLW03-17	0.0001		0.0002	0.0001	0.0010			0.0005						0.0030		0.0688							0.0040		0.0012				
2696	HLW03-18	0.0001		0.0050	0.0001	0.0001			0.0005						0.0030		0.0000							0.0004		0.0012				
2697	HLW03-19	0.0001		0.0049	0.0001	0.0001			0.0005						0.0030		0.0020							0.0004		0.0012				
2698	HLW03-20	0.0001		0.0002	0.0001	0.0010			0.0005						0.0030		0.0000							0.0040		0.0012				
2699	HLW03-21	0.0001		0.0008	0.0001	0.0002			0.0005						0.0030		0.0446							0.0008		0.0012				
2700	HLW03-22	0.0001		0.0008	0.0001	0.0007			0.0005						0.0030		0.0147							0.0027		0.0012				
2701	HLW03-23	0.0001		0.0020	0.0001	0.0002			0.0005						0.0030		0.0149							0.0008		0.0012				
2702	HLW03-24	0.0001		0.0008	0.0001	0.0002			0.0005						0.0030		0.0446							0.0008		0.0012				
2703	HLW03-25	0.0001		0.0008	0.0001	0.0007			0.0005						0.0030		0.0148							0.0027		0.0012				
2704	HLW03-26	0.0001		0.0020	0.0001	0.0007			0.0005						0.0030		0.0148							0.0027		0.0012				
2705	HLW03-27	0.0001		0.0020	0.0001	0.0007			0.0005						0.0030		0.0148							0.0027		0.0012				
2706	HLW03-28	0.0001		0.0008	0.0001	0.0002			0.0005						0.0030		0.0149							0.0008		0.0012				

#	Glass ID	ReO2-t	Re2O7-t	Rh2O3-t	RhO2-t	RuO2-t	Ru2O3-t	Sb2O3-t	Sb2O5-t	SeO2-t	Sm2O3-t	SnO-t	SnO2-t	SO3-t	SrO-t	Tc2O7-t	TeO2-t	ThO2-t	TiO2-t	Tl2O-t	Tl2O3-t	U3O8-t	UO2-t	UO3-t	V2O5-t	WO3-t	Y2O3-t	ZnO-t	Sum-t	Al2O3-a
2625	HLW02-04			0.0005		0.0008		0.0020		0.0020				0.0010	0.0000		0.0001		0.0003	0.0019					0.0001			0.0200	1.0000	
2626	HLW02-05			0.0005		0.0008		0.0002		0.0002				0.0010	0.0000		0.0001		0.0003	0.0002					0.0001			0.0200	1.0000	
2627	HLW02-06			0.0005		0.0008		0.0002		0.0020				0.0010	0.0000		0.0001		0.0003	0.0019					0.0001			0.0200	1.0000	
2628	HLW02-07			0.0005		0.0008		0.0020		0.0002				0.0010	0.0000		0.0001		0.0003	0.0019					0.0010			0.0200	1.0000	
2629	HLW02-08			0.0005		0.0008		0.0020		0.0002				0.0010	0.0000		0.0001		0.0003	0.0002					0.0001			0.0200	1.0000	
2630	HLW02-09			0.0005		0.0008		0.0020		0.0002				0.0010	0.0500		0.0001		0.0003	0.0002					0.0001			0.0200	1.0000	
2631	HLW02-10			0.0005		0.0008		0.0002		0.0020				0.0010	0.0280		0.0001		0.0003	0.0002					0.0001			0.0200	1.0000	
2632	HLW02-11			0.0005		0.0008		0.0020		0.0020				0.0010	0.0000		0.0001		0.0003	0.0019					0.0001			0.0200	1.0000	
2633	HLW02-12			0.0005		0.0008		0.0002		0.0020				0.0010	0.0000		0.0001		0.0003	0.0002					0.0010			0.0200	1.0000	
2634	HLW02-13			0.0005		0.0008		0.0002		0.0020				0.0010	0.0500		0.0001		0.0003	0.0019					0.0010			0.0200	1.0000	
2635	HLW02-14			0.0005		0.0008		0.0020		0.0002				0.0010	0.0500		0.0001		0.0003	0.0019					0.0001			0.0200	1.0000	
2636	HLW02-15			0.0005		0.0008		0.0002		0.0020				0.0010	0.0000		0.0001		0.0003	0.0019					0.0010			0.0200	1.0000	
2637	HLW02-16			0.0005		0.0008		0.0020		0.0020				0.0010	0.0500		0.0001		0.0003	0.0002					0.0010			0.0200	1.0000	
2638	HLW02-17			0.0005		0.0008		0.0002		0.0002				0.0010	0.0000		0.0001		0.0003	0.0002					0.0001			0.0200	1.0000	
2639	HLW02-18			0.0005		0.0008		0.0020		0.0002				0.0010	0.0000		0.0001		0.0003	0.0002					0.0010			0.0200	1.0000	
2640	HLW02-19			0.0005		0.0008		0.0020		0.0020				0.0010	0.0500		0.0001		0.0003	0.0002					0.0001			0.0200	1.0000	
2641	HLW02-20, HLW02-20R1			0.0005		0.0008		0.0002		0.0002				0.0010	0.0325		0.0001		0.0003	0.0002					0.0001			0.0200	1.0000	
2642	HLW02-21, HLW02-21R1			0.0005		0.0008		0.0002		0.0002				0.0010	0.0000		0.0001		0.0003	0.0002					0.0001			0.0200	1.0000	
2643	HLW02-22			0.0005		0.0008		0.0020		0.0020				0.0010	0.0008		0.0001		0.0003	0.0002					0.0001			0.0200	1.0000	
2644	HLW02-23, HLW02-23R1			0.0005		0.0008		0.0002		0.0002				0.0010	0.0500		0.0001		0.0003	0.0019					0.0001			0.0200	1.0000	
2645	HLW02-24			0.0005		0.0008		0.0002		0.0020				0.0010	0.0500		0.0001		0.0003	0.0002					0.0008			0.0200	1.0000	
2646	HLW02-25, HLW02-25R1			0.0005		0.0008		0.0020		0.0002				0.0010	0.0500		0.0001		0.0003	0.0019					0.0001			0.0200	1.0000	
2647	HLW02-26			0.0005		0.0008		0.0002		0.0002				0.0010	0.0500		0.0001		0.0003	0.0019					0.0010			0.0200	1.0000	
2648	HLW02-27			0.0005		0.0008		0.0002		0.0020				0.0010	0.0500		0.0001		0.0003	0.0019					0.0001			0.0200	1.0000	
2649	HLW02-28			0.0005		0.0008		0.0005		0.0005				0.0010	0.0350		0.0001		0.0003	0.0014					0.0002			0.0200	1.0000	
2650	HLW02-29, HLW02-29R1			0.0005		0.0008		0.0005		0.0015				0.0010	0.0350		0.0001		0.0003	0.0005					0.0007			0.0200	1.0000	
2651	HLW02-30			0.0005		0.0008		0.0015		0.0005				0.0010	0.0350		0.0001		0.0003	0.0005					0.0002			0.0200	1.0000	
2652	HLW02-31			0.0005		0.0008		0.0005		0.0015				0.0010	0.0150		0.0001		0.0003	0.0014					0.0002			0.0200	1.0000	
2653	HLW02-32, HLW02-32R1			0.0005		0.0008		0.0015		0.0015				0.0010	0.0350		0.0001		0.0003	0.0005					0.0002			0.0200	1.0000	
2654	HLW02-33			0.0005		0.0008		0.0015		0.0015				0.0010	0.0350		0.0001		0.0003	0.0005					0.0002			0.0200	1.0000	
2655	HLW02-34, HLW02-34R1			0.0005		0.0008		0.0005		0.0005				0.0010	0.0350		0.0001		0.0003	0.0005					0.0007			0.0200	1.0000	
2656	HLW02-35			0.0005		0.0008		0.0015		0.0005				0.0010	0.0150		0.0001		0.0003	0.0014					0.0007			0.0200	1.0000	
2657	HLW02-36			0.0005		0.0008		0.0005		0.0015				0.0010	0.0150		0.0001		0.0003	0.0005					0.0007			0.0200	1.0000	
2658	HLW02-37			0.0005		0.0008		0.0015		0.0005				0.0010	0.0150		0.0001		0.0003	0.0005					0.0002			0.0200	1.0000	
2659	HLW02-38			0.0005		0.0008		0.0015		0.0015				0.0010	0.0350		0.0001		0.0003	0.0005					0.0007			0.0200	1.0000	
2660	HLW02-39			0.0005		0.0008		0.0005		0.0005				0.0010	0.0150		0.0001		0.0003	0.0005					0.0002			0.0200	1.0000	
2661	HLW02-40			0.0005		0.0008		0.0015		0.0005				0.0010	0.0150		0.0001		0.0003	0.0014					0.0007			0.0200	1.0000	
2662	HLW02-41			0.0005		0.0008		0.0005		0.0005				0.0010	0.0150		0.0001		0.0003	0.0014					0.0002			0.0200	1.0000	
2663	HLW02-42			0.0005		0.0008		0.0005		0.0005				0.0010	0.0350		0.0001		0.0003	0.0014					0.0002			0.0200	1.0000	
2664	HLW02-43			0.0005		0.0008		0.0015		0.0005				0.0010	0.0350		0.0001		0.0003	0.0005					0.0002			0.0200	1.0000	
2665	HLW02-44			0.0005		0.0008		0.0015		0.0005				0.0010	0.0150		0.0001		0.0003	0.0005					0.0007			0.0200	1.0000	
2666	HLW02-45			0.0005		0.0008		0.0005		0.0015				0.0010	0.0350		0.0001		0.0003	0.0005					0.0002			0.0200	1.0000	
2667	HLW02-46			0.0005		0.0008		0.0005		0.0015				0.0010	0.0150		0.0001		0.0003	0.0014					0.0002			0.0200	1.0000	
2668	HLW02-47			0.0005		0.0008		0.0005		0.0005				0.0010	0.0150		0.0001		0.0003	0.0014					0.0007			0.0200	1.0000	
2669	HLW02-48			0.0005		0.0008		0.0015		0.0015				0.0010	0.0171		0.0001		0.0003	0.0014					0.0007			0.0200	1.0000	
2670	HLW02-49			0.0005		0.0008		0.0005		0.0005				0.0010	0.0150		0.0001		0.0003	0.0014					0.0002			0.0200	1.0000	
2671	HLW02-50			0.0005		0.0008		0.0015		0.0005				0.0010	0.0150		0.0001		0.0003	0.0014					0.0002			0.0200	1.0000	
2672	HLW02-51, HLW02-51R1			0.0005		0.0008		0.0015		0.0015				0.0010	0.0350		0.0001		0.0003	0.0014					0.0002			0.0200	1.0000	
2673	HLW02-52			0.0005		0.0008		0.0011		0.0011				0.0010	0.0244		0.0001		0.0003	0.0010					0.0005			0.0200	1.0000	
2674	HLW02-53			0.0005		0.0008		0.0002		0.0002				0.0010	0.0000		0.0001		0.0003	0.0002					0.0001			0.0200	1.0000	
2675	HLW02-54			0.0005		0.0008		0.0020		0.0020				0.0010	0.0000		0.0001		0.0003	0.0019					0.0001			0.0200	1.0000	
2676	HLW02-55			0.0005		0.0008		0.0005		0.0005				0.0010	0.0350		0.0001		0.0003	0.0014					0.0002			0.0200	1.0000	
2677	HLW02-56			0.0005		0.0008		0.0015		0.0005				0.0010	0.0150		0.0001		0.0003	0.0005					0.0007			0.0200	1.0000	
2678	HLW02-57			0.0005		0.0008		0.0020		0.0002				0.0010	0.0000		0.0001		0.0003	0.0002					0.0001			0.0200	1.0000	
2679	HLW03-01			0.0005		0.0008		0.0002		0.0020				0.0010	0.0000		0.0001	0.0276	0.0003	0.0031			0.0000	0.0010			0.0306	1.0000	
2680	HLW03-02			0.0005		0.0008		0.0030		0.0002				0.0010	0.0000		0.0001	0.0000	0.0003	0.0031			0.0000	0.0001			0.0000	1.0000	
2681	HLW03-03			0.0005		0.0008		0.0002		0.0020				0.0010	0.0977		0.0001	0.0000	0.0003	0.0031			0.0000	0.0001			0.0195	1.0000	
2682	HLW03-04			0.0005		0.0008		0.0002		0.0020				0.0010	0.0977		0.0001	0.0000	0.0003	0.0031			0.0621	0.0010			0.0000	1.0000	
2683	HLW03-05			0.0005		0.0008		0.0030		0.0020				0.0010	0.0000		0.0001	0.0381	0.0003	0.0031			0.0000	0.0010			0.0385	1.0000	
2684	HLW03-06			0.0005		0.0008		0.0002		0.0002				0.0010	0.0509		0.0001	0.0142	0.0003	0.0002			0.0000	0.0001			0.0000	1.0000	
2685	HLW03-07			0.0005		0.0008		0.0002		0.0020				0.0010	0.0000		0.0001	0.0000	0.0003	0.0002			0.0631	0.0001			0.0346	1.0000	
2686	HLW03-08			0.0005		0.0008		0.0030		0.0002				0.0010	0.0000		0.0001	0.0441	0.0003	0.0002			0.0000	0.0010			0.0387	1.0000	
2687	HLW03-09			0.0005		0.0008		0.0030		0.0020				0.0010	0.0000		0.0001	0.0255	0.0003	0.0031			0.0000	0.0001			0.0000	1.0000	
2688	HLW03-10, HLW03-10R1			0.0005		0.0008		0.0002		0.0002				0.0010	0.0000		0.0001	0.0263	0.0003	0.0002			0.0111	0.0010			0.0000	1.0000	
2689	HLW03-11			0.0005		0.0008		0.0002		0.0020				0.0010	0.0000		0.0001	0.0503	0.0003	0.0002			0.0631	0.0001			0.0000	1.0000	
2690	HLW03-12			0.0005		0.0008		0.0030		0.0002				0.0010	0.0991		0.0001	0.0373	0.0003	0.0002			0.0630	0.0001			0.0397	1.0000	
2691	HLW03-13			0.0005		0.0008		0.0002		0.0020				0.0010	0.0992		0.0001	0.0384	0.0003	0.0002			0.0631	0.0001			0.0112	1.0000	
2692	HLW03-14			0.0005		0.0008		0.0002		0.0002				0.0010	0.0995		0.0001	0.0411	0.0003	0.0031			0.0000	0.0001			0.0398	1.0000	
2693	HLW03-15			0.0005		0.0008		0.0030		0.0002				0.0010	0.0000		0.0001	0.0244	0.0003	0.0031			0.0000	0.0001			0.0334	1.0000	
2694	HLW03-16			0.0005		0.0008		0.0030		0.0020				0.0010	0.0977		0.0001	0.0257	0.0003	0.0002			0.0621	0.0010			0.0277	1.0000	
2695	HLW03-17			0.0005		0.0008		0.0002		0.0002				0.0010	0.0000		0.0001	0.0224	0.0003	0.0002			0.0478	0.0010			0.0393	1.0000	
2696	HLW03-18			0.0005		0.0008		0.0002		0.0002				0.0010	0.0000		0.0001	0.0597	0.0003	0.0031			0.0000	0.0001			0.0000	1.0000	
2697	HLW03-19			0.0005		0.0008		0.0002		0.0002				0.0010	0.0000		0.0001	0.0585	0.0003	0.0002			0.0000	0.0001			0.0393	1.0000	
2698	HLW03-20			0.0005		0.0008		0.0030		0.0020				0.0010	0.0014		0.0001	0.0577	0.0003	0.0031			0.0043	0.0010			0.0000	1.0000	
2699	HLW03-21			0.0005		0.0008		0.0005		0.0005				0.0010	0.0149		0.0001	0.0297	0.0003	0.0005			0.0210	0.0002			0.0099	1.0000	
2700	HLW03-22			0.0005		0.0008		0.0005		0.0015				0.0010	0.0442		0.0001	0.0295	0.0003	0.0005			0.0417	0.0007			0.0098	1.0000	
2701	HLW03-23			0.0005		0.0008		0.0005		0.0015				0.0010	0.0149		0.0001	0.0297	0.0003	0.0005			0.0420	0.0002			0.0099	1.0000	
2702	HLW03-24			0.0005		0.0008		0.0005		0.0005				0.0010	0.0149		0.0001	0.0297	0.0003	0.0005			0.0210	0.0002			0.0297	1.0000	
2703	HLW03-25			0.0005		0.0008		0.0005		0.0015				0.0010	0.0443		0.0001	0.0296	0.0003	0.0014			0.0209	0.0007			0.0296	1.0000	
2704	HLW03-26			0.0005		0.0008		0.0015		0.0015				0.0010	0.0443		0.0001	0.0443	0.0003	0.0005			0.0417	0.0007			0.0295	1.0000	
2705	HLW03-27			0.0005		0.0008		0.0015		0.0015				0.0010	0.0148		0.0001	0.0443	0.0003	0.0005			0.0209	0.0007			0.0296	1.0000	
2706	HLW03-28			0.0005		0.0008		0.0015		0.0005				0.0010	0.0149		0.0001	0.0298	0.0003	0.0005			0.0210	0.0002			0.0099	1.0000	

#	Glass ID	B2O3-a	CaO-a	Fe2O3-a	FeO-a	K2O-a	Li2O-a	MgO-a	Na2O-a	NiO-a	P2O5-a	SiO2-a	ZrO2-a	Ag2O-a	As2O3-a	As2O5-a	BaO-a	BeO-a	Bi2O3-a	Br-a	CdO-a	Ce2O3-a	CeO2-a	Cl-a	CoO-a	Co2O3-a	Cr2O3-a	Cs2O-a	CuO-a	F-a
2625	HLW02-04																													
2626	HLW02-05																													
2627	HLW02-06																													
2628	HLW02-07																													
2629	HLW02-08																													
2630	HLW02-09																													
2631	HLW02-10																													
2632	HLW02-11																													
2633	HLW02-12																													
2634	HLW02-13																													
2635	HLW02-14																													
2636	HLW02-15																													
2637	HLW02-16																													
2638	HLW02-17																													
2639	HLW02-18																													
2640	HLW02-19																													
2641	HLW02-20, HLW02-20R1																													
2642	HLW02-21, HLW02-21R1																													
2643	HLW02-22																													
2644	HLW02-23, HLW02-23R1																													
2645	HLW02-24																													
2646	HLW02-25, HLW02-25R1																													
2647	HLW02-26																													
2648	HLW02-27																													
2649	HLW02-28																													
2650	HLW02-29, HLW02-29R1																													
2651	HLW02-30																													
2652	HLW02-31																													
2653	HLW02-32, HLW02-32R1																													
2654	HLW02-33																													
2655	HLW02-34, HLW02-34R1																													
2656	HLW02-35																													
2657	HLW02-36																													
2658	HLW02-37																													
2659	HLW02-38																													
2660	HLW02-39																													
2661	HLW02-40																													
2662	HLW02-41																													
2663	HLW02-42																													
2664	HLW02-43																													
2665	HLW02-44																													
2666	HLW02-45																													
2667	HLW02-46																													
2668	HLW02-47																													
2669	HLW02-48																													
2670	HLW02-49																													
2671	HLW02-50																													
2672	HLW02-51, HLW02-51R1																													
2673	HLW02-52																													
2674	HLW02-53																													
2675	HLW02-54																													
2676	HLW02-55																													
2677	HLW02-56																													
2678	HLW02-57																													
2679	HLW03-01																													
2680	HLW03-02																													
2681	HLW03-03																													
2682	HLW03-04																													
2683	HLW03-05																													
2684	HLW03-06																													
2685	HLW03-07																													
2686	HLW03-08																													
2687	HLW03-09																													
2688	HLW03-10, HLW03-10R1																													
2689	HLW03-11																													
2690	HLW03-12																													
2691	HLW03-13																													
2692	HLW03-14																													
2693	HLW03-15																													
2694	HLW03-16																													
2695	HLW03-17																													
2696	HLW03-18																													
2697	HLW03-19																													
2698	HLW03-20																													
2699	HLW03-21																													
2700	HLW03-22																													
2701	HLW03-23																													
2702	HLW03-24																													
2703	HLW03-25																													
2704	HLW03-26																													
2705	HLW03-27																													
2706	HLW03-28																													

#	Glass ID	Ga2O3-a	Gd2O3-a	I-a	La2O3-a	MnO2-a	MnO-a	MoO-a	MoO3-a	Nb2O5-a	Nd2O3-a	NpO2-a	PbO-a	PdO2-a	PdO-a	Pr2O3-a	Pr6O11-a	PuO2-a	Rb2O-a	ReO-a	ReO2-a	Re2O7-a	Rh2O3-a	RhO2-a	RuO2-a	Sb2O3-a	Sb2O5-a	SeO2-a
2625	HLW02-04																											
2626	HLW02-05																											
2627	HLW02-06																											
2628	HLW02-07																											
2629	HLW02-08																											
2630	HLW02-09																											
2631	HLW02-10																											
2632	HLW02-11																											
2633	HLW02-12																											
2634	HLW02-13																											
2635	HLW02-14																											
2636	HLW02-15																											
2637	HLW02-16																											
2638	HLW02-17																											
2639	HLW02-18																											
2640	HLW02-19																											
2641	HLW02-20, HLW02-20R1																											
2642	HLW02-21, HLW02-21R1																											
2643	HLW02-22																											
2644	HLW02-23, HLW02-23R1																											
2645	HLW02-24																											
2646	HLW02-25, HLW02-25R1																											
2647	HLW02-26																											
2648	HLW02-27																											
2649	HLW02-28																											
2650	HLW02-29, HLW02-29R1																											
2651	HLW02-30																											
2652	HLW02-31																											
2653	HLW02-32, HLW02-32R1																											
2654	HLW02-33																											
2655	HLW02-34, HLW02-34R1																											
2656	HLW02-35																											
2657	HLW02-36																											
2658	HLW02-37																											
2659	HLW02-38																											
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2663	HLW02-42																											
2664	HLW02-43																											
2665	HLW02-44																											
2666	HLW02-45																											
2667	HLW02-46																											
2668	HLW02-47																											
2669	HLW02-48																											
2670	HLW02-49																											
2671	HLW02-50																											
2672	HLW02-51, HLW02-51R1																											
2673	HLW02-52																											
2674	HLW02-53																											
2675	HLW02-54																											
2676	HLW02-55																											
2677	HLW02-56																											
2678	HLW02-57																											
2679	HLW03-01																											
2680	HLW03-02																											
2681	HLW03-03																											
2682	HLW03-04																											
2683	HLW03-05																											
2684	HLW03-06																											
2685	HLW03-07																											
2686	HLW03-08																											
2687	HLW03-09																											
2688	HLW03-10, HLW03-10R1																											
2689	HLW03-11																											
2690	HLW03-12																											
2691	HLW03-13																											
2692	HLW03-14																											
2693	HLW03-15																											
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2695	HLW03-17																											
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2698	HLW03-20																											
2699	HLW03-21																											
2700	HLW03-22																											
2701	HLW03-23																											
2702	HLW03-24																											
2703	HLW03-25																											
2704	HLW03-26																											
2705	HLW03-27																											
2706	HLW03-28																											

#	Glass ID	Sm2O3-a	SnO-a	SnO2-a	SO3-a	SrO-a	Tc2O7-a	TeO2-a	ThO2-a	TiO2-a	Tl2O-a	Tl2O3-a	U3O8-a	UO2-a	UO3-a	V2O5-a	WO3-a	Y2O3-a	ZnO-a	Sum-a	T_M (°C)	$T_{L,G}$ (°C)	$T_{L,U}$ (°C)	$T_{1\%}$ (°C)	Primary Phase	$C_{650°C}$	$C_{700°C}$	$C_{750°C}$
2625	HLW02-04																			0.0000				849	Spinel			23.4
2626	HLW02-05																			0.0000				ND	Noble metal			0.1
2627	HLW02-06																			0.0000				1027	Spinel			
2628	HLW02-07																			0.0000				764	Spinel			1
2629	HLW02-08																			0.0000				784	Spinel			1.2
2630	HLW02-09																			0.0000				958	Spinel			
2631	HLW02-10																			0.0000				554	Spinel		0.4	0.6
2632	HLW02-11																			0.0000				816	Spinel		1.8	1.2
2633	HLW02-12																			0.0000				1047	Spinel			
2634	HLW02-13																			0.0000				968	Spinel			
2635	HLW02-14																			0.0000				946	ZrSiO4 + Spinel			
2636	HLW02-15																			0.0000				1049	Spinel			
2637	HLW02-16																			0.0000				983	Spinel + ZrO2			
2638	HLW02-17																			0.0000				967	Spinel			
2639	HLW02-18																			0.0000				957	Spinel			2.2
2640	HLW02-19																			0.0000				920	Spinel			
2641	HLW02-20, HLW02-20R1																			0.0000				941	Spinel			
2642	HLW02-21, HLW02-21R1																			0.0000				ND	Spinel			0.2
2643	HLW02-22																			0.0000				938	Spinel			
2644	HLW02-23, HLW02-23R1																			0.0000				946	Spinel			
2645	HLW02-24																			0.0000				922	Spinel			
2646	HLW02-25, HLW02-25R1																			0.0000				907	Spinel			
2647	HLW02-26																			0.0000				970	Spinel			
2648	HLW02-27																			0.0000				966	Spinel + ZrSiO4			
2649	HLW02-28																			0.0000				925	Spinel			
2650	HLW02-29, HLW02-29R1																			0.0000				955	Spinel			
2651	HLW02-30																			0.0000				898	Spinel			2.3
2652	HLW02-31																			0.0000				797	Spinel		1.2	1.3
2653	HLW02-32, HLW02-32R1																			0.0000				801	Spinel		1.1	
2654	HLW02-33																			0.0000				947	Spinel			
2655	HLW02-34, HLW02-34R1																			0.0000				941	Spinel			
2656	HLW02-35																			0.0000				980	Spinel			
2657	HLW02-36																			0.0000				870	Spinel			1.9
2658	HLW02-37																			0.0000				980	Spinel			
2659	HLW02-38																			0.0000				974	Spinel			
2660	HLW02-39																			0.0000				990	Spinel			
2661	HLW02-40																			0.0000				958	Spinel			4
2662	HLW02-41																			0.0000				936	Spinel			
2663	HLW02-42																			0.0000				821	Spinel		2.1	1.1
2664	HLW02-43																			0.0000				916	Spinel			
2665	HLW02-44																			0.0000				814	Spinel			1.3
2666	HLW02-45																			0.0000				920	Spinel			
2667	HLW02-46																			0.0000				963	Spinel			
2668	HLW02-47																			0.0000				847	Spinel	4.5	4.9	
2669	HLW02-48																			0.0000				960	Spinel			2.7
2670	HLW02-49																			0.0000				987	Spinel			
2671	HLW02-50																			0.0000				975	Spinel			
2672	HLW02-51, HLW02-51R1																			0.0000				906	Spinel			
2673	HLW02-52																			0.0000				959	Spinel			2.5
2674	HLW02-53																			0.0000				949	Spinel			
2675	HLW02-54																			0.0000				911	Spinel			
2676	HLW02-55																			0.0000				832	Spinel		1.9	1.1
2677	HLW02-56																			0.0000				794	Spinel		1.4	0.9
2678	HLW02-57																			0.0000				741	Spinel		1.3	0.9
2679	HLW03-01																			0.0000				1074	Spinel			13
2680	HLW03-02																			0.0000				1157	Spinel +ZrO2			
2681	HLW03-03																			0.0000				1145	Spinel			
2682	HLW03-04																			0.0000				946	Spinel			
2683	HLW03-05																			0.0000				917	Spinel			
2684	HLW03-06																			0.0000				963	Spinel			
2685	HLW03-07																			0.0000				1213	Spinel			9.9
2686	HLW03-08																			0.0000				1248	ZrO2			
2687	HLW03-09																			0.0000				ND	Noble Metal	0.2		0.1
2688	HLW03-10, HLW03-10R1																			0.0000				1190	Spinel + ZrO2 (ThO2)			10.3
2689	HLW03-11																			0.0000				ND	ThO2+ Noble metal	0.4		0.4
2690	HLW03-12																			0.0000				811	Spinel			1.2
2691	HLW03-13																			0.0000				1215	Spinel + ThO2 (UO2)			
2692	HLW03-14																			0.0000				1069	Spinel + ZrO2			
2693	HLW03-15																			0.0000				1052	Spinel + ThO2			
2694	HLW03-16																			0.0000				1021	Spinel			4.6
2695	HLW03-17																			0.0000				1005	Spinel			
2696	HLW03-18																			0.0000				952	Spinel			
2697	HLW03-19																			0.0000				943	Spinel			
2698	HLW03-20																			0.0000				875	Spinel			
2699	HLW03-21																			0.0000				866	Spinel			
2700	HLW03-22																			0.0000				906	Spinel			4.4
2701	HLW03-23																			0.0000				831	Spinel			1.5
2702	HLW03-24																			0.0000				825	Spinel			2.3
2703	HLW03-25																			0.0000				796	Spinel			1.6
2704	HLW03-26																			0.0000				797	Spinel + ThO2			1.2
2705	HLW03-27																			0.0000				995	Spinel + ThO2			
2706	HLW03-28																			0.0000				824	Spinel			1.4

#	Glass ID	$C_{800°C}$	$C_{850°C}$	$C_{900°C}$	$C_{950°C}$	$C_{1000°C}$	$C_{1050°C}$	$C_{1100°C}$	$C_{1150°C}$	$C_{1200°C}$	Quenched Visual/OM	Quenched XRD	CCC XRD	ρ (g/cm³)	Fulc Visc A	Fulc Visc B	Fulc Visc To	Arrh Visc E	Arrh Visc F	T1 (°C)	V1 (Pa·s)
2625	HLW02-04	14.2	0.7												-3.960	8698.5	150.0			1250.0	5.132
2626	HLW02-05		0.1	0.1	0.1										-2.474	5178.3	350.0			1251.0	2.699
2627	HLW02-06		5.1	3.2	2.8		0.8								-5.753	10245.6	150.0			1236.0	4.001
2628	HLW02-07		0.8	0.5	0.4										-2.736	6298.8	250.0			1221.0	4.299
2629	HLW02-08		0.6		0.1										-5.497	7929.4	150.0			1247.0	0.562
2630	HLW02-09		2.9	4.4	1.2	0.2									-3.575	5760.3	250.0			1234.0	0.970
2631	HLW02-10		0.1	0.1	0.1										-4.697	7310.5	150.0			1251.0	0.705
2632	HLW02-11		1		0.1										-3.044	4630.8	350.0			1228.0	0.935
2633	HLW02-12		4.4	3.3			1								-3.141	4618.0	350.0			1254.0	0.715
2634	HLW02-13		5.6	0.2		1	0.3								-4.307	6876.3	150.0			1246.0	0.731
2635	HLW02-14		1.7		1.4	0.2									-4.563	7008.7	250.0			1241.0	1.250
2636	HLW02-15		3.7	3.1	2.7		0.9								-4.926	8099.9	150.0			1253.0	1.134
2637	HLW02-16		4	3.6	3.1	0.7									-3.033	4905.6	350.0			1252.0	1.166
2638	HLW02-17			2.07	0.9	0.2	0.4								-3.949	8389.0	150.0			1227.0	4.580
2639	HLW02-18		1.8		1										-5.526	10256.9	150.0			1240.0	4.868
2640	HLW02-19		2.4	1.2	0.8										-3.819	5387.1	375.0			1250.0	1.029
2641	HLW02-20, HLW02-20R1		6.4	1.65	0.8										-4.574	9658.5	150.0			1239.0	7.319
2642	HLW02-21, HLW02-21R1	0.2		0.2											-4.564	8790.0	150.0			1249.0	2.795
2643	HLW02-22		1.6	0.7	1.5		0.2								-2.896	6774.6	250.0			1247.0	4.895
2644	HLW02-23, HLW02-23R1		2.4	1.7	1.1										-1.628	3026.6	450.0			1254.0	0.847
2645	HLW02-24		2.3	1.24	0.61										-4.911	9628.7	150.0			1244.0	4.874
2646	HLW02-25, HLW02-25R1		2	0.5	1										-7.973	16888.7	-150.0			1235.0	6.892
2647	HLW02-26		3.9	2.47	0.9	0.8									-5.043	7170.3	250.0			1241.0	0.898
2648	HLW02-27		2.5	1.28		0.5	0.2								-5.906	8500.4	150.0			1246.0	0.631
2649	HLW02-28		1.9	1.1		0.1									-5.307	8935.4	150.0			1230.0	1.948
2650	HLW02-29, HLW02-29R1		3.5	1.86	0.7		0.2								-5.183	8639.4	150.0			1251.0	1.438
2651	HLW02-30		1.1												-4.212	6148.9	250.0			1235.0	0.763
2652	HLW02-31		0.99												-5.144	8386.1	150.0			1253.0	1.174
2653	HLW02-32, HLW02-32R1	1.4	0.267	0.4											-4.376	7996.0	150.0			1230.0	2.075
2654	HLW02-33		5.8	2.74	0.14										-4.037	6421.7	250.0			1238.0	1.169
2655	HLW02-34, HLW02-34R1		6.2	2.46	0.11										-3.103	4679.0	350.0			1229.0	0.922
2656	HLW02-35		7.2		1.7	0.8									-1.109	2355.2	550.0			1226.0	1.062
2657	HLW02-36		1.4	0.3	0.8										-4.702	8279.3	150.0			1235.0	1.869
2658	HLW02-37		2.9	2.1	0.8		0.6								-5.205	8641.9	160.0			1245.0	1.568
2659	HLW02-38		2.7	1.25	1.61		0.2								-3.790	6068.3	250.0			1244.0	1.013
2660	HLW02-39		2.5	1.79	1.95		0.2								-4.365	9181.7	150.0			1253.0	5.196
2661	HLW02-40		1.95		1.6	0.4									-3.451	7655.0	250.0			1239.0	7.224
2662	HLW02-41		2.4	1.04	0.6		0.1								-4.410	8784.3	150.0			1241.0	3.816
2663	HLW02-42		0.66	0.3	0.5										-4.734	7792.1	150.0			1246.0	1.082
2664	HLW02-43		2.6	0.58	0.31										-3.854	6132.6	250.0			1236.0	1.073
2665	HLW02-44	1.1	0.8	0.57											-4.814	8301.1	150.0			1238.0	1.653
2666	HLW02-45		2.4	0.95	0.8										-4.850	9106.3	150.0			1233.0	3.518
2667	HLW02-46		2.9	1.6	1.07		0.2								-3.612	6809.7	250.0			1244.0	2.535
2668	HLW02-47	2.4	0.8												-8.414	16742.3	-150.0			1237.0	4.058
2669	HLW02-48		1.5		1.4	0.7									-5.191	8195.3	150.0			1236.0	1.054
2670	HLW02-49		3.68	1.73	2.1		0.8								-4.672	8170.8	150.0			1247.0	1.626
2671	HLW02-50		5.3	1.96	1.52		0.9								-4.934	8872.0	150.0			1241.0	2.443
2672	HLW02-51, HLW02-51R1		2	0.8	0.8										-3.987	7077.5	250.0			1243.0	2.343
2673	HLW02-52		1.3	2.1	1.2		0.4								-3.918	6619.5	250.0			1255.0	1.443
2674	HLW02-53		2.1	1.4	1	0.4									-3.915	8529.3	150.0			1244.0	4.779
2675	HLW02-54		2.6	1.1	0.1										-3.706	8342.3	150.0			1242.0	5.075
2676	HLW02-55		1.4		0.2										-3.805	6011.8	250.0			1239.0	0.966
2677	HLW02-56		1	0.4	0.5										-3.982	6615.5	250.0			1235.0	1.531
2678	HLW02-57		0.3												-2.261	3348.0	450.0			1231.0	0.756
2679	HLW03-01		10		1.4		2.2	1.1	0.7						-3.254	3754.5	500.0			1245.0	0.616
2680	HLW03-02		7.3		4.6		2	3.3	3.3	4					-4.977	6091.4	350.0			1253.0	0.595
2681	HLW03-03				2.6		2.5		2	0.1					-5.053	5998.1	350.0			1257.0	0.481
2682	HLW03-04	8.3	2.4		0.6		0.4								-2.896	3816.4	450.0			1261.0	0.618
2683	HLW03-05		2.1	1.2	0.5										-7.168	14806.2	-150.0			1251.0	3.018
2684	HLW03-06			2	1	0.9									-5.649	10664.3	100.0			1245.0	3.929
2685	HLW03-07		6.2		6		4.2		2.9	1					-2.317	2691.9	600.0			1281.0	0.508
2686	HLW03-08				12.2		6.6	7.3	9.8	4.2					-9.425	16543.5	-100.0			1250.0	1.676
2687	HLW03-09		0.2		0.1										-2.402	5851.4	300.0			1278.0	3.595
2688	HLW03-10, HLW03-10R1		12.5		8.7		3.7	2.9	3.5	1.4					-3.043	3091.7	600.0			1252.0	0.569
2689	HLW03-11		0.3		0.2										-5.432	11160.1	50.0			1261.0	4.428
2690	HLW03-12		0.7	0.8	0.6										-3.372	5016.8	400.0			1256.0	1.194
2691	HLW03-13		7.9		5.3		5		3.5	0.6					-2.810	3813.2	500.0			1253.0	0.967
2692	HLW03-14		4.6		3.5	1.5	2.2	0.5							-3.990	4581.8	450.0			1245.0	0.591
2693	HLW03-15				2.7		0.9	0.3							-2.969	6321.5	350.0			1260.0	5.315
2694	HLW03-16		2.8		1.9		0.9								-3.760	5630.5	400.0			1248.0	1.792
2695	HLW03-17		5.7		2.4		0.5								-4.480	9218.0	200.0			1254.0	7.147
2696	HLW03-18		2.4		0.5		0.5								-1.548	3520.8	450.0			1250.0	1.741
2697	HLW03-19		1.5		0.8		0.6								-3.194	5668.1	300.0			1252.0	1.583
2698	HLW03-20		1	1	0.3										-0.780	2780.9	500.0			1252.0	1.875
2699	HLW03-21	2	1	0.3	0.2										-3.763	7348.0	300.0			1251.0	5.294
2700	HLW03-22		2.3	0.6	0.5										-4.477	7090.9	300.0			1255.0	1.897
2701	HLW03-23	1.3	0.9		0.4										-4.033	6614.6	300.0			1250.0	1.878
2702	HLW03-24	1.6	0.6												-5.125	8551.3	200.0			1254.0	1.996
2703	HLW03-25	0.2	0.2		0.1										-4.107	5977.6	350.0			1252.0	1.248
2704	HLW03-26	1	0.8	0.4	0.3										-2.964	4214.1	450.0			1259.0	0.967
2705	HLW03-27		1.7		1.6		0.6								-3.205	4798.9	400.0			1252.0	1.130
2706	HLW03-28	1.3	1		0.2										-4.519	6322.2	250.0			1239.0	0.651

#	Glass ID	T2 (°C)	V2 (Pa·s)	T3 (°C)	V3 (Pa·s)	T4 (°C)	V4 (Pa·s)	T5 (°C)	V5 (Pa·s)	T6 (°C)	V6 (Pa·s)	T7 (°C)	V7 (Pa·s)	T8 (°C)	V8 (Pa·s)	T9 (°C)	V9 (Pa·s)	T10 (°C)	V10 (Pa·s)	TCLP Ag	TCLP As	TCLP Ba	TCLP Cd	TCLP Cr	TCLP Ni	TCLP Pb
2625	HLW02-04	1151	11.425	1052	29.7	952.0	97.1													0.0132		0.0081	0.264		0.0171	0.0099
2626	HLW02-05	1152	5.158	1053	13.6	953.0	45.2															0.0098	0.0114		0.0166	0.0108
2627	HLW02-06	1139	9.940	1043	30.3	946.0	124.1													0.0173		0.0148	0.557		0.282	0.0155
2628	HLW02-07	1125	8.495	1030	21.1	934.0	64.6													0.0382	0.0164	0.0503	0.0079	0.0118	0.0134	0.0672
2629	HLW02-08	1149	1.158	1051	2.7	952.0	8.1													0.019		0.0282	0.0382		0.0504	0.0236
2630	HLW02-09	1137	1.879	1040	4.1	943.0	11.4															0.061	0.026		0.389	0.0204
2631	HLW02-10	1152	1.340	1054	2.9	955.0	8.1													0.0128		0.0695	0.755		0.038	0.0312
2632	HLW02-11	1132	1.821	1030	4.1	940.0	12.5															0.0174	0.0205		0.318	0.0213
2633	HLW02-12	1155	1.351	1057	2.9	958.0	8.7													0.0854	0.0202	0.133	0.558	0.0173	0.266	0.118
2634	HLW02-13	1149	1.294	1053	2.7	956.0	7.0													0.0934	0.0176	0.142	0.0205	0.0134	0.0286	0.121
2635	HLW02-14	1142	2.684	1043	6.9	944.0	25.9															0.0216	0.23		0.0122	0.0124
2636	HLW02-15	1154	2.310	1055	5.5	956.0	17.0													0.0636	0.0222	0.115	0.0196	0.0134	0.0198	0.136
2637	HLW02-16	1152	2.094	1053	5.0	953.0	17.0													0.0731	0.0194	0.134	0.522	0.0152	0.0295	0.119
2638	HLW02-17	1130	10.204	1034	25.8	936.0	82.3															0.008	0.26		0.013	0.0126
2639	HLW02-18	1142	12.306	1045	37.7	946.0	157.3													0.0401	0.0211	0.0666	0.0119	0.0424	0.185	0.0802
2640	HLW02-19	1152	2.277	1053	6.2	957.0	23.0															0.051	0.562		0.0339	0.0229
2641	HLW02-20, HLW02-20R1	1143	17.270	1047	49.3	950.0	180.0													0.0172		0.0252	0.0125		0.0152	0.0145
2642	HLW02-21, HLW02-21R1	1151	5.810	1053	14.7	955.0	50.7													0.0147		0.0124	0.0142		0.023	0.01615
2643	HLW02-22	1147	10.691	1048	26.7	947.0	91.9															0.0126	0.008		0.012	0.0135
2644	HLW02-23, HLW02-23R1	1154	1.446	1055	2.9	955.0	7.9													0.016		0.0639	0.779		0.414	0.0226
2645	HLW02-24	1144	11.854	1044	35.4	943.0	137.4													0.0398	0.015	0.0838	0.0131		0.0192	0.0723
2646	HLW02-25, HLW02-25R1	1138	16.470	1041	51.3	944.0	172.7													0.0154		0.0292	0.316		0.0158	0.0137
2647	HLW02-26	1141	2.026	1042	5.5	942.0	20.5													0.0869		0.147	0.583	0.0161	0.028	0.117
2648	HLW02-27	1149	1.375	1052	3.3	956.0	10.4															0.0492	0.0184		0.0324	0.017
2649	HLW02-28	1135	4.253	1040	11.6	944.0	38.0													0.0271		0.0464	0.354		0.0842	0.0267
2650	HLW02-29, HLW02-29R1	1151	3.102	1051	8.1	951.0	28.0													0.0394		0.0891	0.165		0.0754	0.0768
2651	HLW02-30	1138	1.511	1041	3.5	944.0	10.5													0.0246		0.081	0.487	0.0086	0.113	0.0282
2652	HLW02-31	1154	2.458	1054	6.2	955.0	19.5													0.0231		0.0351	0.197		0.0925	0.0355
2653	HLW02-32, HLW02-32R1	1135	4.177	1040	10.1	945.0	29.3													0.0144		0.0308	0.233		0.0556	0.0223
2654	HLW02-33	1141	2.391	1044	5.8	947.0	17.7													0.0215		0.0825	0.209		0.263	0.0285
2655	HLW02-34, HLW02-34R1	1136	1.724	1044	3.8	951.0	10.8													0.07		0.118	0.443		0.281	0.09
2656	HLW02-35	1133	1.905	1041	4.0	948.0	12.2													0.0683		0.104	0.23		0.263	0.0939
2657	HLW02-36	1138	3.939	1041	9.9	943.0	30.9													0.0394	0.0156	0.0581	0.248	0.0098	0.0597	0.0632
2658	HLW02-37	1143	3.674	1040	10.0	938.0	36.7													0.0204		0.0515	0.157		0.194	0.0275
2659	HLW02-38	1143	2.030	1042	4.8	941.0	14.8													0.0423	0.0221	0.0881	0.342	0.0108	0.158	0.0855
2660	HLW02-39	1152	12.269	1051	34.0	950.0	122.1													0.0148		0.0188	0.182		0.115	0.0189
2661	HLW02-40	1142	17.124	1045	48.3	948.0	183.1													0.0233		0.0475	0.195		0.0449	0.0534
2662	HLW02-41	1141	8.581	1042	23.0	942.0	79.7															0.0439	0.117		0.0548	0.0236
2663	HLW02-42	1148	2.157	1050	5.0	951.0	14.8													0.0209		0.0449	0.167		0.0779	0.0279
2664	HLW02-43	1139	2.096	1042	4.8	945.0	14.5													0.0289		0.0673	0.569		0.13	0.0368
2665	HLW02-44	1137	3.707	1035	9.6	934.0	32.1													0.0514	0.0191	0.106	0.386	0.0129	0.0892	0.095
2666	HLW02-45	1135	8.079	1038	22.2	941.0	78.3													0.0149		0.0431	0.181		0.0443	0.017
2667	HLW02-46	1144	5.519	1044	14.4	944.0	49.1													0.0141		0.0226	0.111		0.132	0.0194
2668	HLW02-47	1138	9.222	1040	28.4	941.0	104.6													0.0337		0.0689	0.108		0.0489	0.0631
2669	HLW02-48	1137	2.260	1038	5.6	940.0	17.9													0.0456		0.103	0.182	0.0127	0.227	0.0776
2670	HLW02-49	1148	3.321	1049	8.2	949.0	26.1													0.0162		0.0258	0.126		0.0577	0.0248
2671	HLW02-50	1141	5.509	1042	15.4	943.0	51.4													0.0225		0.0317	0.171		0.0762	0.027
2672	HLW02-51, HLW02-51R1	1145	4.928	1047	13.4	948.0	47.1													0.0147		0.0309	0.121			0.0216
2673	HLW02-52	1155	2.991	1055	7.4	955.0	23.8													0.0356	0.0148	0.0548	0.201	0.0082	0.108	0.0545
2674	HLW02-53	1145	10.656	1046	27.5	947.0	87.6													0.0121		0.0076	0.207		0.0122	0.0114
2675	HLW02-54	1138	11.486	1035	30.7	931.0	106.5															0.0073	0.249		0.0139	
2676	HLW02-55	1140	1.925	1042	4.4	943.0	13.0													0.0154		0.0394	0.156		0.074	0.0251
2677	HLW02-56	1138	3.229	1041	8.0	943.0	26.0													0.058	0.0158	0.0834	0.378	0.0117	0.0852	0.0884
2678	HLW02-57	1135	1.391	1039	3.0	943.0	9.3													0.0244		0.0327	0.0407		0.0556	0.0238
2679	HLW03-01	1149	1.173	1053	3.6	957.0	14.2													0.203	0.0895	0.28	1.42	0.228	0.0778	0.327
2680	HLW03-02	1154	1.340	1056	3.8	957.0	16.0													0.019		0.0585	0.695	0.0187	0.254	0.0253
2681	HLW03-03	1157	1.064	1057	3.1	957.0	12.5													0.0275		0.114	0.789	0.0213	0.235	0.0245
2682	HLW03-04	1163	1.131	1064	2.8	965.0	9.1													0.0994	0.0218	0.11	0.0098	0.0265	0.014	0.0829
2683	HLW03-05	1155	6.407	1058	16.5	960.0	47.7													0.0901	0.0708	0.136	0.642	0.102	0.0433	0.191
2684	HLW03-06	1146	9.353	1049	26.8	951.0	97.7													0.0046	0.0055	0.0388	0.251	0.0203	0.13	0.0489
2685	HLW03-07	1192	0.929	1104	2.1	1016.0	6.3													0.0273	0.0184	0.051	0.0465	0.199	0.0608	0.104
2686	HLW03-08	1153	4.493	1055	13.1	958.0	50.2													0.0995	0.0437	0.125	0.0175	0.0052	0.0258	0.161
2687	HLW03-09	1175	7.251	1073	17.6	970.0	56.2													0.0031	0.0061	0.0178	0.01	0.0031	0.0176	0.0179
2688	HLW03-10, HLW03-10R1	1153	1.204	1055	4.3	956.0	28.3													0.178	0.067	0.209	0.0322	0.0071	0.326	0.266
2689	HLW03-11	1165	9.582	1069	25.2	972.0	78.9													0.0025		0.0211	0.0074	0.0016	0.0112	0.0162
2690	HLW03-12	1157	2.608	1057	7.2	958.0	27.4													0.03	0.0184	0.215	0.0432	0.129	0.0948	0.0491
2691	HLW03-13	1153	2.042	1054	5.8	954.0	27.0													0.0087	0.0068	0.0933	0.0185	0.0132	0.145	0.023
2692	HLW03-14	1148	1.312	1051	3.8	953.0	16.8													0.0311	0.0145	0.182	0.0423	0.021	0.529	0.0476
2693	HLW03-15	1166	12.097	1072	31.9	979.0	119.8													0.0055	0.0039	0.0272	0.29	0.0016	0.0118	0.0262
2694	HLW03-16	1155	3.981	1062	11.6	969.0	46.1													0.0569	0.0311	0.131	0.0132	0.0022	0.196	0.107
2695	HLW03-17	1154	17.551	1055	55.5	955.0	225.9													0.0691	0.044	0.131	0.0273	0.0048	0.153	0.184
2696	HLW03-18	1153	3.132	1056	7.2	959.0	21.3													0.0044	0.004	0.0168	0.0081	0.0326	0.114	0.278
2697	HLW03-19	1153	3.144	1055	7.5	956.0	23.2													0.0074	0.0061	0.0178	0.358	0.053	0.187	0.0197
2698	HLW03-20	1152	3.144	1052	7.3	952.0	21.3													0.0385	0.0318	0.0905	0.345	0.0051	0.182	0.104
2699	HLW03-21	1152	12.749	1054	40.0	955.0	172.5													0.0383	0.0285	0.079	0.176	0.0359	0.163	0.0581
2700	HLW03-22	1155	4.570	1055	13.6	955.0	57.0													0.0405	0.0197	0.0946	0.0853	0.0115	0.0785	0.0788
2701	HLW03-23	1150	4.233	1052	11.7	953.0	44.5													0.0094	0.0075	0.033	0.0237	0.0131	0.0596	0.0321
2702	HLW03-24	1156	4.511	1060	12.4	963.0	43.8													0.0266	0.0146	0.0462	0.116	0.0236	0.179	0.0409
2703	HLW03-25	1155	2.754	1059	7.5	964.0	27.9													0.0446	0.0217	0.107	0.033	0.0094	0.138	0.0987
2704	HLW03-26	1162	1.833	1066	4.9	971.0	16.8													0.119	0.0827	0.234	0.0756	0.0707	0.358	0.228
2705	HLW03-27	1155	2.343	1059	5.9	964.0	20.1													0.0328	0.0096	0.0728	0.0248	0.0133	0.101	0.0894
2706	HLW03-28	1142	1.310	1046	3.0	951.0	9.0													0.0082	0.0067	0.0355	0.0299	0.0075	0.128	0.0436

#	Glass ID	TCLP Se	TCLP Zn	TCLP Al	TCLP B	TCLP Sb	TCLP Tl	TCLP V	Q PCT B (g/m²)	Q PCT Li (g/m²)	Q PCT Na (g/m²)	Q PCT Si (g/m²)	Q PCT pH	CCC PCT B (g/m²)	CCC PCT Li (g/m²)	CCC PCT Na (g/m²)	CCC PCT Si (g/m²)	CCC PCT pH	T1 (°C)
2625	HLW02-04	0.0312	0.363		0.303		0.0274		0.287	0.362	0.439		10.840						1236
2626	HLW02-05	0.0145	0.431	0.159	0.375				0.365	0.425	0.507		11.460						1245
2627	HLW02-06	0.0634	0.75	0.752	0.609				0.199	0.351	0.498		11.540						1250
2628	HLW02-07		0.338	0.334	0.267				0.251	0.336	0.313		11.180						1245
2629	HLW02-08	0.015	1.44	0.341	3.4				1.765	1.339	1.131		10.970						1245
2630	HLW02-09	0.0131	1.02	0.888	1.91				0.323	0.291	0.362		10.740						1251
2631	HLW02-10	0.0642	0.999	0.762	2.45				0.467	0.416	0.371		10.820						1237
2632	HLW02-11	0.0443	0.787	0.208	1.92		0.0328		1.138	0.844	0.644		10.640						1244
2633	HLW02-12	0.0293	0.741	0.311	0.662				1.635	1.159	1.113		11.840						1247
2634	HLW02-13	0.034	0.756	0.272	0.602				1.747	1.255	1.328		11.850						1242
2635	HLW02-14		0.323		0.24				0.052	0.191	0.094		10.510						1247
2636	HLW02-15	0.0261	0.706	0.67	1.8		0.0417		0.635	0.523	0.458		9.950						1249
2637	HLW02-16	0.0456	0.704	0.693	0.578				0.369	0.373	0.347		11.230						1245
2638	HLW02-17		0.343	0.306	0.267				0.273	0.363	0.170		10.660						1246
2639	HLW02-18		0.44	0.229	0.371				0.301	0.283	0.361		10.860						1249
2640	HLW02-19	0.0264	0.765	0.287	1.79				0.318	0.295	0.257		9.840						1250
2641	HLW02-20, HLW02-20R1		0.426	0.144	0.97				0.248	0.308	0.153		9.380						1245
2642	HLW02-21, HLW02-21R1	0.0143	0.584	0.518	1.355				0.726	0.563	0.462		10.330						1247
2643	HLW02-22	0.0145	0.306	0.339	0.744				0.275	0.310	0.038		9.840						1246
2644	HLW02-23, HLW02-23R1		1	0.643	2.5		0.028		0.344	0.336	0.301		10.380						1249
2645	HLW02-24	0.0428	0.52	0.394	0.423				0.158	0.217	0.260		10.840						1247
2646	HLW02-25, HLW02-25R1	0.0125	0.429	0.41	0.972		0.0342		0.158	0.191	0.072		9.430						1247
2647	HLW02-26		0.75	0.307	0.631				0.620	0.462	0.547		11.430						1250
2648	HLW02-27	0.0328	0.764	0.292	1.79		0.0492		0.298	0.277	0.210		10.140						1247
2649	HLW02-28	0.0193	0.722	0.461	0.92				0.300	0.233	0.298		11.060						1246
2650	HLW02-29, HLW02-29R1	0.0319	0.644	0.49	1.43				0.410	0.300	0.284		9.850						1250
2651	HLW02-30	0.0167	0.954	0.363	1.59				1.100	0.888	0.805		11.310						1247
2652	HLW02-31	0.0418	0.793	0.473	1.73		0.0333		0.659	0.539	0.265		10.530						1249
2653	HLW02-32, HLW02-32R1	0.0363	0.455	0.398	0.608				0.283	0.332	0.304		10.880						1229
2654	HLW02-33	0.0491	0.824	0.602	1.16	0.0407			0.502	0.368	0.428		11.160						1251
2655	HLW02-34, HLW02-34R1	0.0156	0.863	0.312	1.99				0.587	0.470	0.439		10.460						1246
2656	HLW02-35	0.0154	0.884	0.366	2.01		0.024		0.614	0.515	0.458		10.470						1250
2657	HLW02-36	0.0348	0.515	0.27	0.711				0.297	0.303	0.385		10.770						1248
2658	HLW02-37	0.014	0.627	0.487	1.4				0.273	0.258	0.222		9.970						1243
2659	HLW02-38	0.035	0.664	0.603	1.51				0.318	0.344	0.285		10.140						1243
2660	HLW02-39		0.378	0.335	0.538				0.142	0.266	0.194		10.140						1251
2661	HLW02-40	0.0135	0.387	0.312	0.617				0.138	0.278	0.161		9.960						1252
2662	HLW02-41	0.0124	0.467	0.267	1.03		0.0242		0.239	0.330	0.177		9.840						1249
2663	HLW02-42	0.0213	0.683	0.298	1.49		0.0283		0.540	0.475	0.412		10.330						1245
2664	HLW02-43	0.0195	1.07	0.423	2.44				0.528	0.420	0.422		10.420						1242
2665	HLW02-44	0.0166	0.766	0.361	1.23				0.404	0.374	0.427		10.840						1242
2666	HLW02-45	0.0144	0.36	0.232	0.503				0.318	0.317	0.248		10.250						1249
2667	HLW02-46	0.0218	0.439	0.328	0.695				0.268	0.316	0.226		10.140						1249
2668	HLW02-47		0.448	0.231	0.695				0.243	0.275	0.169		9.930						1248
2669	HLW02-48	0.0393	0.72	0.357	0.983				0.434	0.427	0.501		11.260						1250
2670	HLW02-49	0.0142	0.513	0.421	0.783				0.295	0.341	0.289		10.660						1256
2671	HLW02-50	0.0171	0.663	0.345	1.44		0.0415		0.267	0.339	0.209		9.950						1252
2672	HLW02-51, HLW02-51R1	0.0295	0.476	0.368	0.627				0.130	0.284	0.200		10.480						1248
2673	HLW02-52	0.0282	0.531	0.38	0.834				0.294	0.337	0.319		10.570						1250
2674	HLW02-53	0.0134	0.297	0.27	0.259				0.172	0.390	0.188		10.640						1251
2675	HLW02-54	0.0335	0.348		0.263		0.0245		0.835	0.353	0.469		10.640						1246
2676	HLW02-55	0.0167	0.608	0.319	1.36				0.415	0.432	0.358		10.350						1250
2677	HLW02-56	0.0188	0.741	0.305	1.13				0.373	0.289	0.366		10.930						1246
2678	HLW02-57		1.64	0.35	4				2.209	1.626	1.283		11.070						1249
2679	HLW03-01	0.0165	3.01	2.43	1.44	0.144	0.044	0.0359	0.482	0.370	0.288		9.930						1212
2680	HLW03-02		0.062	0.175	1.93		0.036		0.635	0.473	0.431		10.050						1241
2681	HLW03-03	0.0284	0.918	0.219	0.837		0.0364		0.678	0.697	0.749		11.540						1250
2682	HLW03-04	0.0313	0.0212	0.0731	0.373	0.0048	0.0236	0.0093	0.276	0.494	0.404		11.170						1209
2683	HLW03-05	0.0619	1.76	1.5	0.703	0.0715	0.0707	0.0227	0.278	0.237	0.328		10.780						1230
2684	HLW03-06	0.0072	0.0631	0.398	0.289	0.0099		0.0018	0.151	0.189	0.082		10.430						1233
2685	HLW03-07	0.0959	2.75	2.41	1.61	0.0168		0.0064	1.451	0.941	1.048		11.480						1230
2686	HLW03-08	0.0164	0.938	1.23	1.7	0.0126	0.0242	0.0153	0.644	0.521	0.755		11.750						1230
2687	HLW03-09	0.0281	0.0096	0.317	0.879	0.0307	0.0302	0.0024	1.253	0.903	0.731		10.160						1225
2688	HLW03-10, HLW03-10R1	0.0164	0.0096	2.16	1.1	0.0126		0.0237	0.443	0.510	0.590		11.570						1221
2689	HLW03-11	0.0216	0.0259	0.0318	0.274	0.0097			0.706	0.486	0.603		10.650						1228
2690	HLW03-12	0.0061	3.12	0.85	1.49	0.174		0.0026	0.418	0.382	0.370		10.670						1219
2691	HLW03-13	0.0192	0.411	0.537	0.645	0.0076			0.010	0.297	0.229		10.970						1213
2692	HLW03-14	0.016	2.79	0.772	1.39	0.0088	0.0618	0.0031	0.760	0.674	0.656		11.360						1224
2693	HLW03-15	0.0067	0.685		0.852	0.0325	0.0372		0.281	0.311	0.176		9.330						1233
2694	HLW03-16	0.0186	0.618	0.0636	0.408	0.0341		0.0105	0.333	0.395	0.387		10.160						1217
2695	HLW03-17	0.0046	1.74	0.548	1.82	0.0141		0.0187	0.208	0.349	0.048		9.170						1230
2696	HLW03-18	0.0095	0.042	0.0975	0.266	0.0103	0.0166	0.0025	1.746	1.334	1.266		11.250						1214
2697	HLW03-19	0.0085	1	0.0947	0.425				1.432	1.064	1.146		11.350						1212
2698	HLW03-20	0.0337	0.0176	0.0765	0.391	0.0401	0.0157	0.0104	1.990	1.440	1.401		11.350						1218
2699	HLW03-21	0.0238	0.663	1.67	1.49	0.0202		0.0072	0.202	0.233	0.174		10.230						1230
2700	HLW03-22	0.0427	0.267	0.422	0.675	0.0132		0.0078	0.301	0.335	0.334		10.840						1217
2701	HLW03-23	0.0222	0.28	0.163	0.992				0.416	0.368	0.297		10.180						1224
2702	HLW03-24	0.0176	1.06	0.621	0.94	0.0172		0.0034	0.354	0.338	0.263		10.450						1227
2703	HLW03-25	0.0379	0.923	0.195	1.33	0.0082	0.0155	0.009	0.993	0.747	0.737		10.320						1222
2704	HLW03-26	0.106	2.08	1.86	1.81	0.094		0.0307	0.657	0.415	0.410		11.160						1212
2705	HLW03-27	0.029	0.675	0.335	0.57	0.017		0.0055	0.528	0.421	0.431		11.120						1219
2706	HLW03-28	0.0162	0.232	0.265	1.22	0.0187		0.0015	0.818	0.636	0.560		10.760						1229

#	Glass ID	EC1 (S/cm)	T2 (°C)	EC2 (S/cm)	T3 (°C)	EC3 (S/cm)	T4 (°C)	EC4 (S/cm)	T5 (°C)	EC5 (S/cm)	T6 (°C)	EC6 (S/cm)	A	B	To
2625	HLW02-04	0.42	1145	0.321	1051	0.242	958	0.159					1.5661	-2404.51	250
2626	HLW02-05	0.618	1151	0.482	1056	0.367	962	0.241					1.1972	-1339.61	450
2627	HLW02-06	0.624	1154	0.468	1057	0.333	960	0.22					2.4310	-3197.79	150
2628	HLW02-07	0.628	1150	0.441	1054	0.309	959	0.205					3.8314	-6018.18	-150
2629	HLW02-08	0.525	1152	0.412	1057	0.295	963	0.187					1.9874	-2602.98	250
2630	HLW02-09	0.414	1151	0.35	1055	0.219	959	0.139					0.7279	-1108.72	550
2631	HLW02-10	0.513	1143	0.37	1048	0.269	953	0.18					3.3560	-5598.29	-150
2632	HLW02-11	0.514	1149	0.405	1053	0.284	957	0.182					1.1862	-1468.11	450
2633	HLW02-12	0.744	1152	0.567	1059	0.384	963	0.243					2.5452	-2823.71	250
2634	HLW02-13	0.586	1148	0.454	1055	0.33	960	0.211					1.6722	-1965.09	350
2635	HLW02-14	0.575	1151	0.426	1055	0.309	959	0.196					2.0751	-2625.81	250
2636	HLW02-15	0.35	1155	0.262	1060	0.183	964	0.113					1.7917	-2833.18	250
2637	HLW02-16	0.541	1154	0.402	1059	0.282	964	0.175					2.2433	-2845.69	250
2638	HLW02-17	0.426	1151	0.311	1055	0.224	959	0.15					2.0479	-3199.71	150
2639	HLW02-18	0.368	1153	0.29	1052	0.195	956	0.123					0.9124	-1523.84	450
2640	HLW02-19	0.221	1155	0.148	1060	0.095	964	0.052					2.5635	-4485.65	150
2641	HLW02-20, HLW02-20R1	0.118	1150	0.086	1054	0.057	957	0.034					1.3611	-3821.91	150
2642	HLW02-21, HLW02-21R1	0.37	1154	0.279	1059	0.198	963	0.13					1.9986	-3286.70	150
2643	HLW02-22	0.287	1150	0.225	1054	0.164	958	0.101					0.2248	-1027.31	550
2644	HLW02-23, HLW02-23R1	0.419	1154	0.314	1060	0.227	964	0.13					1.2241	-1669.47	450
2645	HLW02-24	0.24	1151	0.174	1055	0.117	958	0.071					1.5547	-2974.91	250
2646	HLW02-25, HLW02-25R1	0.245	1152	0.174	1056	0.116	959	0.072					2.8868	-5572.35	-50
2647	HLW02-26	0.423	1154	0.289	1059	0.199	963	0.121					3.9376	-6729.27	-150
2648	HLW02-27	0.533	1154	0.347	1058	0.251	963	0.151					4.1704	-6744.46	-150
2649	HLW02-28	0.568	1152	0.417	1045	0.277	958	0.184					2.5905	-3465.02	150
2650	HLW02-29, HLW02-29R1	0.491	1155	0.364	1059	0.24	963	0.146					2.3192	-3025.20	250
2651	HLW02-30	0.572	1158	0.425	1054	0.291	958	0.181					2.6292	-3502.30	150
2652	HLW02-31	0.532	1152	0.388	1057	0.279	962	0.167					2.2190	-2844.47	250
2653	HLW02-32, HLW02-32R1	0.434	1141	0.337	1047	0.271	954	0.149					1.0908	-1485.57	450
2654	HLW02-33	0.443	1150	0.322	1055	0.232	958	0.144					1.8828	-2703.19	250
2655	HLW02-34, HLW02-34R1	0.373	1150	0.282	1054	0.196	958	0.121					1.4031	-2137.65	350
2656	HLW02-35	0.463	1151	0.403	1055	0.269	958	0.171					0.3386	-651.70	650
2657	HLW02-36	0.353	1151	0.263	1055	0.188	958	0.122					2.0965	-3602.48	100
2658	HLW02-37	0.422	1149	0.316	1054	0.208	960	0.125					2.6754	-3845.24	150
2659	HLW02-38	0.37	1147	0.273	1052	0.185	956	0.117					2.6541	-4347.44	50
2660	HLW02-39	0.246	1154	0.195	1057	0.132	960	0.077					0.2486	-1149.49	550
2661	HLW02-40	0.202	1155	0.168	1059	0.114	957	0.066					-0.3993	-714.84	650
2662	HLW02-41	0.216	1154	0.174	1058	0.105	963	0.08					2.7276	-6154.52	-200
2663	HLW02-42	0.479	1151	0.37	1057	0.245	962	0.143					1.9317	-2366.13	350
2664	HLW02-43	0.265	1147	0.181	1053	0.125	957	0.068					2.0000	-3304.82	250
2665	HLW02-44	0.616	1148	0.449	1054	0.324	960	0.194					2.3918	-2852.91	250
2666	HLW02-45	0.243	1153	0.173	1057	0.13	961	0.078					0.5368	-1579.28	450
2667	HLW02-46	0.324	1148	0.242	1053	0.146	957	0.09					2.2867	-3558.84	200
2668	HLW02-47	0.23	1153	0.168	1058	0.112	962	0.068					1.5919	-3052.01	250
2669	HLW02-48	0.509	1154	0.408	1059	0.288	963	0.183					1.5492	-1984.29	350
2670	HLW02-49	0.421	1160	0.308	1064	0.215	968	0.135					2.3510	-3558.98	150
2671	HLW02-50	0.256	1156	0.187	1060	0.123	965	0.075					1.7020	-3068.76	250
2672	HLW02-51, HLW02-51R1	0.342	1153	0.246	1058	0.169	964	0.102					1.5258	-2340.08	350
2673	HLW02-52	0.382	1153	0.288	1052	0.19	955	0.119					1.8536	-2811.14	250
2674	HLW02-53	0.475	1156	0.369	1061	0.255	965	0.17					3.3350	-5690.49	-150
2675	HLW02-54	0.416	1152	0.342	1057	0.22	962	0.145					1.0883	-1551.57	450
2676	HLW02-55	0.388	1150	0.271	1054	0.194	958	0.119					2.2687	-3549.78	150
2677	HLW02-56	0.428	1151	0.325	1053	0.219	957	0.142					2.2699	-3411.03	150
2678	HLW02-57	0.422	1153	0.332	1056	0.23	959	0.156					1.9651	-3097.69	150
2679	HLW03-01	0.589	1124	0.377	1027	0.255	921	0.158					4.7015	-7832.84	-270
2680	HLW03-02	0.295	1146	0.215	1039	0.147	954	0.098					2.9729	-5833.78	-150
2681	HLW03-03	0.365	1153	0.246	1056	0.166	959	0.104					3.7263	-6653.41	-150
2682	HLW03-04	0.492	1130	0.353	1036	0.232	940	0.141					4.8876	-8288.45	-270
2683	HLW03-05	0.517	1139	0.354	1044	0.24	945	0.158					4.3562	-7564.42	-270
2684	HLW03-06	0.386	1140	0.302	1045	0.192	950	0.119					1.3815	-1934.27	400
2685	HLW03-07	0.835	1128	0.648	1041	0.466	944	0.285					1.3069	-1010.84	550
2686	HLW03-08	0.918	1137	0.786	1042	0.532	948	0.352					1.3269	-946.90	550
2687	HLW03-09	0.438	1131	0.317	1034	0.22	935	0.141					1.8169	-2597.17	250
2688	HLW03-10, HLW03-10R1	0.893	1128	0.725	1032	0.464	938	0.329					3.5184	-4588.21	-50
2689	HLW03-11	0.443	1133	0.384	1038	0.261	943	0.19					1.0474	-1613.74	350
2690	HLW03-12	0.418	1129	0.293	1035	0.174	939	0.09					2.3721	-2814.52	350
2691	HLW03-13	0.4	1121	0.304	1022	0.177	923	0.103					2.3313	-3107.92	250
2692	HLW03-14	0.454	1132	0.302	1037	0.171	943	0.09					4.1129	-5499.89	100
2693	HLW03-15	0.179	1141	0.121	1045	0.077	951	0.047					4.0355	-8664.28	-270
2694	HLW03-16	0.193	1123	0.13	1029	0.074	932	0.037					2.0402	-3371.44	300
2695	HLW03-17	0.178	1139	0.135	1043	0.074	947	0.042					1.7014	-3161.73	300
2696	HLW03-18	0.623	1118	0.49	1014	0.318	908	0.18					1.4144	-1435.15	450
2697	HLW03-19	0.653	1120	0.463	1024	0.335	920	0.195					2.9083	-3720.83	100
2698	HLW03-20	0.648	1127	0.53	1032	0.342	933	0.214					1.9111	-2015.22	350
2699	HLW03-21	0.313	1136	0.254	1041	0.155	944	0.093					0.7960	-1412.96	500
2700	HLW03-22	0.444	1125	0.307	1029	0.199	935	0.11					2.3058	-2865.03	300
2701	HLW03-23	0.432	1129	0.296	1034	0.212	937	0.122					2.3339	-3265.77	200
2702	HLW03-24	0.471	1132	0.352	1036	0.222	937	0.13					2.1264	-2658.27	300
2703	HLW03-25	0.428	1131	0.329	1034	0.205	928	0.107					1.4395	-1756.32	450
2704	HLW03-26	0.622	1129	0.425	1034	0.298	937	0.162					2.7958	-3167.35	250
2705	HLW03-27	0.582	1125	0.394	1029	0.253	930	0.159					4.8423	-8041.94	-270
2706	HLW03-28	0.718	1130	0.444	1033	0.295	936	0.188					5.0659	-8158.16	-270

#	Glass ID	Study	Reference	Al2O3-t	B2O3-t	CaO-t	Fe2O3-t	FeO-t	K2O-t	Li2O-t	MgO-t	Na2O-t	NiO-t	P2O5-t	SiO2-t	ZrO2-t	Ag2O-t	As2O3-t	As2O5-t	BaO-t	BeO-t	Bi2O3-t	Br-t	CdO-t	Ce2O3-t	CeO2-t	Cl-t
2707	HLW03-29	HLW03 Augmentation M	Piepel et al. 2008	0.0297	0.0693	0.0050	0.0495		0.0006	0.0495	0.0012	0.1188	0.0030	0.0050	0.4061	0.0767	0.0004		0.0005	0.0006		0.0001		0.0030	0.0005		0.0020
2708	HLW03-30	HLW03 Augmentation M	Piepel et al. 2008	0.0297	0.1189	0.0050	0.0495		0.0006	0.0495	0.0012	0.0693	0.0030	0.0050	0.4320	0.0823	0.0004		0.0005	0.0006		0.0001		0.0010	0.0005		0.0020
2709	HLW03-31	HLW03 Augmentation M	Piepel et al. 2008	0.0495	0.0693	0.0050	0.0495		0.0006	0.0495	0.0012	0.0853	0.0050	0.0050	0.4506	0.0892	0.0004		0.0005	0.0006		0.0001		0.0010	0.0005		0.0020
2710	HLW03-32	HLW03 Augmentation M	Piepel et al. 2008	0.0492	0.0689	0.0050	0.0492		0.0006	0.0492	0.0012	0.0910	0.0049	0.0050	0.4035	0.0886	0.0013		0.0016	0.0020		0.0001		0.0010	0.0005		0.0020
2711	HLW03-33	HLW03 Augmentation M	Piepel et al. 2008	0.0496	0.1190	0.0050	0.0992		0.0006	0.0390	0.0012	0.0694	0.0045	0.0050	0.4067	0.0595	0.0004		0.0005	0.0006		0.0001		0.0010	0.0005		0.0020
2712	HLW03-34	HLW03 Augmentation M	Piepel et al. 2008	0.0296	0.0690	0.0050	0.0985		0.0006	0.0246	0.0012	0.0954	0.0049	0.0050	0.4828	0.0591	0.0013		0.0016	0.0020		0.0001		0.0010	0.0005		0.0020
2713	HLW03-35	HLW03 Augmentation M	Piepel et al. 2008	0.0496	0.1040	0.0050	0.0496		0.0006	0.0248	0.0012	0.0695	0.0050	0.0050	0.4864	0.0596	0.0004		0.0005	0.0006		0.0001		0.0010	0.0005		0.0020
2714	HLW03-36	HLW03 Augmentation M	Piepel et al. 2008	0.0492	0.0689	0.0050	0.0951		0.0006	0.0269	0.0012	0.0796	0.0049	0.0050	0.4823	0.0591	0.0013		0.0016	0.0020		0.0001		0.0030	0.0005		0.0020
2715	HLW03-37	HLW03 Augmentation M	Piepel et al. 2008	0.0295	0.1181	0.0050	0.0722		0.0006	0.0486	0.0012	0.0689	0.0049	0.0050	0.4035	0.0733	0.0013		0.0016	0.0020		0.0001		0.0010	0.0005		0.0020
2716	HLW03-38	HLW03 Augmentation M	Piepel et al. 2008	0.0491	0.0688	0.0050	0.0983		0.0006	0.0246	0.0012	0.0962	0.0030	0.0050	0.4316	0.0705	0.0013		0.0016	0.0020		0.0001		0.0030	0.0005		0.0020
2717	HLW03-39	HLW03 Augmentation M	Piepel et al. 2008	0.0295	0.0688	0.0050	0.0850		0.0006	0.0485	0.0012	0.0688	0.0029	0.0050	0.4813	0.0708	0.0013		0.0016	0.0020		0.0001		0.0030	0.0005		0.0020
2718	HLW03-40	HLW03 Augmentation M	Piepel et al. 2008	0.0494	0.0692	0.0050	0.0939		0.0006	0.0488	0.0012	0.0692	0.0049	0.0050	0.4296	0.0593	0.0004		0.0005	0.0006		0.0001		0.0030	0.0005		0.0020
2719	HLW03-41	HLW03 Augmentation M	Piepel et al. 2008	0.0389	0.0873	0.0050	0.0694		0.0006	0.0371	0.0012	0.0909	0.0040	0.0050	0.4306	0.0677	0.0009		0.0010	0.0013		0.0001		0.0020	0.0005		0.0020
2720	HLW03-42	HLW03 Augmentation M	Piepel et al. 2008	0.0550	0.0915	0.0050	0.1000		0.0006	0.0370	0.0012	0.0900	0.0080	0.0050	0.4900	0.0250	0.0004		0.0005	0.0006		0.0001		0.0050	0.0005		0.0020
2721	HLW03-43	HLW03 Augmentation M	Piepel et al. 2008	0.0834	0.0491	0.0050	0.0196		0.0006	0.0589	0.0012	0.0393	0.0098	0.0050	0.5203	0.0410	0.0002		0.0002	0.0003		0.0001		0.0160	0.0005		0.0020
2722	HLW03-44	HLW03 Augmentation M	Piepel et al. 2008	0.0198	0.0496	0.0050	0.0954		0.0006	0.0198	0.0012	0.1488	0.0010	0.0050	0.5259	0.0000	0.0002		0.0002	0.0003		0.0001		0.0005	0.0005		0.0020
2723	HLW03-45	HLW03 Augmentation M	Piepel et al. 2008	0.0492	0.0689	0.0050	0.0492		0.0006	0.0492	0.0012	0.1043	0.0049	0.0050	0.4035	0.0590	0.0013		0.0016	0.0020		0.0001		0.0010	0.0005		0.0020
2724	HLW04-01	HLW04 C106 actual	Kot and Pegg 2004	0.0478	0.1126	0.0036	0.1309		0.0000	0.0281	0.0011	0.1225	0.0038	0.0042	0.4851	0.0000	0.0007			0.0005				0.0001	0.0013		
2725	HLW04-02	HLW04 C106 actual	Kot and Pegg 2004	0.0478	0.1251	0.0036	0.1309		0.0000	0.0281	0.0011	0.1225	0.0038	0.0042	0.4726	0.0000	0.0007			0.0005				0.0001	0.0013		
2726	HLW04-03	HLW04 C106 actual	Kot and Pegg 2004	0.0492	0.1109	0.0037	0.1346		0.0000	0.0277	0.0012	0.1231	0.0040	0.0043	0.4802	0.0000	0.0007			0.0005				0.0001	0.0013		
2727	HLW04-04	HLW04 C106 actual	Kot and Pegg 2004	0.0458	0.1076	0.0035	0.1255		0.0000	0.0281	0.0011	0.1252	0.0037	0.0040	0.4925	0.0000	0.0007			0.0005				0.0001	0.0012		
2728	HLW04-06	HLW04 C106 actual	Kot and Pegg 2004	0.0492	0.1036	0.0037	0.1346		0.0000	0.0262	0.0012	0.1229	0.0040	0.0043	0.4892	0.0000	0.0007			0.0005				0.0001	0.0013		
2729	HLW04-07	HLW04 C106 actual	Kot and Pegg 2004	0.0488	0.1037	0.0046	0.1401		0.0001	0.0264	0.0014	0.1254	0.0041	0.0056	0.4746	0.0046	0.0019			0.0007				0.0001	0.0010		
2730	HLW04-08	HLW04 C106 actual	Kot and Pegg 2004	0.0478	0.1036	0.0045	0.1371		0.0001	0.0264	0.0014	0.1241	0.0040	0.0055	0.4812	0.0045	0.0018			0.0007				0.0001	0.0010		
2731	HLW04-09	HLW04 C106 actual	Kot and Pegg 2004	0.0488	0.1027	0.0046	0.1401		0.0001	0.0264	0.0014	0.1253	0.0041	0.0056	0.4777	0.0046	0.0019			0.0007				0.0001	0.0010		
2732	HLW05-01	HLW05 ThZr M	Kot et al. 2005	0.0600	0.1200	0.0075	0.0606		0.0020	0.0300	0.0010	0.0800	0.0013	0.0030	0.4376	0.0608	0.0010			0.0050		0.0020		0.0013			
2733	HLW05-02	HLW05 ThZr M	Kot et al. 2005	0.1000	0.1200	0.0075	0.0500		0.0020	0.0300	0.0010	0.1168	0.0025	0.0030	0.4112	0.0500	0.0010			0.0050		0.0020		0.0025			
2734	HLW05-03	HLW05 ThZr M	Kot et al. 2005	0.0600	0.1130	0.0075	0.0500		0.0020	0.0300	0.0010	0.1600	0.0013	0.0030	0.3800	0.0700	0.0010			0.0050		0.0020		0.0013			
2735	HLW05-04	HLW05 ThZr M	Kot et al. 2005	0.0600	0.0700	0.0075	0.0500		0.0020	0.0500	0.0010	0.1075	0.0025	0.0030	0.4400	0.0815	0.0010			0.0050		0.0020		0.0025			
2736	HLW05-05	HLW05 ThZr M	Kot et al. 2005	0.0600	0.0700	0.0075	0.0700		0.0020	0.0325	0.0010	0.1600	0.0013	0.0030	0.4400	0.0500	0.0010			0.0050		0.0020		0.0013			
2737	HLW05-06	HLW05 ThZr M	Kot et al. 2005	0.0600	0.0706	0.0075	0.0800		0.0020	0.0300	0.0010	0.1600	0.0025	0.0030	0.3800	0.0824	0.0010			0.0050		0.0020		0.0025			
2738	HLW05-07	HLW05 ThZr M	Kot et al. 2005	0.1000	0.1200	0.0075	0.0500		0.0020	0.0300	0.0010	0.1168	0.0025	0.0030	0.4112	0.0500	0.0010			0.0050		0.0020		0.0025			
2739	HLW05-08	HLW05 ThZr M	Kot et al. 2005	0.0600	0.1200	0.0075	0.0500		0.0020	0.0500	0.0010	0.1190	0.0013	0.0030	0.3800	0.1050	0.0010			0.0050		0.0020		0.0013			
2740	HLW05-09	HLW05 ThZr M	Kot et al. 2005	0.0600	0.1200	0.0075	0.0767		0.0020	0.0500	0.0010	0.1250	0.0025	0.0030	0.3823	0.0500	0.0010			0.0050		0.0020		0.0025			
2741	HLW05-10	HLW05 ThZr M	Kot et al. 2005	0.1000	0.0700	0.0075	0.0500		0.0020	0.0500	0.0010	0.1250	0.0013	0.0030	0.4230	0.0500	0.0010			0.0050		0.0020		0.0013			
2742	HLW05-11	HLW05 ThZr M	Kot et al. 2005	0.0600	0.1200	0.0075	0.0800		0.0020	0.0500	0.0010	0.0830	0.0013	0.0030	0.4400	0.0500	0.0010			0.0050		0.0020		0.0013			
2743	HLW05-12	HLW05 ThZr M	Kot et al. 2005	0.0600	0.0706	0.0075	0.0800		0.0020	0.0300	0.0010	0.1600	0.0025	0.0030	0.3800	0.0824	0.0010			0.0050		0.0020		0.0025			
2744	HLW05-13	HLW05 ThZr M	Kot et al. 2005	0.0977	0.0700	0.0075	0.0763		0.0020	0.0300	0.0010	0.1600	0.0013	0.0030	0.3800	0.0500	0.0010			0.0050		0.0020		0.0013			
2745	HLW05-14	HLW05 ThZr M	Kot et al. 2005	0.0600	0.1130	0.0075	0.0800		0.0020	0.0500	0.0010	0.1250	0.0025	0.0030	0.3800	0.0500	0.0010			0.0050		0.0020		0.0025			
2746	HLW05-15	HLW05 ThZr M	Kot et al. 2005	0.0200	0.0450	0.0075	0.1200		0.0020	0.0000	0.0010	0.1667	0.0005	0.0030	0.4900	0.0400	0.0010			0.0050		0.0020		0.0005			
2747	HLW05-16	HLW05 ThZr M	Kot et al. 2005	0.0511	0.1400	0.0075	0.0150		0.0020	0.0600	0.0010	0.0742	0.0005	0.0030	0.3613	0.1139	0.0010			0.0050		0.0020		0.0005			
2748	HLW05-17	HLW05 ThZr M	Kot et al. 2005	0.1187	0.1400	0.0075	0.0718		0.0020	0.0600	0.0010	0.1075	0.0005	0.0030	0.3400	0.0795	0.0010			0.0050		0.0020		0.0005			
2749	HLW05-18	HLW05 ThZr M	Kot et al. 2005	0.0200	0.1400	0.0075	0.0646		0.0020	0.0000	0.0010	0.1142	0.0050	0.0030	0.4203	0.0954	0.0010			0.0050		0.0020		0.0050			
2750	HLW05-19	HLW05 ThZr M	Kot et al. 2005	0.1300	0.0450	0.0075	0.0592		0.0020	0.0145	0.0010	0.2000	0.0005	0.0030	0.3438	0.0250	0.0010			0.0050		0.0020		0.0005			
2751	HLW05-20	HLW05 ThZr M	Kot et al. 2005	0.1300	0.1400	0.0075	0.0150		0.0020	0.0000	0.0010	0.2000	0.0050	0.0030	0.3775	0.0350	0.0010			0.0050		0.0020		0.0050			
2752	HLW05-21	HLW05 ThZr M	Kot et al. 2005	0.0200	0.1400	0.0075	0.1200		0.0020	0.0000	0.0010	0.1971	0.0005	0.0030	0.3400	0.0534	0.0010			0.0050		0.0020		0.0005			
2753	HLW05-22	HLW05 ThZr M	Kot et al. 2005	0.1300	0.1400	0.0075	0.0250		0.0020	0.0370	0.0010	0.0650	0.0005	0.0030	0.4405	0.0250	0.0010			0.0050		0.0020		0.0005			
2754	HLW05-23	HLW05 ThZr M	Kot et al. 2005	0.1273	0.0450	0.0075	0.0150		0.0020	0.0600	0.0010	0.1000	0.0050	0.0030	0.4675	0.0377	0.0010			0.0050		0.0020		0.0050			
2755	HLW05-24	HLW05 ThZr M	Kot et al. 2005	0.0217	0.0450	0.0075	0.0894		0.0020	0.0149	0.0010	0.2000	0.0050	0.0030	0.3565	0.1150	0.0010			0.0050		0.0020		0.0050			
2756	HLW05-25	HLW05 ThZr M	Kot et al. 2005	0.0200	0.0743	0.0075	0.0912		0.0020	0.0600	0.0010	0.0650	0.0005	0.0030	0.4900	0.1150	0.0010			0.0050		0.0020		0.0005			
2757	HLW05-26	HLW05 ThZr M	Kot et al. 2005	0.0500	0.0450	0.0075	0.0150		0.0020	0.0178	0.0010	0.2000	0.0005	0.0030	0.4747	0.1150	0.0010			0.0050		0.0020		0.0005			
2758	HLW05-27	HLW05 ThZr M	Kot et al. 2005	0.0200	0.0450	0.0075	0.1200		0.0020	0.0595	0.0010	0.1039	0.0050	0.0030	0.4561	0.0400	0.0010			0.0050		0.0020		0.0050			
2759	HLW05-28	HLW05 ThZr M	Kot et al. 2005	0.0200	0.1400	0.0075	0.0646		0.0020	0.0000	0.0010	0.1142	0.0050	0.0030	0.4203	0.0954	0.0010			0.0050		0.0020		0.0050			
2760	HLW05-29	HLW05 ThZr M	Kot et al. 2005	0.0500	0.0450	0.0075	0.0150		0.0020	0.0178	0.0010	0.2000	0.0005	0.0030	0.4747	0.1150	0.0010			0.0050		0.0020		0.0005			
2761	HLW05-30	HLW05 ThZr M	Kot et al. 2005	0.0661	0.0986	0.0075	0.0625		0.0020	0.0278	0.0010	0.1471	0.0025	0.0030	0.4097	0.0600	0.0010			0.0050		0.0020		0.0025			
2762	HLW06-01	HLW06 Spinel M	Kot et al. 2005	0.1100	0.0650	0.0100	0.0700		0.0164	0.0300	0.0117	0.1400	0.0100	0.0050	0.4000	0.0150	0.0010			0.0030		0.0030		0.0024			0.0020
2763	HLW06-02	HLW06 Spinel M	Kot et al. 2005	0.1039	0.1100	0.0100	0.0700		0.0164	0.0025	0.0117	0.2000	0.0100	0.0050	0.3500	0.0150	0.0010			0.0030		0.0030		0.0024			0.0020
2764	HLW06-03	HLW06 Spinel M	Kot et al. 2005	0.1100	0.0650	0.0047	0.1400		0.0077	0.0025	0.0055	0.1400	0.0060	0.0050	0.3500	0.0400	0.0010			0.0014		0.0030		0.0071			0.0020
2765	HLW06-04	HLW06 Spinel M	Kot et al. 2005	0.0800	0.0650	0.0076	0.0700		0.0124	0.0025	0.0089	0.2000	0.0060	0.0050	0.3500	0.0400	0.0010			0.0023		0.0030		0.0071			0.0020
2766	HLW06-05	HLW06 Spinel M	Kot et al. 2005	0.0800	0.0650	0.0067	0.0700		0.0111	0.0025	0.0079	0.2000	0.0060	0.0050	0.4000	0.0150	0.0010			0.0020		0.0030		0.0024			0.0020
2767	HLW06-06	HLW06 Spinel M	Kot et al. 2005	0.1100	0.0650	0.0094	0.0700		0.0154	0.0025	0.0110	0.1400	0.0100	0.0050	0.3500	0.0400	0.0010			0.0028		0.0030		0.0024			0.0020
2768	HLW06-07	HLW06 Spinel M	Kot et al. 2005	0.0800	0.0650	0.0100	0.1400		0.0164	0.0025	0.0117	0.1589	0.0100	0.0050	0.3500	0.0150	0.0010			0.0030		0.0030		0.0024			0.0020
2769	HLW06-08	HLW06 Spinel M	Kot et al. 2005	0.0800	0.0650	0.0061	0.0700		0.0100	0.0025	0.0071	0.1400	0.0100	0.0050	0.4000	0.0150	0.0010			0.0018		0.0030		0.0071			0.0020
2770	HLW06-09	HLW06 Spinel M	Kot et al. 2005	0.0800	0.0650	0.0017	0.1400		0.0027	0.0300	0.0019	0.1400	0.0100	0.0050	0.3500	0.0400	0.0010			0.0005		0.0030		0.0024			0.0020
2771	HLW06-10	HLW06 Spinel M	Kot et al. 2005	0.0800	0.1100	0.0047	0.0700		0.0077	0.0025	0.0055	0.1400	0.0060	0.0050	0.4000	0.0400	0.0010			0.0014		0.0030		0.0024			0.0020
2772	HLW06-11	HLW06 Spinel M	Kot et al. 2005	0.0800	0.1100	0.0055	0.1400		0.0090	0.0025	0.0064	0.1400	0.0060	0.0050	0.3500	0.0150	0.0010			0.0016		0.0030		0.0024			0.0020
2773	HLW06-12	HLW06 Spinel M	Kot et al. 2005	0.0941	0.1100	0.0017	0.0700		0.0027	0.0300	0.0019	0.1400	0.0100	0.0050	0.3500	0.0150	0.0010			0.0005		0.0030		0.0071			0.0020
2774	HLW06-13	HLW06 Spinel M	Kot et al. 2005	0.1100	0.0650	0.0094	0.0700		0.0154	0.0025	0.0110	0.1400	0.0100	0.0050	0.3500	0.0400	0.0010			0.0028		0.0030		0.0024			0.0020
2775	HLW06-14	HLW06 Spinel M	Kot et al. 2005	0.0800	0.1100	0.0100	0.0700		0.0164	0.0300	0.0117	0.1400	0.0060	0.0050	0.3500	0.0329	0.0010			0.0030		0.0030		0.0024			0.0020
2776	HLW06-15	HLW06 Spinel M	Kot et al. 2005	0.0800	0.1100	0.0017	0.0700		0.0027	0.0300	0.0019	0.2000	0.0100	0.0050	0.3500	0.0400	0.0010			0.0005		0.0030		0.0024			0.0020
2777	HLW06-16	HLW06 Spinel M	Kot et al. 2005	0.1000	0.0650	0.0032	0.0700		0.0052	0.0300	0.0037	0.2000	0.0100	0.0050	0.3500	0.0150	0.0010			0.0010		0.0030		0.0024			0.0020
2778	HLW06-17	HLW06 Spinel M	Kot et al. 2005	0.1100	0.0650	0.0100	0.0700		0.0164	0.0300	0.0117	0.1400	0.0100	0.0050	0.4000	0.0150	0.0010			0.0030		0.0030		0.0024			0.0020
2779	HLW06-18	HLW06 Spinel M	Kot et al. 2005	0.1100	0.1100	0.0028	0.0700		0.0045	0.0025	0.0032	0.1400	0.0100	0.0050	0.4000	0.0400	0.0010			0.0008		0.0030		0.0024			0.0020
2780	HLW06-19	HLW06 Spinel M	Kot et al. 2005	0.1100	0.0650	0.0017	0.1206		0.0027	0.0025	0.0019	0.2000	0.0060	0.0050	0.3500	0.0150	0.0010			0.0005		0.0030		0.0024			0.0020
2781	HLW06-20	HLW06 Spinel M	Kot et al. 2005	0.1100	0.0650	0.0100	0.0729		0.0164	0.0300	0.0117	0.1400	0.0060	0.0050	0.3500	0.0150	0.0010			0.0030		0.0030		0.0024			0.0020
2782	HLW06-21	HLW06 Spinel M	Kot et al. 2005	0.1300	0.0430	0.0000	0.0140		0.0000	0.0000	0.0000	0.2000	0.0000	0.0050	0.3877	0.0000	0.0010			0.0000		0.0030		0.0000			0.0020
2783	HLW06-22	HLW06 Spinel M	Kot et al. 2005	0.1300	0.1500	0.0000	0.0140		0.0000	0.0601	0.0000	0.0684	0.0000	0.0050	0.3456	0.0000	0.0010			0.0000		0.0030		0.0165			0.0020
2784	HLW06-23	HLW06 Spinel M	Kot et al. 2005	0.0188	0.0430	0.0000	0.1500		0.0000	0.0000	0.0000	0.2000	0.0000	0.0050	0.3469	0.1150	0.0010			0.0000		0.0030		0.0000			0.0020
2785	HLW06-24	HLW06 Spinel M	Kot et al. 2005	0.1300	0.0430	0.0100	0.0140		0.0164	0.0000	0.0117	0.1625	0.0000	0.0050	0.3300	0.0000	0.0010			0.0030		0.0030		0.0165			0.0020
2786	HLW06-25	HLW06 Spinel M	Kot et al. 2005	0.1300	0.1500	0.0100	0.0140		0.0164	0.0601	0.0117	0.0370	0.0000	0.0050	0.4224	0.0000	0.0010			0.0030		0.0030		0.0000			0.0020
2787	HLW06-26	HLW06 Spinel M	Kot et al. 2005	0.0188	0.0430	0.0000	0.0140		0.0000	0.0000	0.0000	0.2000	0.0000	0.0050	0.3300	0.1150	0.0010			0.0000		0.0030		0.0165			0.0020
2788	HLW06-27	HLW06 Spinel M	Kot et al. 2005	0.0188	0.0982	0.0000	0.0140		0.0000	0.0601	0.0000	0.0370	0.0000	0.0050	0.5310	0.1150	0.0010			0.0000		0.0030		0.0000			0.0020

#	Glass ID	CoO-t	Co2O3-t	Cr2O3-t	Cs2O-t	CuO-t	Dy2O3-t	Eu2O3-t	F-t	Ga2O3-t	Gd2O3-t	HfO2-t	HgO-t	I-t	La2O3-t	MnO2-t	MnO-t	MoO-t	MoO2-t	MoO3-t	Nb2O5-t	Nd2O3-t	NpO2-t	PbO-t	PdO2-t	PdO-t	Pr2O3-t	Pr6O11-t	Rb2O-t	ReO-t
2707	HLW03-29	0.0001		0.0020	0.0001	0.0002			0.0005						0.0030		0.0352							0.0008		0.0012				
2708	HLW03-30	0.0001		0.0008	0.0001	0.0002			0.0005						0.0030		0.0446							0.0008		0.0012				
2709	HLW03-31	0.0001		0.0020	0.0001	0.0002			0.0005						0.0030		0.0446							0.0008		0.0012				
2710	HLW03-32	0.0001		0.0008	0.0001	0.0007			0.0005						0.0030		0.0292							0.0027		0.0012				
2711	HLW03-33	0.0001		0.0020	0.0001	0.0002			0.0005						0.0030		0.0149							0.0008		0.0012				
2712	HLW03-34	0.0001		0.0020	0.0001	0.0007			0.0005						0.0030		0.0148							0.0027		0.0012				
2713	HLW03-35	0.0001		0.0008	0.0001	0.0002			0.0005						0.0030		0.0447							0.0008		0.0012				
2714	HLW03-36	0.0001		0.0020	0.0001	0.0007			0.0005						0.0030		0.0148							0.0027		0.0012				
2715	HLW03-37	0.0001		0.0008	0.0001	0.0007			0.0005						0.0030		0.0148							0.0027		0.0012				
2716	HLW03-38	0.0001		0.0020	0.0001	0.0007			0.0005						0.0030		0.0147							0.0027		0.0012				
2717	HLW03-39	0.0001		0.0020	0.0001	0.0007			0.0005						0.0030		0.0147							0.0027		0.0012				
2718	HLW03-40	0.0001		0.0008	0.0001	0.0002			0.0005						0.0030		0.0148							0.0008		0.0012				
2719	HLW03-41	0.0001		0.0014	0.0001	0.0004			0.0005						0.0030		0.0270							0.0017		0.0012				
2720	HLW03-42	0.0001		0.0004	0.0001	0.0002			0.0005						0.0030		0.0350							0.0008		0.0012				
2721	HLW03-43	0.0001		0.0049	0.0001	0.0001			0.0005						0.0030		0.0687							0.0004		0.0012				
2722	HLW03-44	0.0001		0.0002	0.0001	0.0001			0.0005						0.0030		0.0000							0.0004		0.0012				
2723	HLW03-45	0.0001		0.0020	0.0001	0.0007			0.0005						0.0030		0.0148							0.0027		0.0012				
2724	HLW04-01	0.0001		0.0021	0.0000	0.0003					0.0000				0.0006		0.0205			0.0005				0.0047						
2725	HLW04-02	0.0001		0.0021	0.0000	0.0003					0.0000				0.0006		0.0205			0.0005				0.0047						
2726	HLW04-03	0.0001		0.0022	0.0000	0.0003					0.0000				0.0007		0.0211			0.0005				0.0048						
2727	HLW04-04	0.0001		0.0020	0.0000	0.0003					0.0000				0.0006		0.0197			0.0004				0.0045						
2728	HLW04-06	0.0001		0.0022	0.0000	0.0003					0.0000				0.0007		0.0211			0.0005				0.0048						
2729	HLW04-07	0.0000		0.0022		0.0003					0.0000				0.0007		0.0282			0.0003				0.0054						
2730	HLW04-08	0.0000		0.0022		0.0003					0.0000				0.0007		0.0276			0.0003				0.0053						
2731	HLW04-09	0.0000		0.0022		0.0003					0.0001				0.0007		0.0282			0.0003				0.0054						
2732	HLW05-01			0.0010					0.0005						0.0050		0.0025							0.0015		0.0002				
2733	HLW05-02			0.0020					0.0005						0.0050		0.0050							0.0015		0.0002				
2734	HLW05-03			0.0020					0.0005						0.0050		0.0025							0.0015		0.0002				
2735	HLW05-04			0.0010					0.0005						0.0050		0.0050							0.0015		0.0002				
2736	HLW05-05			0.0010					0.0005						0.0050		0.0025							0.0015		0.0002				
2737	HLW05-06			0.0020					0.0005						0.0050		0.0050							0.0015		0.0002				
2738	HLW05-07			0.0020					0.0005						0.0050		0.0050							0.0015		0.0002				
2739	HLW05-08			0.0010					0.0005						0.0050		0.0025							0.0015		0.0002				
2740	HLW05-09			0.0010					0.0005						0.0050		0.0050							0.0015		0.0002				
2741	HLW05-10			0.0020					0.0005						0.0050		0.0025							0.0015		0.0002				
2742	HLW05-11			0.0020					0.0005						0.0050		0.0025							0.0015		0.0002				
2743	HLW05-12			0.0020					0.0005						0.0050		0.0050							0.0015		0.0002				
2744	HLW05-13			0.0010					0.0005						0.0050		0.0025							0.0015		0.0002				
2745	HLW05-14			0.0020					0.0005						0.0050		0.0050							0.0015		0.0002				
2746	HLW05-15			0.0025					0.0005						0.0050		0.0010							0.0015		0.0002				
2747	HLW05-16			0.0025					0.0005						0.0050		0.0010							0.0015		0.0002				
2748	HLW05-17			0.0005					0.0005						0.0050		0.0010							0.0015		0.0002				
2749	HLW05-18			0.0005					0.0005						0.0050		0.0100							0.0015		0.0002				
2750	HLW05-19			0.0005					0.0005						0.0050		0.0010							0.0015		0.0002				
2751	HLW05-20			0.0025					0.0005						0.0050		0.0100							0.0015		0.0002				
2752	HLW05-21			0.0025					0.0005						0.0050		0.0010							0.0015		0.0002				
2753	HLW05-22			0.0005					0.0005						0.0050		0.0010							0.0015		0.0002				
2754	HLW05-23			0.0025					0.0005						0.0050		0.0100							0.0015		0.0002				
2755	HLW05-24			0.0025					0.0005						0.0050		0.0100							0.0015		0.0002				
2756	HLW05-25			0.0025					0.0005						0.0050		0.0010							0.0015		0.0002				
2757	HLW05-26			0.0005					0.0005						0.0050		0.0010							0.0015		0.0002				
2758	HLW05-27			0.0005					0.0005						0.0050		0.0100							0.0015		0.0002				
2759	HLW05-28			0.0005					0.0005						0.0050		0.0100							0.0015		0.0002				
2760	HLW05-29			0.0005					0.0005						0.0050		0.0010							0.0015		0.0002				
2761	HLW05-30			0.0014					0.0005						0.0050		0.0049							0.0015		0.0002				
2762	HLW06-01			0.0050					0.0044						0.0018		0.0100					0.0033		0.0091		0.0012				
2763	HLW06-02			0.0025					0.0044						0.0018		0.0100					0.0033		0.0091		0.0012				
2764	HLW06-03			0.0025					0.0044						0.0053		0.0100					0.0049		0.0042		0.0012				
2765	HLW06-04			0.0025					0.0044						0.0053		0.0100					0.0049		0.0069		0.0012				
2766	HLW06-05			0.0025					0.0044						0.0018		0.0400					0.0033		0.0061		0.0012				
2767	HLW06-06			0.0050					0.0044						0.0018		0.0400					0.0033		0.0086		0.0012				
2768	HLW06-07			0.0025					0.0044						0.0018		0.0400					0.0033		0.0091		0.0012				
2769	HLW06-08			0.0025					0.0044						0.0053		0.0400					0.0049		0.0055		0.0012				
2770	HLW06-09			0.0025					0.0044						0.0018		0.0241					0.0033		0.0015		0.0012				
2771	HLW06-10			0.0050					0.0044						0.0018		0.0100					0.0033		0.0042		0.0012				
2772	HLW06-11			0.0025					0.0044						0.0018		0.0100					0.0033		0.0050		0.0012				
2773	HLW06-12			0.0025					0.0044						0.0053		0.0400					0.0049		0.0015		0.0012				
2774	HLW06-13			0.0050					0.0044						0.0018		0.0400					0.0033		0.0086		0.0012				
2775	HLW06-14			0.0025					0.0044						0.0018		0.0400					0.0033		0.0091		0.0012				
2776	HLW06-15			0.0050					0.0044						0.0018		0.0291					0.0033		0.0015		0.0012				
2777	HLW06-16			0.0025					0.0044						0.0018		0.0175					0.0033		0.0029		0.0012				
2778	HLW06-17			0.0050					0.0044						0.0018		0.0100					0.0033		0.0091		0.0012				
2779	HLW06-18			0.0025					0.0044						0.0018		0.0100					0.0033		0.0025		0.0012				
2780	HLW06-19			0.0050					0.0044						0.0018		0.0400					0.0033		0.0015		0.0012				
2781	HLW06-20			0.0025					0.0044						0.0018		0.0400					0.0033		0.0091		0.0012				
2782	HLW06-21			0.0000					0.0044						0.0000		0.0800					0.0025		0.0000		0.0012				
2783	HLW06-22			0.0060					0.0044						0.0123		0.0000					0.0080		0.0000		0.0012				
2784	HLW06-23			0.0060					0.0044						0.0000		0.0000					0.0025		0.0000		0.0012				
2785	HLW06-24			0.0000					0.0044						0.0123		0.0000					0.0080		0.0091		0.0012				
2786	HLW06-25			0.0060					0.0044						0.0000		0.0000					0.0025		0.0091		0.0012				
2787	HLW06-26			0.0060					0.0044						0.0123		0.0073					0.0080		0.0000		0.0012				
2788	HLW06-27			0.0000					0.0044						0.0000		0.0000					0.0025		0.0000		0.0012				

#	Glass ID	ReO2-t	Re2O7-t	Rh2O3-t	RhO2-t	RuO2-t	Ru2O3-t	Sb2O3-t	Sb2O5-t	SeO2-t	Sm2O3-t	SnO-t	SnO2-t	SO3-t	SrO-t	Tc2O7-t	TeO2-t	ThO2-t	TiO2-t	Tl2O-t	Tl2O3-t	U3O8-t	UO2-t	UO3-t	V2O5-t	WO3-t	Y2O3-t	ZnO-t	Sum-t	Al2O3-a
2707	HLW03-29			0.0005		0.0008		0.0005		0.0005				0.0010	0.0149		0.0001	0.0446	0.0003	0.0005				0.0420	0.0002			0.0297	1.0000	
2708	HLW03-30			0.0005		0.0008		0.0015		0.0015				0.0010	0.0149		0.0001	0.0446	0.0003	0.0014				0.0210	0.0002			0.0099	1.0000	
2709	HLW03-31			0.0005		0.0008		0.0015		0.0015				0.0010	0.0149		0.0001	0.0297	0.0003	0.0014				0.0210	0.0002			0.0099	1.0000	
2710	HLW03-32			0.0005		0.0008		0.0015		0.0005				0.0010	0.0148		0.0001	0.0443	0.0003	0.0014				0.0417	0.0007			0.0295	1.0000	
2711	HLW03-33			0.0005		0.0008		0.0015		0.0005				0.0010	0.0149		0.0001	0.0298	0.0003	0.0005				0.0338	0.0002			0.0298	1.0000	
2712	HLW03-34			0.0005		0.0008		0.0005		0.0015				0.0010	0.0148		0.0001	0.0386	0.0003	0.0014				0.0209	0.0007			0.0099	1.0000	
2713	HLW03-35			0.0005		0.0008		0.0005		0.0005				0.0010	0.0149		0.0001	0.0318	0.0003	0.0014				0.0210	0.0002			0.0104	1.0000	
2714	HLW03-36			0.0005		0.0008		0.0015		0.0005				0.0010	0.0148		0.0001	0.0356	0.0003	0.0005				0.0209	0.0007			0.0098	1.0000	
2715	HLW03-37			0.0005		0.0008		0.0005		0.0015				0.0010	0.0148		0.0001	0.0443	0.0003	0.0014				0.0417	0.0007			0.0295	1.0000	
2716	HLW03-38			0.0005		0.0008		0.0005		0.0015				0.0010	0.0147		0.0001	0.0388	0.0003	0.0005				0.0417	0.0007			0.0098	1.0000	
2717	HLW03-39			0.0005		0.0008		0.0015		0.0015				0.0010	0.0147		0.0001	0.0442	0.0003	0.0014				0.0208	0.0007			0.0098	1.0000	
2718	HLW03-40			0.0005		0.0008		0.0015		0.0015				0.0010	0.0328		0.0001	0.0445	0.0003	0.0005				0.0419	0.0002			0.0099	1.0000	
2719	HLW03-41			0.0005		0.0008		0.0010		0.0010				0.0010	0.0271		0.0001	0.0366	0.0003	0.0009				0.0303	0.0004			0.0192	1.0000	
2720	HLW03-42			0.0005		0.0008		0.0005		0.0015				0.0010	0.0150		0.0001	0.0000	0.0003	0.0014				0.0000	0.0002			0.0200	1.0000	
2721	HLW03-43			0.0005		0.0008		0.0002		0.0002				0.0010	0.0509		0.0001	0.0142	0.0003	0.0002				0.0000	0.0001			0.0000	1.0000	
2722	HLW03-44			0.0005		0.0008		0.0002		0.0020				0.0010	0.0000		0.0001	0.0503	0.0003	0.0002				0.0631	0.0001			0.0000	1.0000	
2723	HLW03-45			0.0005		0.0008		0.0015		0.0015				0.0010	0.0443		0.0001	0.0443	0.0003	0.0005				0.0417	0.0007			0.0295	1.0000	
2724	HLW04-01							0.0000					0.0067	0.0000	0.0020				0.0003					0.0000	0.0002			0.0198	1.0000	
2725	HLW04-02							0.0000					0.0067	0.0000	0.0020				0.0003					0.0000	0.0002			0.0198	1.0000	
2726	HLW04-03							0.0000					0.0068	0.0000	0.0021				0.0003					0.0000	0.0002			0.0195	1.0000	
2727	HLW04-04							0.0000					0.0064	0.0000	0.0019				0.0003					0.0042	0.0002			0.0200	1.0000	
2728	HLW04-06							0.0000					0.0068	0.0000	0.0021				0.0003					0.0000	0.0002			0.0195	1.0000	
2729	HLW04-07							0.0004					0.0006	0.0019	0.0017				0.0003					0.0000	0.0001			0.0148	1.0000	0.0498
2730	HLW04-08							0.0004					0.0006	0.0019	0.0017				0.0003					0.0000	0.0001			0.0148	1.0000	
2731	HLW04-09							0.0004					0.0006	0.0019	0.0017				0.0003					0.0053	0.0001			0.0073	1.0000	0.0494
2732	HLW05-01			0.0004		0.0002								0.0010	0.0120			0.0450	0.0002	0.0005				0.0450				0.0120	1.0000	
2733	HLW05-02			0.0004		0.0002								0.0010	0.0120			0.0300	0.0002	0.0005				0.0250				0.0120	1.0000	
2734	HLW05-03			0.0004		0.0002								0.0010	0.0120			0.0300	0.0002	0.0005				0.0450				0.0120	1.0000	
2735	HLW05-04			0.0004		0.0002								0.0010	0.0120			0.0300	0.0002	0.0005				0.0450				0.0120	1.0000	
2736	HLW05-05			0.0004		0.0002								0.0010	0.0120			0.0300	0.0002	0.0005				0.0265				0.0120	1.0000	
2737	HLW05-06			0.0004		0.0002								0.0010	0.0120			0.0450	0.0002	0.0005				0.0250				0.0120	1.0000	
2738	HLW05-07			0.0004		0.0002								0.0010	0.0120			0.0300	0.0002	0.0005				0.0250				0.0120	1.0000	
2739	HLW05-08			0.0004		0.0002								0.0010	0.0120			0.0300	0.0002	0.0005				0.0250				0.0120	1.0000	
2740	HLW05-09			0.0004		0.0002								0.0010	0.0120			0.0450	0.0002	0.0005				0.0250				0.0120	1.0000	
2741	HLW05-10			0.0004		0.0002								0.0010	0.0120			0.0450	0.0002	0.0005				0.0250				0.0120	1.0000	
2742	HLW05-11			0.0004		0.0002								0.0010	0.0120			0.0300	0.0002	0.0005				0.0250				0.0120	1.0000	
2743	HLW05-12			0.0004		0.0002								0.0010	0.0120			0.0450	0.0002	0.0005				0.0250				0.0120	1.0000	
2744	HLW05-13			0.0004		0.0002								0.0010	0.0120			0.0300	0.0002	0.0005				0.0450				0.0120	1.0000	
2745	HLW05-14			0.0004		0.0002								0.0010	0.0120			0.0300	0.0002	0.0005				0.0450				0.0120	1.0000	
2746	HLW05-15			0.0004		0.0002								0.0010	0.0120			0.0150	0.0002	0.0005				0.0438				0.0120	1.0000	
2747	HLW05-16			0.0004		0.0002								0.0010	0.0120			0.0600	0.0002	0.0005				0.0650				0.0120	1.0000	
2748	HLW05-17			0.0004		0.0002								0.0010	0.0120			0.0150	0.0002	0.0005				0.0100				0.0120	1.0000	
2749	HLW05-18			0.0004		0.0002								0.0010	0.0120			0.0600	0.0002	0.0005				0.0100				0.0120	1.0000	
2750	HLW05-19			0.0004		0.0002								0.0010	0.0120			0.0600	0.0002	0.0005				0.0650				0.0120	1.0000	
2751	HLW05-20			0.0004		0.0002								0.0010	0.0120			0.0150	0.0002	0.0005				0.0100				0.0120	1.0000	
2752	HLW05-21			0.0004		0.0002								0.0010	0.0120			0.0600	0.0002	0.0005				0.0100				0.0120	1.0000	
2753	HLW05-22			0.0004		0.0002								0.0010	0.0120			0.0150	0.0002	0.0005				0.0650				0.0120	1.0000	
2754	HLW05-23			0.0004		0.0002								0.0010	0.0120			0.0600	0.0002	0.0005				0.0100				0.0120	1.0000	
2755	HLW05-24			0.0004		0.0002								0.0010	0.0120			0.0150	0.0002	0.0005				0.0650				0.0120	1.0000	
2756	HLW05-25			0.0004		0.0002								0.0010	0.0120			0.0150	0.0002	0.0005				0.0100				0.0120	1.0000	
2757	HLW05-26			0.0004		0.0002								0.0010	0.0120			0.0150	0.0002	0.0005				0.0100				0.0120	1.0000	
2758	HLW05-27			0.0004		0.0002								0.0010	0.0120			0.0150	0.0002	0.0005				0.0650				0.0120	1.0000	
2759	HLW05-28			0.0004		0.0002								0.0010	0.0120			0.0600	0.0002	0.0005				0.0100				0.0120	1.0000	
2760	HLW05-29			0.0004		0.0002								0.0010	0.0120			0.0150	0.0002	0.0005				0.0100				0.0120	1.0000	
2761	HLW05-30			0.0004		0.0002								0.0010	0.0120			0.0320	0.0002	0.0005				0.0300				0.0120	1.0000	
2762	HLW06-01			0.0005		0.0013								0.0004	0.0147			0.0150	0.0100					0.0075				0.0214	1.0000	
2763	HLW06-02			0.0005		0.0013								0.0004	0.0147			0.0025	0.0100					0.0075				0.0150	1.0000	
2764	HLW06-03			0.0005		0.0013								0.0012	0.0441			0.0025	0.0047					0.0075				0.0150	1.0000	
2765	HLW06-04			0.0005		0.0013								0.0012	0.0441			0.0150	0.0076					0.0075				0.0250	1.0000	
2766	HLW06-05			0.0005		0.0013								0.0004	0.0147			0.0150	0.0067					0.0075				0.0150	1.0000	
2767	HLW06-06			0.0005		0.0013								0.0004	0.0147			0.0150	0.0094					0.0400				0.0150	1.0000	
2768	HLW06-07			0.0005		0.0013								0.0004	0.0147			0.0025	0.0100					0.0075				0.0250	1.0000	
2769	HLW06-08			0.0005		0.0013								0.0012	0.0441			0.0025	0.0061					0.0400				0.0150	1.0000	
2770	HLW06-09			0.0005		0.0013								0.0004	0.0147			0.0025	0.0017					0.0400				0.0250	1.0000	
2771	HLW06-10			0.0005		0.0013								0.0004	0.0147			0.0025	0.0047					0.0400				0.0250	1.0000	
2772	HLW06-11			0.0005		0.0013								0.0004	0.0147			0.0150	0.0055					0.0400				0.0150	1.0000	
2773	HLW06-12			0.0005		0.0013								0.0012	0.0441			0.0150	0.0017					0.0075				0.0250	1.0000	
2774	HLW06-13			0.0005		0.0013								0.0004	0.0147			0.0150	0.0094					0.0400				0.0150	1.0000	
2775	HLW06-14			0.0005		0.0013								0.0004	0.0147			0.0150	0.0100					0.0075				0.0150	1.0000	
2776	HLW06-15			0.0005		0.0013								0.0004	0.0147			0.0025	0.0017					0.0075				0.0150	1.0000	
2777	HLW06-16			0.0005		0.0013								0.0004	0.0147			0.0150	0.0032					0.0400				0.0250	1.0000	
2778	HLW06-17			0.0005		0.0013								0.0004	0.0147			0.0150	0.0100					0.0075				0.0214	1.0000	
2779	HLW06-18			0.0005		0.0013								0.0004	0.0147			0.0150	0.0028					0.0075				0.0250	1.0000	
2780	HLW06-19			0.0005		0.0013								0.0004	0.0147			0.0025	0.0017					0.0075				0.0250	1.0000	
2781	HLW06-20			0.0005		0.0013								0.0004	0.0147			0.0025	0.0100					0.0400				0.0250	1.0000	
2782	HLW06-21			0.0005		0.0013								0.0000	0.0000			0.0594	0.0000					0.0650				0.0000	1.0000	
2783	HLW06-22			0.0005		0.0013								0.0028	0.1029			0.0000	0.0000					0.0650				0.0000	1.0000	
2784	HLW06-23			0.0005		0.0013								0.0000	0.0000			0.0594	0.0000					0.0000				0.0400	1.0000	
2785	HLW06-24			0.0005		0.0013								0.0028	0.1029			0.0594	0.0100					0.0000				0.0400	1.0000	
2786	HLW06-25			0.0005		0.0013								0.0000	0.0000			0.0594	0.0100					0.0000				0.0400	1.0000	
2787	HLW06-26			0.0005		0.0013								0.0028	0.1029			0.0000	0.0000					0.0650				0.0400	1.0000	
2788	HLW06-27			0.0005		0.0013								0.0000	0.0000			0.0000	0.0000					0.0650				0.0400	1.0000	

#	Glass ID	B2O3-a	CaO-a	Fe2O3-a	FeO-a	K2O-a	Li2O-a	MgO-a	Na2O-a	NiO-a	P2O5-a	SiO2-a	ZrO2-a	Ag2O-a	As2O3-a	As2O5-a	BaO-a	BeO-a	Bi2O3-a	Br-a	CdO-a	Ce2O3-a	CeO2-a	Cl-a	CoO-a	Co2O3-a	Cr2O3-a	Cs2O-a	CuO-a	F-a
2707	HLW03-29																													
2708	HLW03-30																													
2709	HLW03-31																													
2710	HLW03-32																													
2711	HLW03-33																													
2712	HLW03-34																													
2713	HLW03-35																													
2714	HLW03-36																													
2715	HLW03-37																													
2716	HLW03-38																													
2717	HLW03-39																													
2718	HLW03-40																													
2719	HLW03-41																													
2720	HLW03-42																													
2721	HLW03-43																													
2722	HLW03-44																													
2723	HLW03-45																													
2724	HLW04-01																													
2725	HLW04-02																													
2726	HLW04-03																													
2727	HLW04-04																													
2728	HLW04-06																													
2729	HLW04-07	0.1059	0.0048	0.1512		0.0007	0.0225	0.0019	0.1200	0.0047	0.0054	0.4597	0.0052	0.0024			0.0010				0.0000	0.0011					0.0024	0.0000	0.0005	
2730	HLW04-08																													
2731	HLW04-09	0.1041	0.0049	0.1473		0.0007	0.0222	0.0014	0.1290	0.0045	0.0047	0.4599	0.0051	0.0023			0.0010				0.0002	0.0011					0.0026		0.0005	
2732	HLW05-01																													
2733	HLW05-02																													
2734	HLW05-03																													
2735	HLW05-04																													
2736	HLW05-05																													
2737	HLW05-06																													
2738	HLW05-07																													
2739	HLW05-08																													
2740	HLW05-09																													
2741	HLW05-10																													
2742	HLW05-11																													
2743	HLW05-12																													
2744	HLW05-13																													
2745	HLW05-14																													
2746	HLW05-15																													
2747	HLW05-16																													
2748	HLW05-17																													
2749	HLW05-18																													
2750	HLW05-19																													
2751	HLW05-20																													
2752	HLW05-21																													
2753	HLW05-22																													
2754	HLW05-23																													
2755	HLW05-24																													
2756	HLW05-25																													
2757	HLW05-26																													
2758	HLW05-27																													
2759	HLW05-28																													
2760	HLW05-29																													
2761	HLW05-30																													
2762	HLW06-01																													
2763	HLW06-02																													
2764	HLW06-03																													
2765	HLW06-04																													
2766	HLW06-05																													
2767	HLW06-06																													
2768	HLW06-07																													
2769	HLW06-08																													
2770	HLW06-09																													
2771	HLW06-10																													
2772	HLW06-11																													
2773	HLW06-12																													
2774	HLW06-13																													
2775	HLW06-14																													
2776	HLW06-15																													
2777	HLW06-16																													
2778	HLW06-17																													
2779	HLW06-18																													
2780	HLW06-19																													
2781	HLW06-20																													
2782	HLW06-21																													
2783	HLW06-22																													
2784	HLW06-23																													
2785	HLW06-24																													
2786	HLW06-25																													
2787	HLW06-26																													
2788	HLW06-27																													

#	Glass ID	Ga2O3-a	Gd2O3-a	I-a	La2O3-a	MnO2-a	MnO-a	MoO-a	MoO3-a	Nb2O5-a	Nd2O3-a	NpO2-a	PbO-a	PdO2-a	PdO-a	Pr2O3-a	Pr6O11-a	PuO2-a	Rb2O-a	ReO-a	ReO2-a	Re2O7-a	Rh2O3-a	RhO2-a	RuO2-a	Sb2O3-a	Sb2O5-a	SeO2-a
2707	HLW03-29																											
2708	HLW03-30																											
2709	HLW03-31																											
2710	HLW03-32																											
2711	HLW03-33																											
2712	HLW03-34																											
2713	HLW03-35																											
2714	HLW03-36																											
2715	HLW03-37																											
2716	HLW03-38																											
2717	HLW03-39																											
2718	HLW03-40																											
2719	HLW03-41																											
2720	HLW03-42																											
2721	HLW03-43																											
2722	HLW03-44																											
2723	HLW03-45																											
2724	HLW04-01																											
2725	HLW04-02																											
2726	HLW04-03																											
2727	HLW04-04																											
2728	HLW04-06																											
2729	HLW04-07				0.0000		0.0319		0.0004				0.0055														0.0004	
2730	HLW04-08																											
2731	HLW04-09		0.0000		0.0000		0.0313		0.0004				0.0052														0.0005	
2732	HLW05-01																											
2733	HLW05-02																											
2734	HLW05-03																											
2735	HLW05-04																											
2736	HLW05-05																											
2737	HLW05-06																											
2738	HLW05-07																											
2739	HLW05-08																											
2740	HLW05-09																											
2741	HLW05-10																											
2742	HLW05-11																											
2743	HLW05-12																											
2744	HLW05-13																											
2745	HLW05-14																											
2746	HLW05-15																											
2747	HLW05-16																											
2748	HLW05-17																											
2749	HLW05-18																											
2750	HLW05-19																											
2751	HLW05-20																											
2752	HLW05-21																											
2753	HLW05-22																											
2754	HLW05-23																											
2755	HLW05-24																											
2756	HLW05-25																											
2757	HLW05-26																											
2758	HLW05-27																											
2759	HLW05-28																											
2760	HLW05-29																											
2761	HLW05-30																											
2762	HLW06-01																											
2763	HLW06-02																											
2764	HLW06-03																											
2765	HLW06-04																											
2766	HLW06-05																											
2767	HLW06-06																											
2768	HLW06-07																											
2769	HLW06-08																											
2770	HLW06-09																											
2771	HLW06-10																											
2772	HLW06-11																											
2773	HLW06-12																											
2774	HLW06-13																											
2775	HLW06-14																											
2776	HLW06-15																											
2777	HLW06-16																											
2778	HLW06-17																											
2779	HLW06-18																											
2780	HLW06-19																											
2781	HLW06-20																											
2782	HLW06-21																											
2783	HLW06-22																											
2784	HLW06-23																											
2785	HLW06-24																											
2786	HLW06-25																											
2787	HLW06-26																											
2788	HLW06-27																											

#	Glass ID	Sm2O3-a	SnO-a	SnO2-a	SO3-a	SrO-a	Tc2O7-a	TeO2-a	ThO2-a	TiO2-a	Tl2O-a	Tl2O3-a	U3O8-a	UO2-a	UO3-a	V2O5-a	WO3-a	Y2O3-a	ZnO-a	Sum-a	T_M (°C)	$T_{L,G}$ (°C)	$T_{L,U}$ (°C)	$T_{1\%}$ (°C)	Primary Phase	$C_{650°C}$	$C_{700°C}$	$C_{750°C}$
2707	HLW03-29																			0.0000				844	Spinel			1.4
2708	HLW03-30																			0.0000				761	Spinel			1
2709	HLW03-31																			0.0000				1072	Spinel + ZrO2			2.6
2710	HLW03-32																			0.0000				1087	Spinel + ZrO2			5
2711	HLW03-33																			0.0000				1109	ZrSiO4 + ThO2 + Spinel			5.5
2712	HLW03-34																			0.0000				958	ThO2 + Spinel			
2713	HLW03-35																			0.0000				1133	ZrSiO4 + ThO2 + ZrO2			
2714	HLW03-36																			0.0000				1174	ZrSiO4 (ThO2) + Spinel			
2715	HLW03-37																			0.0000				902	Spinel			
2716	HLW03-38																			0.0000				1087	Spinel + ZrO2			6.5
2717	HLW03-39																			0.0000				905	Spinel			2.8
2718	HLW03-40																			0.0000				979	Spinel + ThO2			5.6
2719	HLW03-41																			0.0000				854	Spinel			
2720	HLW03-42																			0.0000				978	Spinel			
2721	HLW03-43																			0.0000				947	Spinel			
2722	HLW03-44																			0.0000					Noble Metal	0.3		
2723	HLW03-45																			0.0000				848	Spinel +ThO2			
2724	HLW04-01																			0.0000				<950				
2725	HLW04-02																			0.0000				<950				
2726	HLW04-03																			0.0000				<950				
2727	HLW04-04																			0.0000				<950				
2728	HLW04-06																			0.0000				<950				
2729	HLW04-07			0.0009	0.0018	0.0022				0.0004						0.0002		0.0153		0.9982				<950				
2730	HLW04-08																			0.0000				<950				
2731	HLW04-09			0.0008	0.0015	0.0022				0.0004			0.0050			0.0002		0.0072		0.9956				<950				
2732	HLW05-01																			0.0000				822	ThO2 + Spinel			0.7
2733	HLW05-02																			0.0000				757	Spinel		0.9	1.1
2734	HLW05-03																			0.0000				723	Spinel		0.1	0.8
2735	HLW05-04																			0.0000				703	Spinel		0.4	0.3
2736	HLW05-05																			0.0000					Spinel		0.1	0.2
2737	HLW05-06																			0.0000				1064	ZrO2 + ThO2			
2738	HLW05-07																			0.0000				732	Spinel		0.6	1
2739	HLW05-08																			0.0000				1065	ZrO2			0.7
2740	HLW05-09																			0.0000				698	Spinel		0.9	0.9
2741	HLW05-10																			0.0000				909	ThO2 + Spinel			0.4
2742	HLW05-11																			0.0000				690	Spinel		1	0.3
2743	HLW05-12																			0.0000				1069	ZrO2 +ThO2			0.7
2744	HLW05-13																			0.0000				741	Spinel + ThO2			7.7
2745	HLW05-14																			0.0000				685	Spinel + Na-U-Sr Oxide		1	0.7
2746	HLW05-15																			0.0000					Spinel + Noble Metal		0.1	0.1
2747	HLW05-16																			0.0000				1307	ZrO2			
2748	HLW05-17																			0.0000				1081	ZrO2			2.5
2749	HLW05-18																			0.0000				1240	ZrSiO4			
2750	HLW05-19																			0.0000				1142	ThO2			
2751	HLW05-20																			0.0000				754	Sodium Aluminum Silicate		3.1	0.2
2752	HLW05-21																			0.0000					Spinel + Noble Metal		0.1	0.1
2753	HLW05-22																			0.0000				694	Uranium Oxide		1	
2754	HLW05-23																			0.0000				1036	ThO2			
2755	HLW05-24																			0.0000				1240	ZrO2 + Na2ZrSi2O7			
2756	HLW05-25																			0.0000				1243	ZrSiO4			
2757	HLW05-26																			0.0000				1197	Na2ZrSi2O7			
2758	HLW05-27																			0.0000				852	Spinel		9.7	
2759	HLW05-28																			0.0000				1207	ZrSiO4			
2760	HLW05-29																			0.0000				1203	Na2ZrSi2O7			
2761	HLW05-30																			0.0000					Spinel		0.4	
2762	HLW06-01																			0.0000				1022	Spinel		4.4	
2763	HLW06-02																			0.0000				934	Spinel			2.4
2764	HLW06-03																			0.0000				1212	Spinel + ZrO2			
2765	HLW06-04																			0.0000				844	Spinel			10.3
2766	HLW06-05																			0.0000				896	Spinel			1.7
2767	HLW06-06																			0.0000				1231	Spinel + ZrO2			
2768	HLW06-07																			0.0000				1191	Spinel			
2769	HLW06-08																			0.0000				1045	Spinel			
2770	HLW06-09																			0.0000				1193	Spinel			
2771	HLW06-10																			0.0000				1012	Spinel			
2772	HLW06-11																			0.0000				1126	Spinel			
2773	HLW06-12																			0.0000				1014	Spinel			
2774	HLW06-13																			0.0000				1176	Spinel			
2775	HLW06-14																			0.0000				969	Spinel			2.8
2776	HLW06-15																			0.0000				934	Spinel			2.4
2777	HLW06-16																			0.0000				962	Spinel		13.1	11.5
2778	HLW06-17																			0.0000				1033	Spinel		6	
2779	HLW06-18																			0.0000				1070	Spinel			
2780	HLW06-19																			0.0000				1174	Spinel			
2781	HLW06-20																			0.0000				1137	Spinel			19.6
2782	HLW06-21																			0.0000				1127	ThO2			21.9
2783	HLW06-22																			0.0000				650	Unidentified Cr-Fe Oxide			0.3
2784	HLW06-23																			0.0000				1226	ZrO2			
2785	HLW06-24																			0.0000				1227	ThO2			49.9
2786	HLW06-25																			0.0000				1048	Spinel + ThO2			
2787	HLW06-26																			0.0000				1481	Na2ZrSi2O7 + ZrO2			22.8
2788	HLW06-27																			0.0000				1388	ZrSiO4			12.2

#	Glass ID	$C_{800°C}$	$C_{850°C}$	$C_{900°C}$	$C_{950°C}$	$C_{1000°C}$	$C_{1050°C}$	$C_{1100°C}$	$C_{1150°C}$	$C_{1200°C}$	Quenched Visual/OM	Quenched XRD	CCC XRD	ρ (g/cm³)	Fulc Visc A	Fulc Visc B	Fulc Visc To	Arrh Visc E	Arrh Visc F	T1 (°C)	V1 (Pa·s)
2707	HLW03-29	1.7	0.7		0.4										-4.282	5788.0	350.0			1247.0	0.874
2708	HLW03-30	0.9	0.6		0.2										-4.590	6748.2	300.0			1249.0	1.254
2709	HLW03-31		2.4		1.6	1.8	0.7		0.9						-3.653	6104.8	350.0			1244.0	2.422
2710	HLW03-32		4.6	3.6	1.6		2	1.5							-3.394	5506.7	350.0			1247.0	1.596
2711	HLW03-33		2.7		3.9		1.8		1.1						-4.476	6781.4	300.0			1250.0	1.439
2712	HLW03-34	3	1.7		1		0.3								-4.503	8326.5	250.0			1249.0	4.631
2713	HLW03-35				6.2		3	2.4	0.4						-3.904	7680.8	300.0			1243.0	6.954
2714	HLW03-36		10		6.1		3.4		3.5	0.1					-4.206	7986.1	300.0			1246.0	6.884
2715	HLW03-37		1.9	0.9	0.3										-4.542	6896.2	250.0			1246.0	1.094
2716	HLW03-38		3.8		2.5		1.4	2							-4.009	6947.2	350.0			1248.0	4.204
2717	HLW03-39		1.8		0.4										-4.041	7004.5	300.0			1250.0	2.809
2718	HLW03-40		2.5		1.3		0.4								-3.674	5897.9	350.0			1255.0	1.742
2719	HLW03-41	1.5	0.8		0.4										-3.850	5985.4	350.0			1244.0	1.713
2720	HLW03-42		3		1.2		0.3								-4.945	9125.1	150.0			1244.0	2.997
2721	HLW03-43		1.8	1.6	0.6	0.9									-4.603	8358.0	250.0			1257.0	4.072
2722	HLW03-44		0.1		0.1										-2.620	6245.3	300.0			1259.0	4.885
2723	HLW03-45	1.3	1.3	0.3											-1.807	2860.8	550.0			1257.0	0.930
2724	HLW04-01														-2.909	5753.7	275.0			1239.0	2.157
2725	HLW04-02																				
2726	HLW04-03														-2.648	5336.3	350.0			1242.0	2.800
2727	HLW04-04																				
2728	HLW04-06														-4.913	9831.3	50.0			1240.0	2.847
2729	HLW04-07												0.1% of spinel crystals	2.706	-4.184	7987.4	150.0			1248.0	2.226
2730	HLW04-08																				
2731	HLW04-09												0.1% of spinel crystals and silver	2.778							
2732	HLW05-01	1	0.9		0.8		0.4														
2733	HLW05-02	0.7	0.6		0.3																
2734	HLW05-03	0.2	0.1		0.1																
2735	HLW05-04	0.7	0.4		0.2																
2736	HLW05-05		0.1		0.1																
2737	HLW05-06		3		2.1		0.9	1	0.1												
2738	HLW05-07	0.6	0.5		0.2																
2739	HLW05-08	0.9	1.7		1.6		1	0.7	0.9												
2740	HLW05-09		0.2		0.1		0.1														
2741	HLW05-10	0.9	1.1		1		0.4	0.3	0.1												
2742	HLW05-11	0.4	0.4		0.3																
2743	HLW05-12		2.7		1.6		0.9	1.1	0.5												
2744	HLW05-13	0.8	0.7		0.6		0.2														
2745	HLW05-14		0.3		0.1																
2746	HLW05-15	0.1	0.3		0.1															1269.0	6.968
2747	HLW05-16		3.2		2.8		2.1	1.7	1.9	1.9											
2748	HLW05-17		2.7		1.6		1.2	0.9	0.7												
2749	HLW05-18		3.5		4.8		2.9	2.3	2.2	2.6											
2750	HLW05-19		29.9		17.1		2.1		0.9												
2751	HLW05-20	0.2	0.1		0.1		0.1			0.1										1259.0	3.335
2752	HLW05-21		0.1		0.1															1265.0	0.614
2753	HLW05-22	0.5	0.5		0.1															1260.0	6.715
2754	HLW05-23		1.5		1.1		0.8	0.9	0.8	0.7											
2755	HLW05-24		17.5		10.8		8.9		5.9	2.4											
2756	HLW05-25		8.4		6		4.2	3.9	2.6	2											
2757	HLW05-26		18.9		16.3		10.5		3.7	0.1											
2758	HLW05-27	1.4	0.7		0.6															1260.0	1.160
2759	HLW05-28		3.4		6.3		3.5	2.3	2.3	2.2											
2760	HLW05-29		19.8		15.9		10.9		4.6	0.1											
2761	HLW05-30	0.3	0.2		0.1																
2762	HLW06-01	2.7			2	1	1														
2763	HLW06-02	1.9	1.5		1.1	0.3	0.3													1262.0	1.261
2764	HLW06-03		5.6		4.7		2.7	2	2.9	1.2											
2765	HLW06-04		1	0.6	0.6	0.2	0.1													1268.0	1.382
2766	HLW06-05	1.3	1.8	0.9	0.9	0.3															
2767	HLW06-06		3.7		4.1	3.9	3.1	2.2	2.5	1.3											
2768	HLW06-07		8.5		5.5		2.5	3.1	2.6	1.5											
2769	HLW06-08		2.2	1.7	1.6		0.9	0.9	0.3												
2770	HLW06-09		3.7		4.6	3.3	2.3	3	1.8	1.1											
2771	HLW06-10		1.4	1.5	1	1.3	1	0.6	0.5	0.3											
2772	HLW06-11		4		2.9		1.3	1	1.3	0.4											
2773	HLW06-12	2.8	2.7	2.3	1	1.4	1.1	0.1													
2774	HLW06-13		3.6		2.4	3.7	3.2	2.2	1.6	0.5											
2775	HLW06-14		2.1	1.3	1.3	0.7	0.4														
2776	HLW06-15		2.4	1.5	0.6	0.1															
2777	HLW06-16	3.2		2.1	1	0.5															
2778	HLW06-17			2.2	1.8	1.1	1	0.4													
2779	HLW06-18		2.9		2	1.2	1.1	0.6	0.9												
2780	HLW06-19				5.2		2.7	1.5	2.1	1.1											
2781	HLW06-20				2.2	2.1	1.9	1.2	0.9												
2782	HLW06-21		2	1.6	4.7	1.2	1.4		1.1												
2783	HLW06-22	0.2	0.4	0.4	0.2															1264.0	0.785
2784	HLW06-23				23.2		13.4	8.5	6	3.3											
2785	HLW06-24	41.5			28.6	1.9	2.3		1.5	1.3											
2786	HLW06-25	3			1.6	1.5	0.8	0.8													
2787	HLW06-26		12.3		3.3	5.6	5.5	4.5	4.7												
2788	HLW06-27		11		7.5		7		5.6	4.6											

#	Glass ID	T2 (°C)	V2 (Pa·s)	T3 (°C)	V3 (Pa·s)	T4 (°C)	V4 (Pa·s)	T5 (°C)	V5 (Pa·s)	T6 (°C)	V6 (Pa·s)	T7 (°C)	V7 (Pa·s)	T8 (°C)	V8 (Pa·s)	T9 (°C)	V9 (Pa·s)	T10 (°C)	V10 (Pa·s)	TCLP Ag	TCLP As	TCLP Ba	TCLP Cd	TCLP Cr	TCLP Ni	TCLP Pb
2707	HLW03-29	1150	1.918	1054	5.2	958.0	18.8													0.0745	0.0397	0.129	0.313	0.152	0.295	0.106
2708	HLW03-30	1155	2.672	1062	7.2	969.0	24.4													0.0247	0.0131	0.0518	0.0368	0.0205	0.106	0.0436
2709	HLW03-31	1147	5.382	1051	15.8	954.0	63.5													0.0285	0.0147	0.0611	0.0413	0.0456	0.193	0.0505
2710	HLW03-32	1149	3.119	1052	8.9	955.0	29.8													0.0365	0.0129	0.0669	0.0262	0.0071	0.108	0.0823
2711	HLW03-33	1153	3.197	1056	9.0	960.0	32.9													0.0073	0.0092	0.033	0.0197	0.0061	0.0652	0.0264
2712	HLW03-34	1151	11.297	1054	35.3	957.0	143.6													0.042	0.017	0.057	0.0173	0.0176	0.0856	0.0573
2713	HLW03-35	1146	17.742	1049	56.7	952.0	264.6													0.0068		0.0267	0.0142	0.005	0.0592	0.0214
2714	HLW03-36	1148	18.437	1049	63.6	951.0	316.6													0.0198	0.0112	0.0483	0.043	0.0067	0.0486	0.0791
2715	HLW03-37	1147	2.271	1049	6.1	950.0	20.2													0.0298	0.0105	0.0584	0.0215	0.0066	0.098	0.0705
2716	HLW03-38	1151	10.495	1053	35.2	956.0	174.2													0.0347	0.0198	0.0912	0.0688	0.0176	0.0523	0.0745
2717	HLW03-39	1153	6.455	1056	18.5	959.0	72.8													0.0203	0.0102	0.0504	0.0357	0.0083	0.0284	0.0456
2718	HLW03-40	1156	3.728	1058	10.6	959.0	40.8													0.0063	0.0069	0.0343	0.0486	0.0045	0.0679	0.021
2719	HLW03-41	1147	3.920	1049	11.1	952.0	44.3													0.0167	0.0086	0.0476	0.0366	0.0084	0.0615	0.0402
2720	HLW03-42	1148	6.699	1052	17.2	956.0	59.5													0.0253	0.0156	0.162	0.168	0.0131	0.182	0.0505
2721	HLW03-43	1161	9.467	1066	28.6	971.0	108.2													0.0138	0.0108	0.0619	0.536	0.0771	0.296	0.0268
2722	HLW03-44	1161	10.435	1063	25.7	965.0	87.7													0.0017		0.0214	0.0067		0.011	0.0186
2723	HLW03-45	1155	1.870	1054	4.8	952.0	20.1													0.0423	0.0175	0.0926	0.0344	0.0183	0.123	0.0872
2724	HLW04-01	1139	4.159	1041	10.1	941.0	30.8																			
2725	HLW04-02																			<0.07		0.1	<0.03	<0.01	0.07	<0.10
2726	HLW04-03	1144	5.874	1046	15.2	948.0	53.0																			
2727	HLW04-04																									
2728	HLW04-06	1142	5.927	1045	14.5	947.0	42.1																			
2729	HLW04-07	1149	4.424	1050	11.0	952.0	32.2																			
2730	HLW04-08																			<0.07		0.09	<0.03	0.01	0.07	<0.10
2731	HLW04-09																			<0.07		0.12	<0.03	<0.01	0.06	<0.10
2732	HLW05-01																									
2733	HLW05-02																									
2734	HLW05-03																									
2735	HLW05-04																									
2736	HLW05-05																									
2737	HLW05-06																									
2738	HLW05-07																									
2739	HLW05-08																									
2740	HLW05-09																									
2741	HLW05-10																									
2742	HLW05-11																									
2743	HLW05-12																									
2744	HLW05-13																									
2745	HLW05-14																									
2746	HLW05-15	1170	18.568	1072	60.8	973.0	299.2																			
2747	HLW05-16																									
2748	HLW05-17																									
2749	HLW05-18																									
2750	HLW05-19																									
2751	HLW05-20	1162	7.286	1061	19.7	965.0	73.3																			
2752	HLW05-21	1166	1.257	1067	3.1	967.0	10.4																			
2753	HLW05-22	1163	15.559	1066	43.4	968.0	161.6																			
2754	HLW05-23																									
2755	HLW05-24																									
2756	HLW05-25																									
2757	HLW05-26																									
2758	HLW05-27	1162	2.357	1064	5.7	965.0	16.4																			
2759	HLW05-28																									
2760	HLW05-29																									
2761	HLW05-30																									
2762	HLW06-01																									
2763	HLW06-02	1163	2.572	1066	6.6	967.0	20.3																			
2764	HLW06-03																									
2765	HLW06-04	1166	3.079																							
2766	HLW06-05																									
2767	HLW06-06																									
2768	HLW06-07																									
2769	HLW06-08																									
2770	HLW06-09																									
2771	HLW06-10																									
2772	HLW06-11																									
2773	HLW06-12																									
2774	HLW06-13																									
2775	HLW06-14																									
2776	HLW06-15																									
2777	HLW06-16																									
2778	HLW06-17																									
2779	HLW06-18																									
2780	HLW06-19																									
2781	HLW06-20																									
2782	HLW06-21																									
2783	HLW06-22	1159	1.430	1060	3.1	962.0	8.7																			
2784	HLW06-23																									
2785	HLW06-24																									
2786	HLW06-25																									
2787	HLW06-26																									
2788	HLW06-27																									

#	Glass ID	TCLP Se	TCLP Zn	TCLP Al	TCLP B	TCLP Sb	TCLP Tl	TCLP V	Q PCT B (g/m²)	Q PCT Li (g/m²)	Q PCT Na (g/m²)	Q PCT Si (g/m²)	Q PCT pH	CCC PCT B (g/m²)	CCC PCT Li (g/m²)	CCC PCT Na (g/m²)	CCC PCT Si (g/m²)	CCC PCT pH	T1 (°C)
2707	HLW03-29	0.033	2.99	1.74	2.54	0.0491		0.013	0.548	0.467	0.485		11.230						1227
2708	HLW03-30	0.0261	0.346	0.543	1.55	0.0389	0.017	0.0033	0.460	0.366	0.245		10.160						1227
2709	HLW03-31	0.0468	0.389	1.08	1.03	0.0468	0.0308	0.0046	0.551	0.305	0.208		10.660						1212
2710	HLW03-32	0.0161	0.704	0.322	0.62	0.0172		0.0058	0.250	0.330	0.275		11.140						1211
2711	HLW03-33	0.0137	0.545	0.253	0.805	0.0208		0.0017	0.281	0.295	0.173		9.890						1215
2712	HLW03-34	0.0203	0.156	0.18	0.419	0.0105		0.0064	0.331	0.390	0.237		10.240						1224
2713	HLW03-35	0.0099	0.184	0.165	0.523	0.0103	0.0159		0.196	0.311	0.113		9.640						1217
2714	HLW03-36	0.0128	0.154	0.186	0.353	0.0124		0.0041	0.631	0.332	0.120		10.040						1224
2715	HLW03-37	0.0202	0.602	0.128	0.882	0.0081	0.0102	0.0068	0.862	0.940	0.478		10.580						1217
2716	HLW03-38	0.0228	0.217	0.41	0.557	0.0053		0.0078	0.278	0.334	0.198		10.380						1214
2717	HLW03-39	0.0133	0.148	0.12	0.3	0.0075	0.0095	0.0031	0.228	0.325	0.148		10.350						1226
2718	HLW03-40	0.0179	0.196	0.135	0.414	0.0148			0.198	0.295	0.185		10.480						1226
2719	HLW03-41	0.0123	0.418	0.1	0.567	0.0106		0.0033	0.249	0.281	0.232		10.340						1200
2720	HLW03-42	0.0207	0.524	0.378	0.78			0.0188	0.187	0.236	0.171		10.140						1251
2721	HLW03-43	0.009	0.0359	1.49	0.637	0.0105		0.0021	0.664	0.191	0.076		10.420						1223
2722	HLW03-44	0.0243	0.0121	0.0554	0.259	0.0049			0.400	0.483	0.569		10.750						1226
2723	HLW03-45	0.0359	1.02	0.267	0.731	0.019		0.0078	0.340	0.377	0.388		11.340						1224
2724	HLW04-01																		1245
2725	HLW04-02		0.44																
2726	HLW04-03								1.760	0.419	0.758		10.520						
2727	HLW04-04																		
2728	HLW04-06																		
2729	HLW04-07								0.343	0.397	0.368		10.230						
2730	HLW04-08		0.29			<0.50			0.419	0.401	0.361		10.160						
2731	HLW04-09		0.24			<0.50			0.274	0.304	0.277		10.330						
2732	HLW05-01																		
2733	HLW05-02																		
2734	HLW05-03																		
2735	HLW05-04																		
2736	HLW05-05																		
2737	HLW05-06																		
2738	HLW05-07																		
2739	HLW05-08																		
2740	HLW05-09																		
2741	HLW05-10																		
2742	HLW05-11																		
2743	HLW05-12																		
2744	HLW05-13																		
2745	HLW05-14																		
2746	HLW05-15																		1236
2747	HLW05-16																		
2748	HLW05-17																		
2749	HLW05-18																		
2750	HLW05-19																		
2751	HLW05-20																		1225
2752	HLW05-21																		1231
2753	HLW05-22																		1225
2754	HLW05-23																		
2755	HLW05-24																		
2756	HLW05-25																		
2757	HLW05-26																		
2758	HLW05-27																		1221
2759	HLW05-28																		
2760	HLW05-29																		
2761	HLW05-30																		
2762	HLW06-01								0.315	0.254	0.330		11.040						
2763	HLW06-02								0.987	0.483	0.714		11.180						1231
2764	HLW06-03								0.160	0.098	0.247		10.540						
2765	HLW06-04								0.961	0.397	1.173		11.720						1228
2766	HLW06-05								0.386	0.268	0.520		11.330						
2767	HLW06-06								0.162	0.204	0.235		10.520						
2768	HLW06-07								0.293	0.208	0.498		11.110						
2769	HLW06-08								0.350	0.268	0.451		10.710						
2770	HLW06-09								0.764	0.705	0.888		11.320						
2771	HLW06-10								0.200	0.158	0.223		9.950						
2772	HLW06-11								0.225	0.186	0.263		10.120						
2773	HLW06-12								0.871	0.610	0.724		10.940						
2774	HLW06-13								0.162	0.139	0.266		10.510						
2775	HLW06-14								0.709	0.588	0.555		11.020						
2776	HLW06-15								1.636	0.991	1.153		11.720						
2777	HLW06-16								0.600	0.380	0.823		11.750						
2778	HLW06-17								0.232	0.265	0.351		11.220						
2779	HLW06-18								0.163	0.161	0.179		9.810						
2780	HLW06-19								0.357	0.113	0.514		11.460						
2781	HLW06-20								0.334	0.330	0.427		11.330						
2782	HLW06-21								0.668		0.766		10.360						
2783	HLW06-22								0.134	0.175	0.132		10.220						1226
2784	HLW06-23								1.116		0.921		11.910						
2785	HLW06-24								0.124		0.534		11.430						
2786	HLW06-25								0.230	0.235	0.094		9.810						
2787	HLW06-26								0.752		1.446		11.790						
2788	HLW06-27								0.218	0.273	0.025		9.950						

#	Glass ID	EC1 (S/cm)	T2 (°C)	EC2 (S/cm)	T3 (°C)	EC3 (S/cm)	T4 (°C)	EC4 (S/cm)	T5 (°C)	EC5 (S/cm)	T6 (°C)	EC6 (S/cm)	A	B	To
2707	HLW03-29	0.69	1134	0.552	1037	0.368	941	0.22					1.4307	-1299.67	500
2708	HLW03-30	0.406	1127	0.316	1024	0.213	919	0.105					0.2803	-682.77	650
2709	HLW03-31	0.425	1121	0.327	1022	0.194	923	0.099					1.0609	-1261.42	550
2710	HLW03-32	0.523	1121	0.394	1022	0.248	920	0.133					1.8211	-1995.70	400
2711	HLW03-33	0.339	1125	0.247	1033	0.17	941	0.096					1.1493	-1710.99	450
2712	HLW03-34	0.273	1129	0.199	1039	0.128	940	0.08					3.0355	-5511.43	-50
2713	HLW03-35	0.189	1133	0.136	1039	0.088	942	0.049					1.6879	-3247.83	250
2714	HLW03-36	0.231	1132	0.179	1034	0.111	938	0.071					1.8925	-3586.29	150
2715	HLW03-37	0.443	1122	0.227	1026	0.207	927	0.122					2.4577	-3317.93	200
2716	HLW03-38	0.368	1128	0.288	1032	0.195	935	0.107					0.7047	-1129.36	550
2717	HLW03-39	0.302	1131	0.223	1036	0.124	934	0.079					4.5156	-8520.04	-270
2718	HLW03-40	0.405	1132	0.31	1031	0.198	937	0.116					1.2355	-1653.05	450
2719	HLW03-41	0.344	1120	0.278	1019	0.181	921	0.111					1.2866	-1992.91	350
2720	HLW03-42	0.261	1152	0.182	1050	0.12	953	0.073					3.3637	-6593.01	-150
2721	HLW03-43	0.407	1132	0.283	1038	0.185	943	0.119					4.4150	-7953.29	-270
2722	HLW03-44	0.465	1133	0.413	1038	0.281	941	0.17					0.3255	-610.35	650
2723	HLW03-45	0.594	1137	0.474	1043	0.335	945	0.191					0.8800	-873.83	600
2724	HLW04-01	0.48	1146	0.36	1047	0.261	949	0.148					0.6179	-881.45	600
2725	HLW04-02														
2726	HLW04-03														
2727	HLW04-04														
2728	HLW04-06														
2729	HLW04-07														
2730	HLW04-08														
2731	HLW04-09														
2732	HLW05-01														
2733	HLW05-02														
2734	HLW05-03														
2735	HLW05-04														
2736	HLW05-05														
2737	HLW05-06														
2738	HLW05-07														
2739	HLW05-08														
2740	HLW05-09														
2741	HLW05-10														
2742	HLW05-11														
2743	HLW05-12														
2744	HLW05-13														
2745	HLW05-14														
2746	HLW05-15	0.419	1139	0.338	1042	0.243	942	0.158							
2747	HLW05-16														
2748	HLW05-17														
2749	HLW05-18														
2750	HLW05-19														
2751	HLW05-20	0.504	1132	0.463	1029	0.285	928	0.174							
2752	HLW05-21	0.638	1137	0.533	1041	0.369	943	0.225							
2753	HLW05-22	0.261	1133	0.186	1037	0.134	938	0.08							
2754	HLW05-23														
2755	HLW05-24														
2756	HLW05-25														
2757	HLW05-26														
2758	HLW05-27	0.712	1128	0.478	1032	0.364	933	0.228							
2759	HLW05-28														
2760	HLW05-29														
2761	HLW05-30														
2762	HLW06-01														
2763	HLW06-02	0.697	1136	0.499	1040	0.363	939	0.244							
2764	HLW06-03														
2765	HLW06-04	0.687	1132	0.491	1033	0.385	932	0.268							
2766	HLW06-05														
2767	HLW06-06														
2768	HLW06-07														
2769	HLW06-08														
2770	HLW06-09														
2771	HLW06-10														
2772	HLW06-11														
2773	HLW06-12														
2774	HLW06-13														
2775	HLW06-14														
2776	HLW06-15														
2777	HLW06-16														
2778	HLW06-17														
2779	HLW06-18														
2780	HLW06-19														
2781	HLW06-20														
2782	HLW06-21														
2783	HLW06-22	0.592	1131	0.379	1033	0.259	933	0.163							
2784	HLW06-23														
2785	HLW06-24														
2786	HLW06-25														
2787	HLW06-26														
2788	HLW06-27														

#	Glass ID	Study	Reference	Al2O3-t	B2O3-t	CaO-t	Fe2O3-t	FeO-t	K2O-t	Li2O-t	MgO-t	Na2O-t	NiO-t	P2O5-t	SiO2-t	ZrO2-t	Ag2O-t	As2O3-t	As2O5-t	BaO-t	BeO-t	Bi2O3-t	Br-t	CdO-t	Ce2O3-t	CeO2-t	Cl-t
2789	HLW06-28	HLW06 Spinel M	Kot et al. 2005	0.0188	0.1500	0.0100	0.1148		0.0164	0.0601	0.0117	0.0370	0.0000	0.0050	0.4272	0.0000	0.0010			0.0030		0.0030		0.0000			0.0020
2790	HLW06-29	HLW06 Spinel M	Kot et al. 2005	0.0188	0.0430	0.0100	0.1500		0.0164	0.0601	0.0117	0.0370	0.0000	0.0050	0.4356	0.1150	0.0010			0.0030		0.0030		0.0000			0.0020
2791	HLW06-30	HLW06 Spinel M	Kot et al. 2005	0.1300	0.0430	0.0000	0.1500		0.0000	0.0000	0.0000	0.2000	0.0000	0.0050	0.3511	0.0000	0.0010			0.0000		0.0030		0.0000			0.0020
2792	HLW06-31	HLW06 Spinel M	Kot et al. 2005	0.1300	0.0430	0.0000	0.1500		0.0000	0.0549	0.0000	0.0370	0.0000	0.0050	0.3588	0.0000	0.0010			0.0000		0.0030		0.0165			0.0020
2793	HLW06-32	HLW06 Spinel M	Kot et al. 2005	0.0188	0.1500	0.0000	0.1500		0.0000	0.0000	0.0000	0.2000	0.0000	0.0050	0.3743	0.0000	0.0010			0.0000		0.0030		0.0000			0.0020
2794	HLW06-33	HLW06 Spinel M	Kot et al. 2005	0.0188	0.0430	0.0100	0.1500		0.0164	0.0473	0.0117	0.0370	0.0000	0.0050	0.3300	0.0878	0.0010			0.0030		0.0030		0.0165			0.0020
2795	HLW06-34	HLW06 Spinel M	Kot et al. 2005	0.0188	0.1500	0.0000	0.0140		0.0000	0.0000	0.0000	0.2000	0.0000	0.0050	0.3303	0.1150	0.0010			0.0000		0.0030		0.0000			0.0020
2796	HLW06-35	HLW06 Spinel M	Kot et al. 2005	0.0747	0.1019	0.0016	0.1063		0.0026	0.0328	0.0018	0.1191	0.0000	0.0050	0.3943	0.0481	0.0010			0.0005		0.0030		0.0021			0.0020
2797	HLW98-66	HLW98	Piepel et al. 2008	0.0816	0.0700	0.0029	0.1183		0.0043	0.0500	0.0008	0.1367	0.0075	0.0007	0.4516	0.0152	0.0004	0.0004		0.0003		0.0000		0.0102	0.0005		0.0003
2798	HLW98-67	HLW98	Piepel et al. 2008	0.0700	0.0450	0.0069	0.1257		0.0030	0.0450	0.0011	0.1386	0.0028	0.0041	0.4474	0.0014	0.0003	0.0000		0.0004		0.0000		0.0001	0.0000		0.0000
2799	HLW98-68	HLW98	Piepel et al. 2008	0.0756	0.0918	0.0031	0.1085		0.0054	0.0600	0.0007	0.0632	0.0058	0.0013	0.4475	0.0355	0.0000	0.0005		0.0005		0.0000		0.0037	0.0009		0.0005
2800	HLW98-69	HLW98	Piepel et al. 2008	0.0766	0.0700	0.0037	0.1136		0.0054	0.0600	0.0007	0.0609	0.0058	0.0013	0.4258	0.0356	0.0000	0.0005		0.0005		0.0000		0.0037	0.0010		0.0005
2801	HLW98-70	HLW98	Piepel et al. 2008	0.0256	0.0898	0.0049	0.0505		0.0008	0.0449	0.0006	0.0862	0.0025	0.0035	0.4610	0.0521	0.0007	0.0000		0.0002		0.0000		0.0007	0.0009		0.0000
2802	HLW98-71	HLW98	Piepel et al. 2008	0.0270	0.0798	0.0051	0.0533		0.0008	0.0349	0.0006	0.0935	0.0026	0.0037	0.4569	0.0550	0.0007	0.0000		0.0002		0.0000		0.0007	0.0009		0.0000
2803	HLW98-72	HLW98	Piepel et al. 2008	0.0519	0.0819	0.0028	0.1219		0.0006	0.0503	0.0011	0.1345	0.0062	0.0000	0.4798	0.0379	0.0002	0.0000		0.0000		0.0000		0.0006	0.0000		0.0000
2804	HLW98-73	HLW98	Piepel et al. 2008	0.0519	0.1018	0.0028	0.1218		0.0006	0.0503	0.0011	0.1344	0.0062	0.0000	0.4596	0.0379	0.0002	0.0000		0.0000		0.0000		0.0006	0.0000		0.0000
2805	HLW98-74	HLW98	Piepel et al. 2008	0.0550	0.0819	0.0029	0.1290		0.0006	0.0503	0.0011	0.1353	0.0065	0.0000	0.4649	0.0402	0.0002	0.0000		0.0000		0.0000		0.0007	0.0000		0.0000
2806	HLW98-75	HLW98	Piepel et al. 2008	0.0550	0.0669	0.0029	0.1290		0.0006	0.0503	0.0011	0.1353	0.0065	0.0000	0.4799	0.0402	0.0002	0.0000		0.0000		0.0000		0.0007	0.0000		0.0000
2807	HLW98-76	HLW98	Piepel et al. 2008	0.0519	0.0818	0.0028	0.1218		0.0006	0.0402	0.0011	0.1294	0.0062	0.0000	0.4947	0.0379	0.0002	0.0000		0.0000		0.0000		0.0006	0.0000		0.0000
2808	HLW98-78	HLW98	Piepel et al. 2008	0.0520	0.1041	0.0028	0.1222		0.0254	0.0327	0.0011	0.1166	0.0061	0.0000	0.4670	0.0381	0.0002	0.0000		0.0000		0.0000		0.0006	0.0000		0.0000
2809	HLW98-79	HLW98	Piepel et al. 2008	0.0550	0.1166	0.0030	0.1295		0.0004	0.0353	0.0011	0.1123	0.0065	0.0000	0.4672	0.0403	0.0002	0.0000		0.0000		0.0000		0.0007	0.0000		0.0000
2810	HLW98-80, HLW98-80R1	HLW98	Piepel et al. 2008	0.0559	0.1253	0.0023	0.1253		0.0003	0.0326	0.0007	0.1203	0.0045	0.0002	0.4831	0.0177	0.0003							0.0011	0.0000		0.0000
2811	HLW98-80CG	HLW98	Piepel et al. 2008	0.0559	0.1253	0.0023	0.1253		0.0003	0.0326	0.0007	0.1203	0.0045	0.0002	0.4831	0.0177	0.0003							0.0011			
2812	HLW98-81	HLW98	Piepel et al. 2008	0.0588	0.1205	0.0024	0.1317		0.0003	0.0326	0.0008	0.1207	0.0047	0.0003	0.4760	0.0186	0.0004	0.0000		0.0000		0.0000		0.0012	0.0000		0.0000
2813	HLW98-82	HLW98	Piepel et al. 2008	0.0588	0.1180	0.0024	0.1317		0.0003	0.0276	0.0008	0.1332	0.0047	0.0003	0.4710	0.0186	0.0004	0.0000		0.0000		0.0000		0.0012	0.0000		0.0000
2814	HLW98-83	HLW98	Piepel et al. 2008	0.0143	0.1191	0.0067	0.1275		0.0000	0.0276	0.0056	0.1174	0.0037	0.0010	0.5094	0.0013	0.0015		0.0020	0.0000		0.0000		0.0000	0.0000		0.0014
2815	HLW98-84, HLW98-84R1	HLW98	Piepel et al. 2008	0.0518	0.1116	0.0067	0.1275		0.0000	0.0276	0.0056	0.1199	0.0037	0.0010	0.4768	0.0013	0.0015		0.0020	0.0000		0.0000		0.0000	0.0000		0.0014
2816	HLW98-84CG	HLW98	Piepel et al. 2008	0.0518	0.1116	0.0067	0.1275			0.0276	0.0056	0.1199	0.0037	0.0010	0.4768	0.0013	0.0015		0.0020								0.0014
2817	HLW98-85	HLW98	Piepel et al. 2008	0.0504	0.0914	0.0030	0.1256		0.0000	0.0276	0.0117	0.1184	0.0017	0.0009	0.4782	0.0026	0.0015	0.0019		0.0000		0.0000		0.0000	0.0000		0.0011
2818	HLW98-86, HLW98-86R2	HLW98	Piepel et al. 2008	0.0529	0.0939	0.0030	0.1256		0.0000	0.0301	0.0117	0.1184	0.0017	0.0009	0.4707	0.0026	0.0015	0.0019		0.0000		0.0000		0.0000	0.0000		0.0011
2819	HLW98-86AG	HLW98	Piepel et al. 2008	0.0530	0.0941	0.0030	0.1258		0.0000	0.0301	0.0117	0.1186	0.0017	0.0009	0.4714	0.0026	0.0000		0.0019	0.0000		0.0000		0.0000	0.0000		0.0011
2820	HLW98-87	HLW98	Piepel et al. 2008	0.0769	0.1011	0.0044	0.1177		0.0072	0.0351	0.0010	0.1108	0.0052	0.0042	0.4453	0.0357	0.0004	0.0000		0.0007		0.0000		0.0067	0.0025		0.0003
2821	HLW98-88	HLW98	Piepel et al. 2008	0.0745	0.1060	0.0043	0.1141		0.0070	0.0376	0.0010	0.1171	0.0050	0.0041	0.4397	0.0347	0.0004	0.0000		0.0007		0.0000		0.0065	0.0024		0.0003
2822	HLW98-89	HLW98	Piepel et al. 2008	0.0336	0.0910	0.0045	0.0895		0.0000	0.0284	0.0000	0.1074	0.0044	0.0004	0.4457	0.0884	0.0003	0.0000		0.0000		0.0000		0.0000	0.0000		0.0000
2823	HLW98-90	HLW98	Piepel et al. 2008	0.0486	0.0835	0.0045	0.0895		0.0000	0.0284	0.0000	0.1149	0.0044	0.0004	0.4307	0.0884	0.0003	0.0000		0.0000		0.0000		0.0000	0.0000		0.0000
2824	HLW98-91	HLW98	Piepel et al. 2008	0.0712	0.1035	0.0041	0.1090		0.0066	0.0401	0.0010	0.1179	0.0048	0.0039	0.4516	0.0331	0.0004	0.0000		0.0006		0.0000		0.0062	0.0023		0.0003
2825	HLW98-92	HLW98	Piepel et al. 2008	0.0334	0.0760	0.0045	0.0888		0.0000	0.0334	0.0000	0.1147	0.0043	0.0004	0.4580	0.0878	0.0003	0.0000		0.0000		0.0000		0.0000	0.0000		0.0000
2826	HLW98-93	HLW98	Piepel et al. 2008	0.0334	0.0510	0.0045	0.0888		0.0000	0.0409	0.0000	0.1172	0.0043	0.0004	0.4755	0.0878	0.0003	0.0000		0.0000		0.0000		0.0000	0.0000		0.0000
2827	HLW98-94	HLW98	Piepel et al. 2008	0.0938	0.1151	0.0024	0.1052		0.0041	0.0387	0.0009	0.1185	0.0060	0.0000	0.4395	0.0324	0.0000	0.0000		0.0007		0.0000		0.0065	0.0039		0.0000
2828	HLW98-95, HLW98-95R1	HLW98	Piepel et al. 2008	0.0732	0.1063	0.0042	0.1121		0.0014	0.0376	0.0010	0.1192	0.0049	0.0040	0.4469	0.0340	0.0004	0.0000		0.0007		0.0000		0.0064	0.0024		0.0006
2829	HLW98-95CG	HLW98	Piepel et al. 2008	0.0732	0.1063	0.0042	0.1121		0.0014	0.0376	0.0010	0.1193	0.0049	0.0040	0.4469	0.0340	0.0004	0.0000		0.0007		0.0000		0.0064	0.0024		0.0006
2830	HLW98-96, HLW98-96R1	HLW98	Piepel et al. 2008	0.0336	0.1010	0.0045	0.0895			0.0309		0.1074	0.0044	0.0004	0.4332	0.0884	0.0003										
2831	HLW98-96CG	HLW98	Piepel et al. 2008	0.0336	0.1010	0.0045	0.0895			0.0309		0.1074	0.0044	0.0004	0.4332	0.0884	0.0003										
2832	HLW98-96NRE4	HLW98	Piepel et al. 2008	0.0336	0.1008	0.0045	0.0894			0.0309		0.1072	0.0044	0.0004	0.4327	0.0883	0.0013										
2833	HLW98-96NRE4CCC	HLW98	Piepel et al. 2008	0.0336	0.1008	0.0045	0.0894			0.0309		0.1072	0.0044	0.0004	0.4327	0.0883	0.0013										
2834	HLW98-96RE7	HLW98	Piepel et al. 2008	0.0336	0.1010	0.0045	0.0895			0.0309		0.1074	0.0044	0.0004	0.4332	0.0884	0.0003										
2835	HLW98-96RE7CCC	HLW98	Piepel et al. 2008	0.0336	0.1010	0.0045	0.0895			0.0309		0.1074	0.0044	0.0004	0.4332	0.0884	0.0003										
2836	HLW98-96A	HLW98	Piepel et al. 2008	0.0345	0.1036	0.0046	0.0918			0.0318	0.0000	0.1102	0.0045	0.0004	0.4447	0.0908	0.0003	0.0000		0.0000		0.0000		0.0000	0.0259		0.0000
2837	HLW98-96B	HLW98	Piepel et al. 2008	0.0342	0.1029	0.0046	0.0912			0.0315	0.0000	0.1094	0.0045	0.0004	0.4415	0.0901	0.0003	0.0000		0.0000		0.0000		0.0000	0.0000		0.0000
2838	HLW98-96C	HLW98	Piepel et al. 2008	0.0336	0.1011	0.0045	0.0896			0.0310	0.0000	0.1075	0.0044	0.0004	0.4338	0.0886	0.0003	0.0000		0.0000		0.0000		0.0000	0.0000		0.0000
2839	HLW98-96D	HLW98	Piepel et al. 2008	0.0360	0.1081	0.0048	0.0958			0.0331	0.0000	0.1150	0.0047	0.0004	0.4639	0.0947	0.0003	0.0000		0.0000		0.0000		0.0000	0.0000		0.0000
2840	HLW98-96DR2	HLW98	Piepel et al. 2008	0.0360	0.1081	0.0048	0.0958			0.0331		0.1150	0.0047	0.0004	0.4639	0.0947	0.0003										
2841	HLW98-97	HLW98	Piepel et al. 2008	0.0975	0.1105	0.0025	0.1095		0.0043	0.0388	0.0009	0.1218	0.0062	0.0000	0.4300	0.0337	0.0000	0.0000		0.0007		0.0000		0.0068	0.0041		0.0000
2842	LRM	Round Robin Standard	Ebert and Wolf 1999	0.1000	0.0800	0.0050	0.0100		0.0150	0.0010	0.0010	0.2000	0.0010	0.0050	0.5500	0.0100				0.0001				0.0020			
2843	DWPF Startup Frit	Round Robin Standard	Edwards et al. 2009	0.0470	0.0880	0.0120	0.1350		0.0260	0.0350	0.0070	0.1150	0.0110		0.4900												
2844	ARM-1	Round Robin Standard	Mellinger and Daniel 1984																								
2845	ATM-1a	Round Robin Standard	Wald 1985	0.0057	0.0881	0.0230	0.0929		<0.0006		0.0016	0.1242	0.0022	0.0078	0.4083	0.0184				0.0053				0.0005		0.0089	
2846	ATM-1b	Round Robin Standard	Wald 1985	0.0084	0.0860	0.0228	0.0903		0.0009		0.0018	0.1153	0.0025	0.0056	0.4011	0.0232				0.0062				0.0005		0.0100	
2847	ATM-1c	Round Robin Standard	Wald 1985	0.0049	0.0917	0.0230	0.0895		0.0020			0.1290	0.0020	0.0068	0.4130	0.0162	0.0003			0.0053				0.0003		0.0100	
2848	ATM-11	Round Robin Standard	Wald and Daniel 1986	0.0432	0.0672	0.0163	0.1149			0.0475	0.0074	0.1063	0.0081	0.0042	0.5225	0.0080				0.0015						0.0009	
2849	ARG-1	Round Robin Standard	Smith 1993	0.0470	0.0880	0.0120	0.1350		0.0260	0.0350	0.0070	0.1150	0.0110		0.4900												
2850	DWPF-EA	Round Robin Standard	Jantzen et al. 1993	0.0367	0.1112	0.0113	0.0808	0.0089	0.0004	0.0428	0.0166	0.1671	0.0061		0.4895	0.0041											
2851	Hal-01	Russian High Al	Riley et al. 2009	0.2663	0.2021	0.0320	0.0655		0.0016	0.0019	0.0013	0.0648	0.0044	0.0617	0.2544	0.0044	0.0000			0.0006		0.0127		0.0003	0.0000		
2852	Hal-02	Russian High Al	Riley et al. 2009	0.2663	0.2521	0.0120	0.0655		0.0016	0.0269	0.0013	0.0398	0.0044	0.0117	0.2544	0.0044	0.0000			0.0006		0.0127		0.0003	0.0000		
2853	Hal-03	Russian High Al	Riley et al. 2009	0.2663	0.2021	0.0370	0.0655		0.0016	0.0019	0.0013	0.0648	0.0044	0.0867	0.2294	0.0044	0.0000			0.0006		0.0127		0.0003	0.0000		
2854	Hal-04	Russian High Al	Riley et al. 2009	0.2663	0.2521	0.0520	0.0655		0.0016	0.0019	0.0013	0.0648	0.0044	0.0117	0.2294	0.0044	0.0000			0.0006		0.0127		0.0003	0.0000		
2855	Hal-05	Russian High Al	Riley et al. 2009	0.2557	0.1580	0.0323	0.0629		0.0171	0.0018	0.0012	0.0382	0.0043	0.1152	0.2602	0.0042	0.0000			0.0006		0.0122		0.0003	0.0000		
2856	Hal-06	Russian High Al	Riley et al. 2009	0.2397	0.1519	0.0608	0.0590		0.0014	0.0357	0.0012	0.0958	0.0040	0.0105	0.3050	0.0039	0.0000			0.0005		0.0114		0.0002	0.0000		
2857	Hal-07	Russian High Al	Riley et al. 2009	0.2500	0.1467	0.0595	0.0615		0.0015	0.0346	0.0012	0.0952	0.0042	0.0110	0.2981	0.0041	0.0000			0.0006		0.0119		0.0003	0.0000		
2858	Hal-08	Russian High Al	Riley et al. 2009	0.2500	0.1500	0.0600	0.0615		0.0015	0.0350	0.0012	0.0950	0.0042	0.0110	0.2941	0.0041	0.0000			0.0006		0.0119		0.0003	0.0000		
2859	Hal-09	Russian High Al	Riley et al. 2009	0.2500	0.1500	0.1000	0.0615		0.0015	0.0500	0.0012	0.0500	0.0042	0.0110	0.2841	0.0041	0.0000			0.0006		0.0119		0.0003	0.0000		
2860	Hal-10	Russian High Al	Riley et al. 2009	0.2500	0.1500	0.0600	0.0615		0.0400	0.0350	0.0012	0.0726	0.0042	0.0110	0.2780	0.0041	0.0000			0.0006		0.0119		0.0003	0.0000		
2861	Hal-11	Russian High Al	Riley et al. 2009	0.2500	0.1500	0.0600	0.0615		0.0400	0.0500	0.0012	0.0575	0.0042	0.0110	0.2781	0.0041	0.0000			0.0006		0.0119		0.0003	0.0000		
2862	Hal-12	Russian High Al	Riley et al. 2009	0.2500	0.1800	0.0800	0.0615		0.0015	0.0350	0.0012	0.0950	0.0042	0.0110	0.2441	0.0041	0.0000			0.0006		0.0119		0.0003	0.0000		
2863	Hal-13	Russian High Al	Riley et al. 2009	0.2500	0.1800	0.0800	0.0615		0.0015	0.0350	0.0012	0.0650	0.0042	0.0110	0.2741	0.0041	0.0000			0.0006		0.0119		0.0003	0.0000		
2864	Hal-14	Russian High Al	Riley et al. 2009	0.2664	0.1800	0.1400	0.0615		0.0370	0.0000	0.0012	0.0500	0.0042	0.0110	0.2121	0.0041	0.0000			0.0006		0.0119		0.0003	0.0000		
2865	Hal-15	Russian High Al	Riley et al. 2009	0.2663	0.1521	0.0650	0.0655		0.0016	0.0404	0.0013	0.0898	0.0044	0.0117	0.2629	0.0044	0.0000			0.0006		0.0127		0.0003	0.0000		
2866	Hal-16	Russian High Al	Riley et al. 2009	0.2589	0.1614	0.0733	0.0637		0.0272	0.0275	0.0013	0.0875	0.0043	0.0114	0.2456	0.0043				0.0006		0.0124		0.0003			
2867	Hal-17	Russian High Al	Riley et al. 2009	0.2589	0.1614	0.0733	0.0637		0.0272	0.0400	0.0013	0.0607	0.0043	0.0114	0.2600	0.0043				0.0006		0.0124		0.0003			
2868	Hal-18	Russian High Al	Riley et al. 2009	0.2589	0.1800	0.0800	0.0637		0.0272	0.0275	0.0013	0.0666	0.0043	0.0114	0.2412	0.0043				0.0006		0.0124		0.0003			
2869	KRI-01 (repl. US-08)	Russian High Alumina - Rus	Fox et al. 2008	0.1519	0.0956	0.0000	0.0975		0.0100	0.0486	0.0000	0.0981	0.0000		0.4578	0.0000											
2870	KRI-02 (repl. US-19)	Russian High Alumina - Rus	Fox et al. 2008	0.1447	0.1440	0.0070	0.0823		0.0078	0.0364	0.0033	0.1080	0.0021		0.4282	0.0027											

#	Glass ID	CoO-t	Co2O3-t	Cr2O3-t	Cs2O-t	CuO-t	Dy2O3-t	Eu2O3-t	F-t	Ga2O3-t	Gd2O3-t	HfO2-t	HgO-t	I-t	La2O3-t	MnO2-t	MnO-t	MoO-t	MoO2-t	MoO3-t	Nb2O5-t	Nd2O3-t	NpO2-t	PbO-t	PdO2-t	PdO-t	Pr2O3-t	Pr6O11-t	Rb2O-t	ReO-t
2789	HLW06-28			0.0060					0.0044						0.0000		0.0000					0.0025		0.0091		0.0012				
2790	HLW06-29			0.0000					0.0044						0.0000		0.0000					0.0025		0.0091		0.0012				
2791	HLW06-30			0.0000					0.0044						0.0000		0.0000					0.0025		0.0000		0.0012				
2792	HLW06-31			0.0060					0.0044						0.0123		0.0000					0.0080		0.0000		0.0012				
2793	HLW06-32			0.0060					0.0044						0.0000		0.0800					0.0025		0.0000		0.0012				
2794	HLW06-33			0.0000					0.0044						0.0123		0.0000					0.0080		0.0091		0.0012				
2795	HLW06-34			0.0060					0.0044						0.0000		0.0800					0.0025		0.0000		0.0012				
2796	HLW06-35			0.0030					0.0044						0.0016		0.0029					0.0032		0.0014		0.0012				
2797	HLW98-66	0.0000		0.0011	0.0005	0.0007			0.0002						0.0033		0.0083			0.0000		0.0000		0.0011		0.0000				
2798	HLW98-67	0.0000		0.0018	0.0000	0.0006			0.0000						0.0002		0.0351			0.0001		0.0000		0.0028		0.0000				
2799	HLW98-68	0.0000		0.0009	0.0005	0.0008			0.0004						0.0033		0.0338			0.0000		0.0002		0.0021		0.0001				
2800	HLW98-69	0.0000		0.0013	0.0005	0.0008			0.0004						0.0033		0.0467			0.0000		0.0004		0.0025		0.0002				
2801	HLW98-70	0.0000		0.0015	0.0000	0.0003			0.0000						0.0002		0.0277			0.0000		0.0006		0.0017		0.0001				
2802	HLW98-71	0.0000		0.0016	0.0000	0.0003			0.0000						0.0002		0.0293			0.0000		0.0007		0.0018		0.0001				
2803	HLW98-72	0.0000		0.0000	0.0001	0.0004			0.0004			0.0000			0.0041		0.0017			0.0000		0.0025		0.0004		0.0000	0.0000			
2804	HLW98-73	0.0000		0.0000	0.0001	0.0004			0.0004			0.0000			0.0041		0.0017			0.0000		0.0025		0.0004		0.0000	0.0000			
2805	HLW98-74	0.0000		0.0000	0.0001	0.0004			0.0004			0.0000			0.0043		0.0018			0.0000		0.0026		0.0004		0.0000	0.0000			
2806	HLW98-75	0.0000		0.0000	0.0001	0.0004			0.0004			0.0000			0.0043		0.0018			0.0000		0.0026		0.0004		0.0000	0.0000			
2807	HLW98-76	0.0000		0.0000	0.0001	0.0004			0.0004			0.0000			0.0041		0.0017			0.0000		0.0025		0.0004		0.0000	0.0000			
2808	HLW98-78	0.0000		0.0000	0.0000	0.0003			0.0004			0.0000			0.0041		0.0017			0.0000		0.0031		0.0003		0.0000	0.0000			
2809	HLW98-79	0.0000		0.0000	0.0000	0.0003			0.0004			0.0000			0.0043		0.0018			0.0000		0.0033		0.0004		0.0000	0.0000			
2810	HLW98-80, HLW98-80R1	0.0000		0.0000	0.0000	0.0000			0.0000			0.0000			0.0038		0.0036			0.0000		0.0017		0.0007		0.0000	0.0000			
2811	HLW98-80CG														0.0038		0.0036					0.0017		0.0007						
2812	HLW98-81	0.0000		0.0002	0.0000	0.0000			0.0000			0.0000			0.0040		0.0038			0.0000		0.0017		0.0007		0.0000	0.0000			
2813	HLW98-82	0.0000		0.0002	0.0000	0.0000			0.0000			0.0000			0.0040		0.0038			0.0000		0.0017		0.0007		0.0000	0.0000			
2814	HLW98-83	0.0000		0.0004	0.0000	0.0005			0.0000			0.0000			0.0025		0.0304			0.0000		0.0016		0.0025		0.0000	0.0000			
2815	HLW98-84, HLW98-84R1	0.0000		0.0004	0.0000	0.0005			0.0000			0.0000			0.0025		0.0304			0.0000		0.0016		0.0025		0.0000	0.0000			
2816	HLW98-84CG			0.0004		0.0005									0.0025		0.0304					0.0016		0.0025						
2817	HLW98-85	0.0000		0.0008	0.0000	0.0004			0.0000			0.0000			0.0024		0.0399			0.0000		0.0015		0.0014		0.0000	0.0000			
2818	HLW98-86, HLW98-86R2	0.0000		0.0008	0.0000	0.0004			0.0000			0.0000			0.0024		0.0399			0.0000		0.0015		0.0014		0.0000	0.0000			
2819	HLW98-86AG	0.0000		0.0008	0.0000	0.0004			0.0000			0.0000			0.0024		0.0400			0.0000		0.0015		0.0014		0.0000	0.0000			
2820	HLW98-87	0.0000		0.0014	0.0000	0.0004			0.0000			0.0000			0.0028		0.0028			0.0000		0.0020		0.0008		0.0011	0.0000			
2821	HLW98-88	0.0000		0.0014	0.0000	0.0004			0.0000			0.0000			0.0027		0.0033			0.0000		0.0020		0.0008		0.0010	0.0000			
2822	HLW98-89	0.0000		0.0006	0.0000	0.0003			0.0011			0.0000			0.0015		0.0142			0.0000		0.0010		0.0011		0.0000	0.0000			
2823	HLW98-90	0.0000		0.0006	0.0000	0.0003			0.0011			0.0000			0.0015		0.0142			0.0000		0.0010		0.0011		0.0000	0.0000			
2824	HLW98-91	0.0000		0.0013	0.0000	0.0004			0.0000			0.0000			0.0026		0.0032			0.0000		0.0019		0.0007		0.0010	0.0000			
2825	HLW98-92	0.0000		0.0006	0.0000	0.0003			0.0011			0.0000			0.0015		0.0141			0.0000		0.0010		0.0011		0.0000	0.0000			
2826	HLW98-93	0.0000		0.0006	0.0000	0.0003			0.0011			0.0000			0.0015		0.0141			0.0000		0.0010		0.0011		0.0000	0.0000			
2827	HLW98-94	0.0000		0.0003	0.0006	0.0010			0.0004			0.0000			0.0034		0.0012			0.0000		0.0021		0.0006		0.0000	0.0005			
2828	HLW98-95, HLW98-95R1	0.0000		0.0014	0.0000	0.0003			0.0002			0.0000			0.0026		0.0033			0.0000		0.0019		0.0007		0.0010	0.0000			
2829	HLW98-95CG	0.0000		0.0014	0.0000	0.0003			0.0002			0.0000			0.0026		0.0033			0.0000		0.0019		0.0007		0.0010	0.0000			
2830	HLW98-96, HLW98-96R1			0.0006	0.0000	0.0003			0.0011			0.0000			0.0015		0.0142			0.0000		0.0010		0.0011		0.0000	0.0000			
2831	HLW98-96CG			0.0006		0.0003			0.0011						0.0015		0.0142					0.0010		0.0011						
2832	HLW98-96NRE4			0.0006		0.0003			0.0011						0.0015		0.0142					0.0010		0.0011		0.0000				
2833	HLW98-96NRE4CCC			0.0006		0.0003			0.0011						0.0015		0.0142					0.0010		0.0011		0.0000				
2834	HLW98-96RE7			0.0006		0.0003			0.0011						0.0015		0.0142					0.0010		0.0011						
2835	HLW98-96RE7CCC			0.0006		0.0003			0.0011						0.0015		0.0142					0.0010		0.0011						
2836	HLW98-96A	0.0000		0.0006	0.0000	0.0003			0.0011			0.0000			0.0015		0.0146			0.0000		0.0166		0.0012		0.0000	0.0000			
2837	HLW98-96B	0.0000		0.0006	0.0000	0.0003			0.0011			0.0329			0.0015		0.0145			0.0000		0.0164		0.0012		0.0000	0.0000			
2838	HLW98-96C	0.0000		0.0006	0.0000	0.0003			0.0011			0.0406			0.0015		0.0143			0.0000		0.0253		0.0011		0.0000	0.0000			
2839	HLW98-96D	0.0000		0.0006	0.0000	0.0003			0.0012			0.0000			0.0016		0.0153			0.0000		0.0011		0.0012		0.0000	0.0000			
2840	HLW98-96DR2			0.0006		0.0003			0.0012						0.0016		0.0153					0.0011		0.0012						
2841	HLW98-97	0.0000		0.0003	0.0006	0.0010			0.0004			0.0000			0.0036		0.0013			0.0000		0.0022		0.0006		0.0000	0.0005			
2842	LRM			0.0020					0.0100					0.0000	0.0001		0.0010			0.0010				0.0010						
2843	DWPF Startup Frit			0.0010												0.0230														
2844	ARM-1																													
2845	ATM-1a			0.0046	0.0108		0.0001	0.0001			0.0002				0.0404	0.0006		0.0192				0.0137								
2846	ATM-1b			0.0050	0.0120		0.0001	0.0001			0.0003				0.0486	0.0006			0.0216			0.0164								
2847	ATM-1c			0.0034	0.0100										0.0185	0.0008			0.0178			0.0130				0.0057				
2848	ATM-11				0.0004	0.0002										0.0255				0.0008		0.0029	0.0002			0.0001			0.0001	
2849	ARG-1			0.0010												0.0230														
2850	DWPF-EA														0.0041		0.0134													
2851	Hal-01			0.0058		0.0000			0.0124						0.0000		0.0000							0.0045						
2852	Hal-02			0.0058		0.0000			0.0074						0.0250		0.0000							0.0045						
2853	Hal-03			0.0058		0.0000			0.0074						0.0000		0.0000							0.0045						
2854	Hal-04			0.0058		0.0000			0.0174						0.0000		0.0000							0.0045						
2855	Hal-05			0.0056		0.0000			0.0071						0.0156		0.0000							0.0044						
2856	Hal-06			0.0052		0.0000			0.0067						0.0000		0.0000							0.0041						
2857	Hal-07			0.0054		0.0000			0.0070						0.0000		0.0000							0.0043						
2858	Hal-08			0.0054		0.0000			0.0070						0.0000		0.0000							0.0043						
2859	Hal-09			0.0054		0.0000			0.0070						0.0000		0.0000							0.0043						
2860	Hal-10			0.0054		0.0000			0.0070						0.0000		0.0000							0.0043						
2861	Hal-11			0.0054		0.0000			0.0070						0.0000		0.0000							0.0043						
2862	Hal-12			0.0054		0.0000			0.0070						0.0000		0.0000							0.0043						
2863	Hal-13			0.0054		0.0000			0.0070						0.0000		0.0000							0.0043						
2864	Hal-14			0.0054		0.0000			0.0070						0.0000		0.0000							0.0043						
2865	Hal-15			0.0058		0.0000			0.0074						0.0000		0.0000							0.0045						
2866	Hal-16			0.0056					0.0072															0.0044						
2867	Hal-17			0.0056					0.0072															0.0044						
2868	Hal-18			0.0056					0.0072															0.0044						
2869	KRI-01 (repl. US-08)			0.0000													0.0244							0.0010						
2870	KRI-02 (repl. US-19)			0.0007													0.0199							0.0007						

#	Glass ID	ReO2-t	Re2O7-t	Rh2O3-t	RhO2-t	RuO2-t	Ru2O3-t	Sb2O3-t	Sb2O5-t	SeO2-t	Sm2O3-t	SnO-t	SnO2-t	SO3-t	SrO-t	Tc2O7-t	TeO2-t	ThO2-t	TiO2-t	Tl2O-t	Tl2O3-t	U3O8-t	UO2-t	UO3-t	V2O5-t	WO3-t	Y2O3-t	ZnO-t	Sum-t	Al2O3-a
2789	HLW06-28			0.0005		0.0013								0.0000	0.0000			0.0000	0.0100					0.0650				0.0400	1.0000	
2790	HLW06-29			0.0005		0.0013								0.0000	0.0000			0.0594	0.0100					0.0000				0.0000	1.0000	
2791	HLW06-30			0.0005		0.0013								0.0000	0.0000			0.0000	0.0000					0.0650				0.0400	1.0000	
2792	HLW06-31			0.0005		0.0013								0.0028	0.1029			0.0594	0.0000					0.0000				0.0000	1.0000	
2793	HLW06-32			0.0005		0.0013								0.0000	0.0000			0.0000	0.0000					0.0000				0.0000	1.0000	
2794	HLW06-33			0.0005		0.0013								0.0028	0.1029			0.0000	0.0100					0.0650				0.0000	1.0000	
2795	HLW06-34			0.0005		0.0013								0.0000	0.0000			0.0000	0.0000					0.0650				0.0000	1.0000	
2796	HLW06-35			0.0005		0.0013								0.0004	0.0133			0.0325	0.0016					0.0329				0.0031	1.0000	
2797	HLW98-66			0.0000		0.0000		0.0000		0.0007			0.0000	0.0003	0.0119		0.0002	0.0000	0.0000	0.0000			0.0000	0.0000			0.0200	1.0000	
2798	HLW98-67			0.0000		0.0000		0.0000		0.0000			0.0000	0.0000	0.0662		0.0000	0.0000	0.0012	0.0000			0.0000	0.0000			0.0002	1.0000	
2799	HLW98-68			0.0000		0.0000		0.0019		0.0015			0.0000	0.0025	0.0255		0.0014	0.0000	0.0006	0.0000			0.0000	0.0000			0.0200	1.0000	
2800	HLW98-69			0.0000		0.0000		0.0019		0.0015			0.0000	0.0025	0.0504		0.0014	0.0000	0.0006	0.0000			0.0000	0.0000			0.0200	1.0000	
2801	HLW98-70			0.0003		0.0002		0.0000		0.0000			0.0007	0.0000	0.0365		0.0000	0.0441	0.0002	0.0000			0.0412	0.0000			0.0200	1.0000	
2802	HLW98-71			0.0004		0.0002		0.0000		0.0000			0.0008	0.0000	0.0386		0.0000	0.0465	0.0002	0.0000			0.0435	0.0000			0.0200	1.0000	
2803	HLW98-72			0.0000		0.0000		0.0000		0.0000			0.0000	0.0007	0.0000		0.0000	0.0000	0.0000	0.0000			0.0000	0.0000			0.0202	1.0000	
2804	HLW98-73			0.0000		0.0000		0.0000		0.0000			0.0000	0.0007	0.0003		0.0000	0.0000	0.0000	0.0000			0.0000	0.0000			0.0202	1.0000	
2805	HLW98-74			0.0000		0.0000		0.0000		0.0000			0.0000	0.0008	0.0004		0.0000	0.0000	0.0000	0.0000			0.0000	0.0000			0.0202	1.0000	
2806	HLW98-75			0.0000		0.0000		0.0000		0.0000			0.0000	0.0008	0.0004		0.0000	0.0000	0.0000	0.0000			0.0000	0.0000			0.0202	1.0000	
2807	HLW98-76			0.0000		0.0000		0.0000		0.0000			0.0000	0.0007	0.0003		0.0000	0.0000	0.0000	0.0000			0.0000	0.0000			0.0202	1.0000	
2808	HLW98-78			0.0000		0.0000		0.0000		0.0000			0.0000	0.0008	0.0003		0.0000	0.0000	0.0000	0.0000			0.0000	0.0000			0.0202	1.0000	
2809	HLW98-79			0.0002		0.0000		0.0000		0.0000			0.0000	0.0008	0.0003		0.0000	0.0000	0.0000	0.0000			0.0000	0.0000			0.0202	1.0000	
2810	HLW98-80, HLW98-80R1			0.0000		0.0000		0.0000		0.0000			0.0000	0.0004	0.0000		0.0000	0.0000	0.0000	0.0000			0.0000	0.0000			0.0201	1.0000	0.0542
2811	HLW98-80CG													0.0004														0.0201	1.0000	
2812	HLW98-81			0.0000		0.0000		0.0000		0.0000			0.0000	0.0004	0.0000		0.0000	0.0000	0.0000	0.0000			0.0000	0.0000			0.0201	1.0000	
2813	HLW98-82			0.0000		0.0000		0.0000		0.0000			0.0000	0.0004	0.0000		0.0000	0.0000	0.0000	0.0000			0.0000	0.0000			0.0201	1.0000	
2814	HLW98-83			0.0000		0.0000		0.0011		0.0021			0.0000	0.0000	0.0000		0.0000	0.0000	0.0003	0.0000			0.0000	0.0000			0.0202	1.0000	
2815	HLW98-84, HLW98-84R1			0.0000		0.0000		0.0011		0.0021			0.0000	0.0000	0.0000		0.0000	0.0000	0.0003	0.0000			0.0000	0.0000			0.0202	1.0000	
2816	HLW98-84CG							0.0011		0.0021									0.0003									0.0202	1.0000	
2817	HLW98-85			0.0000		0.0000		0.0026		0.0037			0.0000	0.0000	0.0092		0.0000	0.0000	0.0014	0.0000			0.0000	0.0000			0.0207	1.0000	
2818	HLW98-86, HLW98-86R2			0.0000		0.0000		0.0026		0.0037			0.0000	0.0000	0.0092		0.0000	0.0000	0.0014	0.0000			0.0000	0.0000			0.0207	1.0000	0.0527
2819	HLW98-86AG			0.0000		0.0000		0.0026		0.0037			0.0000	0.0000	0.0092		0.0000	0.0000	0.0014	0.0000			0.0000	0.0000			0.0207	1.0000	
2820	HLW98-87			0.0003		0.0008		0.0000		0.0000			0.0000	0.0008	0.0016		0.0000	0.0000	0.0000	0.0000			0.0097	0.0000			0.0202	1.0000	
2821	HLW98-88			0.0002		0.0008		0.0000		0.0000			0.0000	0.0008	0.0016		0.0000	0.0000	0.0000	0.0000			0.0094	0.0000			0.0201	1.0000	
2822	HLW98-89			0.0000		0.0000		0.0000		0.0000			0.0000	0.0000	0.0000		0.0000	0.0405	0.0002	0.0000			0.0257	0.0000			0.0202	1.0000	
2823	HLW98-90			0.0000		0.0000		0.0000		0.0000			0.0000	0.0000	0.0000		0.0000	0.0405	0.0002	0.0000			0.0257	0.0000			0.0202	1.0000	
2824	HLW98-91			0.0002		0.0007		0.0000		0.0000			0.0000	0.0008	0.0015		0.0000	0.0000	0.0000	0.0000			0.0090	0.0000			0.0201	1.0000	
2825	HLW98-92			0.0000		0.0000		0.0000		0.0000			0.0000	0.0000	0.0000		0.0000	0.0402	0.0002	0.0000			0.0255	0.0000			0.0127	1.0000	
2826	HLW98-93			0.0000		0.0000		0.0000		0.0000			0.0000	0.0000	0.0000		0.0000	0.0402	0.0002	0.0000			0.0255	0.0000			0.0102	1.0000	
2827	HLW98-94			0.0000		0.0000		0.0000		0.0000			0.0000	0.0013	0.0003		0.0000	0.0000	0.0000	0.0000			0.0000	0.0000			0.0206	1.0000	
2828	HLW98-95, HLW98-95R1			0.0002		0.0008		0.0000		0.0000			0.0000	0.0012	0.0016		0.0000	0.0000	0.0001	0.0000			0.0093	0.0000			0.0201	1.0000	0.0643
2829	HLW98-95CG			0.0002		0.0008		0.0000		0.0000			0.0000	0.0012	0.0016		0.0000	0.0000	0.0001	0.0000			0.0093	0.0000			0.0201	1.0000	0.0727
2830	HLW98-96, HLW98-96R1			0.0000		0.0000		0.0000		0.0000			0.0000	0.0000	0.0000		0.0000	0.0405	0.0002	0.0000			0.0257	0.0000			0.0202	1.0000	
2831	HLW98-96CG																	0.0405	0.0002					0.0257				0.0202	1.0000	
2832	HLW98-96NRE4			0.0002		0.0001												0.0405	0.0002					0.0257				0.0201	1.0000	
2833	HLW98-96NRE4CCC			0.0002		0.0001												0.0405	0.0002					0.0257				0.0201	1.0000	
2834	HLW98-96RE7																	0.0405	0.0002					0.0257				0.0202	1.0000	
2835	HLW98-96RE7CCC																	0.0405	0.0002					0.0257				0.0202	1.0000	
2836	HLW98-96A			0.0000		0.0000		0.0000		0.0000			0.0000	0.0000	0.0000		0.0000	0.0000	0.0002	0.0000			0.0000	0.0000			0.0207	1.0000	
2837	HLW98-96B			0.0000		0.0000		0.0000		0.0000			0.0000	0.0000	0.0000		0.0000	0.0000	0.0002	0.0000			0.0000	0.0000			0.0206	1.0000	
2838	HLW98-96C			0.0000		0.0000		0.0000		0.0000			0.0000	0.0000	0.0000		0.0000	0.0000	0.0002	0.0000			0.0000	0.0000			0.0202	1.0000	
2839	HLW98-96D			0.0000		0.0000		0.0000		0.0000			0.0000	0.0000	0.0000		0.0000	0.0000	0.0002	0.0000			0.0000	0.0000			0.0216	1.0000	
2840	HLW98-96DR2																		0.0002									0.0216	0.9999	
2841	HLW98-97			0.0000		0.0000		0.0000		0.0000			0.0000	0.0013	0.0003		0.0000	0.0000	0.0000	0.0000			0.0000	0.0000			0.0206	1.0000	
2842	LRM													0.0020					0.0010									0.9982	0.0951
2843	DWPF Startup Frit																		0.0100									1.0000	0.0460
2844	ARM-1																											0.0000	0.0575
2845	ATM-1a														0.0041				0.0299			0.0398					0.0496	1.0000	0.0064
2846	ATM-1b														0.0049				0.0285			0.0400					0.0473	1.0000	0.0085
2847	ATM-1c			0.0017		0.0100					0.0012				0.0040		0.0028		0.0295			0.0410				0.0021	0.0445	1.0000	0.0058
2848	ATM-11					0.0005					0.0000				0.0002	0.0002	0.0001		0.0019			0.0182				0.0001	0.0007	1.0000	0.0464
2849	ARG-1																		0.0100									1.0000	0.0466
2850	DWPF-EA																		0.0071									1.0001	0.0370
2851	Hal-01					0.0000		0.0000		0.0000				0.0022	0.0000			0.0000	0.0001			0.0000					0.0009	0.9999	
2852	Hal-02					0.0000		0.0000		0.0000				0.0022	0.0000			0.0000	0.0001			0.0000					0.0009	0.9999	
2853	Hal-03					0.0000		0.0000		0.0000				0.0022	0.0000			0.0000	0.0001			0.0000					0.0009	0.9999	
2854	Hal-04					0.0000		0.0000		0.0000				0.0022	0.0000			0.0000	0.0001			0.0000					0.0009	0.9999	
2855	Hal-05					0.0000		0.0000		0.0000				0.0021	0.0000			0.0000	0.0001			0.0000					0.0009	1.0000	
2856	Hal-06					0.0000		0.0000		0.0000				0.0020	0.0000			0.0000	0.0001			0.0000					0.0008	0.9999	
2857	Hal-07					0.0000		0.0000		0.0000				0.0021	0.0000			0.0000	0.0001			0.0000					0.0009	1.0002	
2858	Hal-08					0.0000		0.0000		0.0000				0.0021	0.0000			0.0000	0.0001			0.0000					0.0009	1.0002	
2859	Hal-09					0.0000		0.0000		0.0000				0.0021	0.0000			0.0000	0.0001			0.0000					0.0009	1.0002	
2860	Hal-10					0.0000		0.0000		0.0000				0.0021	0.0000			0.0000	0.0001			0.0000					0.0009	1.0002	
2861	Hal-11					0.0000		0.0000		0.0000				0.0021	0.0000			0.0000	0.0001			0.0000					0.0009	1.0002	
2862	Hal-12					0.0000		0.0000		0.0000				0.0021	0.0000			0.0000	0.0001			0.0000					0.0009	1.0002	
2863	Hal-13					0.0000		0.0000		0.0000				0.0021	0.0000			0.0000	0.0001			0.0000					0.0009	1.0002	
2864	Hal-14					0.0000		0.0000		0.0000				0.0021	0.0000			0.0000	0.0001			0.0000					0.0009	1.0001	
2865	Hal-15					0.0000		0.0000		0.0000				0.0022	0.0000			0.0000	0.0001			0.0000					0.0009	1.0000	
2866	Hal-16													0.0022					0.0001								0.0009	1.0000	
2867	Hal-17													0.0022					0.0001								0.0009	1.0000	
2868	Hal-18													0.0022					0.0001								0.0009	1.0000	
2869	KRI-01 (repl. US-08)													0.0050	0.0000				0.0100				0.0000				0.0000	1.0000	
2870	KRI-02 (repl. US-19)													0.0028	0.0006				0.0080				0.0000				0.0007	1.0000	

#	Glass ID	B2O3-a	CaO-a	Fe2O3-a	FeO-a	K2O-a	Li2O-a	MgO-a	Na2O-a	NiO-a	P2O5-a	SiO2-a	ZrO2-a	Ag2O-a	As2O3-a	As2O5-a	BaO-a	BeO-a	Bi2O3-a	Br-a	CdO-a	Ce2O3-a	CeO2-a	Cl-a	CoO-a	Co2O3-a	Cr2O3-a	Cs2O-a	CuO-a	F-a
2789	HLW06-28																													
2790	HLW06-29																													
2791	HLW06-30																													
2792	HLW06-31																													
2793	HLW06-32																													
2794	HLW06-33																													
2795	HLW06-34																													
2796	HLW06-35																													
2797	HLW98-66																													
2798	HLW98-67																													
2799	HLW98-68																													
2800	HLW98-69																													
2801	HLW98-70																													
2802	HLW98-71																													
2803	HLW98-72																													
2804	HLW98-73																													
2805	HLW98-74																													
2806	HLW98-75																													
2807	HLW98-76																													
2808	HLW98-78																													
2809	HLW98-79																													
2810	HLW98-80, HLW98-80R1	0.1242	0.0028	0.1259		0.0008	0.0306	0.0008	0.1249	0.0049	0.0003	0.4730	0.0197	0.0004							0.0013									
2811	HLW98-80CG																													
2812	HLW98-81																													
2813	HLW98-82																													
2814	HLW98-83																													
2815	HLW98-84, HLW98-84R1																													
2816	HLW98-84CG																													
2817	HLW98-85																													
2818	HLW98-86, HLW98-86R2	0.0962	0.0032	0.1291			0.0278	0.0117	0.1255	0.0021	0.0010	0.4503	0.0031	0.0020	0.0020									0.0012			0.0007		0.0006	
2819	HLW98-86AG																													
2820	HLW98-87																													
2821	HLW98-88																													
2822	HLW98-89																													
2823	HLW98-90																													
2824	HLW98-91																													
2825	HLW98-92																													
2826	HLW98-93																													
2827	HLW98-94																													
2828	HLW98-95, HLW98-95R1		0.0042	0.1275		0.0012		0.0009	0.1182	0.0064	0.0037	0.4250	0.0391	0.0004			0.0010				0.0085	0.0029		0.0009			0.0036		0.0005	
2829	HLW98-95CG	0.1055	0.0040	0.1144		0.0019	0.0327	0.0006	0.1254	0.0035	0.0036	0.4401	0.0344	0.0005			0.0007				0.0079	0.0029		0.0008			0.0014		0.0003	
2830	HLW98-96, HLW98-96R1																													
2831	HLW98-96CG																													
2832	HLW98-96NRE4																													
2833	HLW98-96NRE4CCC																													
2834	HLW98-96RE7																													
2835	HLW98-96RE7CCC																													
2836	HLW98-96A																													
2837	HLW98-96B																													
2838	HLW98-96C																													
2839	HLW98-96D																													
2840	HLW98-96DR2																													
2841	HLW98-97																													
2842	LRM	0.0785	0.0054	0.0138		0.0148	0.0011	0.0010	0.2003	0.0019	0.0054	0.5420	0.0093				0.0000				0.0016						0.0019			0.0086
2843	DWPF Startup Frit	0.0851	0.0147	0.1420		0.0270	0.0325	0.0084	0.1153	0.0111		0.4790	0.0011				0.0010										0.0009			
2844	ARM-1	0.1155	0.0226				0.0508		0.0975		0.0061	0.4630	0.0188				0.0066						0.0144					0.0113		
2845	ATM-1a	0.0847	0.0199	0.0816		0.0056		0.0030	0.1014	0.0018	0.0063	0.3873	0.0146				0.0050				0.0004		0.0088				0.0039	0.0071		
2846	ATM-1b	0.0855	0.0211	0.0816		0.0056		0.0030	0.0966	0.0022	0.0060	0.4050	0.0188				0.0062				0.0004		0.0097				0.0045	0.0077		
2847	ATM-1c	0.0907	0.0223	0.0870		0.0073		0.0024	0.1051	0.0020	0.0060	0.4120	0.0154				0.0054				0.0004		0.0090				0.0042	0.0078		
2848	ATM-11	0.0658	0.0177	0.1113			0.0480	0.0053	0.1048	0.0069	0.0042	0.5223	0.0080				0.0014						0.0004					0.0004	0.0002	
2849	ARG-1	0.0854	0.0143	0.1403		0.0263	0.0329	0.0087	0.1127	0.0105	0.0027	0.4762	0.0014				0.0009	0.0001					0.0000		0.0001		0.0010		0.0001	
2850	DWPF-EA	0.1130	0.0112	0.0738	0.0145	0.0004	0.0426	0.0172	0.1680	0.0057		0.4873	0.0046																	
2851	Hal-01																													
2852	Hal-02																													
2853	Hal-03																													
2854	Hal-04																													
2855	Hal-05																													
2856	Hal-06																													
2857	Hal-07																													
2858	Hal-08																													
2859	Hal-09																													
2860	Hal-10																													
2861	Hal-11																													
2862	Hal-12																													
2863	Hal-13																													
2864	Hal-14																													
2865	Hal-15																													
2866	Hal-16																													
2867	Hal-17																													
2868	Hal-18																													
2869	KRI-01 (repl. US-08)																													
2870	KRI-02 (repl. US-19)																													

#	Glass ID	Ga2O3-a	Gd2O3-a	I-a	La2O3-a	MnO2-a	MnO-a	MoO-a	MoO3-a	Nb2O5-a	Nd2O3-a	NpO2-a	PbO-a	PdO2-a	PdO-a	Pr2O3-a	Pr6O11-a	PuO2-a	Rb2O-a	ReO-a	ReO2-a	Re2O7-a	Rh2O3-a	RhO2-a	RuO2-a	Sb2O3-a	Sb2O5-a	SeO2-a
2789	HLW06-28																											
2790	HLW06-29																											
2791	HLW06-30																											
2792	HLW06-31																											
2793	HLW06-32																											
2794	HLW06-33																											
2795	HLW06-34																											
2796	HLW06-35																											
2797	HLW98-66																											
2798	HLW98-67																											
2799	HLW98-68																											
2800	HLW98-69																											
2801	HLW98-70																											
2802	HLW98-71																											
2803	HLW98-72																											
2804	HLW98-73																											
2805	HLW98-74																											
2806	HLW98-75																											
2807	HLW98-76																											
2808	HLW98-78																											
2809	HLW98-79																											
2810	HLW98-80, HLW98-80R1				0.0041		0.0040				0.0019		0.0007															
2811	HLW98-80CG																											
2812	HLW98-81																											
2813	HLW98-82																											
2814	HLW98-83																											
2815	HLW98-84, HLW98-84R1																											
2816	HLW98-84CG																											
2817	HLW98-85																											
2818	HLW98-86, HLW98-86R2				0.0027		0.0449				0.0016		0.0014													0.0031		0.0011
2819	HLW98-86AG																											
2820	HLW98-87																											
2821	HLW98-88																											
2822	HLW98-89																											
2823	HLW98-90																											
2824	HLW98-91																											
2825	HLW98-92																											
2826	HLW98-93																											
2827	HLW98-94																											
2828	HLW98-95, HLW98-95R1				0.0018		0.0047				0.0021		0.0007		0.0007								0.0001		0.0003			
2829	HLW98-95CG				0.0020		0.0037				0.0023		0.0006		0.0007								0.0003		0.0007			
2830	HLW98-96, HLW98-96R1																											
2831	HLW98-96CG																											
2832	HLW98-96NRE4																											
2833	HLW98-96NRE4CCC																											
2834	HLW98-96RE7																											
2835	HLW98-96RE7CCC																											
2836	HLW98-96A																											
2837	HLW98-96B																											
2838	HLW98-96C																											
2839	HLW98-96D																											
2840	HLW98-96DR2																											
2841	HLW98-97																											
2842	LRM			0.0000	0.0002		0.0008		0.0010				0.0010															
2843	DWPF Startup Frit					0.0237																						
2844	ARM-1								0.0178		0.0590																	
2845	ATM-1a		< 0.0003		0.0400	0.0003			0.0172		0.0134																	
2846	ATM-1b		< 0.0003		0.0507	0.0003			0.0199		0.0161																	
2847	ATM-1c		< 0.0003		0.0439	0.0003			0.0182		0.0142																	
2848	ATM-11					0.0257			0.0009		0.0017	0.0002			0.0001			0.0001	0.0001						0.0010			
2849	ARG-1					0.0231																						
2850	DWPF-EA				0.0042		0.0134																					
2851	Hal-01																											
2852	Hal-02																											
2853	Hal-03																											
2854	Hal-04																											
2855	Hal-05																											
2856	Hal-06																											
2857	Hal-07																											
2858	Hal-08																											
2859	Hal-09																											
2860	Hal-10																											
2861	Hal-11																											
2862	Hal-12																											
2863	Hal-13																											
2864	Hal-14																											
2865	Hal-15																											
2866	Hal-16																											
2867	Hal-17																											
2868	Hal-18																											
2869	KRI-01 (repl. US-08)																											
2870	KRI-02 (repl. US-19)																											

#	Glass ID	Sm2O3-a	SnO-a	SnO2-a	SO3-a	SrO-a	Tc2O7-a	TeO2-a	ThO2-a	TiO2-a	Tl2O-a	Tl2O3-a	U3O8-a	UO2-a	UO3-a	V2O5-a	WO3-a	Y2O3-a	ZnO-a	Sum-a	T_M (°C)	$T_{L,G}$ (°C)	$T_{L,U}$ (°C)	$T_{1\%}$ (°C)	Primary Phase	$C_{650°C}$	$C_{700°C}$	$C_{750°C}$
2789	HLW06-28																			0.0000				965	Spinel + Na-Ca-U oxide			
2790	HLW06-29																			0.0000				1253	ZrSiO4 + ZrO2			
2791	HLW06-30																			0.0000				1109	Spinel			
2792	HLW06-31																			0.0000				1279	Spinel + ThO2			
2793	HLW06-32																			0.0000				902	Spinel			2.5
2794	HLW06-33																			0.0000				1278	ZrO2			19.1
2795	HLW06-34																			0.0000				940	Na2ZrSi2O7 + Spinel			2.8
2796	HLW06-35																			0.0000				906	spinel + ThO2			2.7
2797	HLW98-66																			0.0000								
2798	HLW98-67																			0.0000								
2799	HLW98-68																			0.0000								
2800	HLW98-69																			0.0000								
2801	HLW98-70																			0.0000								
2802	HLW98-71																			0.0000								
2803	HLW98-72																			0.0000								
2804	HLW98-73																			0.0000								
2805	HLW98-74																			0.0000								
2806	HLW98-75																			0.0000								
2807	HLW98-76																			0.0000								
2808	HLW98-78																			0.0000			935					
2809	HLW98-79																			0.0000			987					
2810	HLW98-80, HLW98-80R1				0.0005														0.0201	0.9951			950					
2811	HLW98-80CG																			0.0000								
2812	HLW98-81																			0.0000			925					
2813	HLW98-82																			0.0000			963					
2814	HLW98-83																			0.0000			875					
2815	HLW98-84, HLW98-84R1																			0.0000			1041					
2816	HLW98-84CG																			0.0000								
2817	HLW98-85																			0.0000			975					
2818	HLW98-86, HLW98-86R2					0.0113				0.0019									0.0216	0.9988								
2819	HLW98-86AG																			0.0000								
2820	HLW98-87																			0.0000								
2821	HLW98-88																			0.0000								
2822	HLW98-89																			0.0000								
2823	HLW98-90																			0.0000								
2824	HLW98-91																			0.0000								
2825	HLW98-92																			0.0000								
2826	HLW98-93																			0.0000								
2827	HLW98-94																			0.0000								
2828	HLW98-95, HLW98-95R1				0.0010	0.0019								0.0123					0.0191	0.8530								
2829	HLW98-95CG				0.0009	0.0019								0.0079				0.0001	0.0188	0.9932								
2830	HLW98-96, HLW98-96R1																			0.0000								
2831	HLW98-96CG																			0.0000								
2832	HLW98-96NRE4																			0.0000								
2833	HLW98-96NRE4CCC																			0.0000								
2834	HLW98-96RE7																			0.0000								
2835	HLW98-96RE7CCC																			0.0000								
2836	HLW98-96A																			0.0000			1100					
2837	HLW98-96B																			0.0000			1015					
2838	HLW98-96C																			0.0000								
2839	HLW98-96D																			0.0000			920					
2840	HLW98-96DR2																			0.0000								
2841	HLW98-97																			0.0000								
2842	LRM				0.0030					0.0010										0.9877								
2843	DWPF Startup Frit									0.0118										0.9996								
2844	ARM-1					0.0046				0.0332									0.0149	0.9933								
2845	ATM-1a					0.0037				0.0262				0.0398					0.0415	0.9199								
2846	ATM-1b					0.0046				0.0260				0.0416					0.0434	0.9650								
2847	ATM-1c					0.0040				0.0282				0.0402					0.0446	0.9764								
2848	ATM-11	0.0000				0.0002	0.0001	0.0001		0.0021				0.0176				0.0001	0.0003	0.9935								
2849	ARG-1					0.0000				0.0116						0.0002		0.0000	0.0002	0.9951			1038					
2850	DWPF-EA									0.0070										0.9999								
2851	Hal-01																			0.0000								
2852	Hal-02																			0.0000								
2853	Hal-03																			0.0000								
2854	Hal-04																			0.0000								
2855	Hal-05																			0.0000								
2856	Hal-06																			0.0000								
2857	Hal-07																			0.0000								
2858	Hal-08																			0.0000								
2859	Hal-09																			0.0000								
2860	Hal-10																			0.0000								
2861	Hal-11																			0.0000								
2862	Hal-12																			0.0000								
2863	Hal-13																			0.0000								
2864	Hal-14																			0.0000								
2865	Hal-15																			0.0000								
2866	Hal-16																			0.0000								
2867	Hal-17																			0.0000								
2868	Hal-18																			0.0000								
2869	KRI-01 (repl. US-08)																			0.0000								
2870	KRI-02 (repl. US-19)																			0.0000								

#	Glass ID	$C_{800°C}$	$C_{850°C}$	$C_{900°C}$	$C_{950°C}$	$C_{1000°C}$	$C_{1050°C}$	$C_{1100°C}$	$C_{1150°C}$	$C_{1200°C}$	Quenched Visual/OM	Quenched XRD	CCC XRD	ρ (g/cm³)	Fulc Visc A	Fulc Visc B	Fulc Visc To	Arrh Visc E	Arrh Visc F	T1 (°C)	V1 (Pa·s)
2789	HLW06-28	5.8	0.8	1.3	1.3	0.5	0.6														
2790	HLW06-29		17.7		10.9		5.4	7.5	5.8	3.2											
2791	HLW06-30		23.3		14.3		1.7	0.8	0.7	0.1											
2792	HLW06-31		7.4		7.6		6.6		3.4	2.9											
2793	HLW06-32	2.3	0.9	1.1	0.5	0.4														1246.0	0.385
2794	HLW06-33		3.7		3.4	3	3.3	2.1	2												
2795	HLW06-34		13.7	5.6	0.2	0.1														1256.0	0.569
2796	HLW06-35	2.1		0.6	0.5	0.5															
2797	HLW98-66																				
2798	HLW98-67																				
2799	HLW98-68																				
2800	HLW98-69																				
2801	HLW98-70																				
2802	HLW98-71																				
2803	HLW98-72														-5.122	9339.8	50.0			1277.0	1.206
2804	HLW98-73													2.730							
2805	HLW98-74																				
2806	HLW98-75																				
2807	HLW98-76													2.710							
2808	HLW98-78																				
2809	HLW98-79																				
2810	HLW98-80, HLW98-80R1													2.680	-3.446	6638.8	250.0			1261.0	2.278
2811	HLW98-80CG																				
2812	HLW98-81																				
2813	HLW98-82																				
2814	HLW98-83														-4.403	8037.0	150.0			1264.0	1.682
2815	HLW98-84, HLW98-84R1													2.700	-4.211	8117.0	150.0			1261.0	2.232
2816	HLW98-84CG																				
2817	HLW98-85																				
2818	HLW98-86, HLW98-86R2													2.740							
2819	HLW98-86AG														-4.525	8298.9	150.0			1264.0	1.862
2820	HLW98-87														-4.923	9120.6	150.0			1268.0	2.534
2821	HLW98-88														-5.377	9674.2	100.0			1266.0	1.850
2822	HLW98-89														-6.135	10290.7	160.0			1265.0	2.410
2823	HLW98-90																				
2824	HLW98-91																				
2825	HLW98-92																				
2826	HLW98-93																				
2827	HLW98-94													2.680							
2828	HLW98-95, HLW98-95R1													2.713	-4.809	8799.3	150.0			1261.0	2.251
2829	HLW98-95CG																				
2830	HLW98-96, HLW98-96R1														-5.074	8203.9	250.0			1250.0	2.306
2831	HLW98-96CG																				
2832	HLW98-96NRE4																				
2833	HLW98-96NRE4CCC																				
2834	HLW98-96RE7																				
2835	HLW98-96RE7CCC																				
2836	HLW98-96A													2.840	-5.835	9648.8	150.0			1236.0	2.104
2837	HLW98-96B													2.750	-6.192	10273.6	150.0			1235.0	2.605
2838	HLW98-96C													2.900							
2839	HLW98-96D													2.790	-9.764	19505.8	-250.0			1255.0	2.590
2840	HLW98-96DR2																				
2841	HLW98-97													2.740	-4.743	8507.4	150.0			1253.0	1.942
2842	LRM																				
2843	DWPF Startup Frit																			450.0	4.09E+12
2844	ARM-1																				
2845	ATM-1a													3.025							
2846	ATM-1b													3.045							
2847	ATM-1c													3.017							
2848	ATM-11										mostly homogeneous, few metall	no peaks detectable >> crystal content below 5 wt%		2.729							
2849	ARG-1																				
2850	DWPF-EA														-2.491	2414.4	236.0			830.0	37.442
2851	Hal-01																				
2852	Hal-02																				
2853	Hal-03																				
2854	Hal-04																				
2855	Hal-05																				
2856	Hal-06												Spinel								
2857	Hal-07												Spinel and Quartz								
2858	Hal-08																				
2859	Hal-09												Spinel								
2860	Hal-10												Spinel and Hydroxylapatite								
2861	Hal-11												Spinel								
2862	Hal-12												Spinel and Quartz								
2863	Hal-13												Spinel								
2864	Hal-14												Spinel and Hematite								
2865	Hal-15												Spinel and Nepheline								
2866	Hal-16																				
2867	Hal-17																				
2868	Hal-18																				
2869	KRI-01 (repl. US-08)																			950.0	138.522
2870	KRI-02 (repl. US-19)																				

#	Glass ID	T2 (°C)	V2 (Pa·s)	T3 (°C)	V3 (Pa·s)	T4 (°C)	V4 (Pa·s)	T5 (°C)	V5 (Pa·s)	T6 (°C)	V6 (Pa·s)	T7 (°C)	V7 (Pa·s)	T8 (°C)	V8 (Pa·s)	T9 (°C)	V9 (Pa·s)	T10 (°C)	V10 (Pa·s)	TCLP Ag	TCLP As	TCLP Ba	TCLP Cd	TCLP Cr	TCLP Ni	TCLP Pb
2789	HLW06-28																									
2790	HLW06-29																									
2791	HLW06-30																									
2792	HLW06-31																									
2793	HLW06-32	1151	0.727	1056	1.6	960.0	4.1																			
2794	HLW06-33																									
2795	HLW06-34	1158	1.249	1059	3.5	961.0	14.3																			
2796	HLW06-35																									
2797	HLW98-66																									
2798	HLW98-67																									
2799	HLW98-68																									
2800	HLW98-69																									
2801	HLW98-70																									
2802	HLW98-71																									
2803	HLW98-72	1157	2.741	1057	6.4	957.0	17.6																			
2804	HLW98-73																									
2805	HLW98-74																									
2806	HLW98-75																									
2807	HLW98-76																									
2808	HLW98-78																			0.0139		0.0088	0.02		0.154	
2809	HLW98-79																			< 0.0031			<0.0027			<0.0243
2810	HLW98-80, HLW98-80R1	1160	4.680	1060	11.5	967.0	33.6													<0.0031		0.005	0.0313		0.103	0.0196
2811	HLW98-80CG																									
2812	HLW98-81																									
2813	HLW98-82																						0.0393		0.118	0.0183
2814	HLW98-83	1164	3.342	1064	8.0	964.0	23.9																			
2815	HLW98-84, HLW98-84R1	1161	4.456	1060	11.2	959.0	33.7													0.0915	0.018	0.0042		0.007	0.106	0.06205
2816	HLW98-84CG																									
2817	HLW98-85																									
2818	HLW98-86, HLW98-86R2																			0.11		0.0106			0.0395	0.0322
2819	HLW98-86AG	1164	3.861	1063	9.7	963.0	29.2																			
2820	HLW98-87	1166	5.751	1063	16.0	960.0	56.2																			
2821	HLW98-88	1164	4.090	1061	11.0	958.0	36.2																			
2822	HLW98-89	1162	6.174	1059	20.5	956.0	88.9																			
2823	HLW98-90																			0.0199	0.0044	0.0584		0.0123	0.218	0.0783
2824	HLW98-91																			0.0133	0.0065	0.0336	0.193	0.0176	0.131	0.0474
2825	HLW98-92																				0.0036	0.0544			0.129	0.0481
2826	HLW98-93																			0.0203		0.0179		0.0084	0.132	0.0478
2827	HLW98-94																			0.0011	0.0041	0.023	0.185	0.0045	0.112	0.0117
2828	HLW98-95, HLW98-95R1	1161	4.855	1061	13.0	961.0	41.8													<0.003	0.0097	0.0362	0.1	0.01	0.123	<0.02
2829	HLW98-95CG																			<0.07	<0.20	0.15	0.25	0.01	<0.04	<0.10
2830	HLW98-96, HLW98-96R1	1152	5.511	1055	16.7	958.0	67.6													0.00685	0.0076	0.0379		0.0084	0.0885	0.06535
2831	HLW98-96CG																									
2832	HLW98-96NRE4																									
2833	HLW98-96NRE4CCC																									
2834	HLW98-96RE7																									
2835	HLW98-96RE7CCC																									
2836	HLW98-96A	1136	5.224	1036	15.7	936.0	62.6																			
2837	HLW98-96B	1135	7.036	1035	22.8	935.0	97.6													0.005				<0.0055		0.028
2838	HLW98-96C																			0.0136		0.0035	0.0024		0.117	0.0308
2839	HLW98-96D	1149	5.870	1043	21.4	938.0	77.8													0.004				<0.0055		<0.0243
2840	HLW98-96DR2																			<0.07	<0.20	0.13	<0.03	<0.01	0.08	<0.10
2841	HLW98-97	1154	4.158	1054	10.8	955.0	33.6															0.0195	0.162		0.126	0.0114
2842	LRM																									
2843	DWPF Startup Frit	500	1.66E+09	550	12225078.3	600.0	417066.1	650.0	35454.3	700.0	5426.2	750.0	1237.7	800.0	375.0	850.0	140.2	900.0	61.4							
2844	ARM-1																									
2845	ATM-1a																									
2846	ATM-1b																									
2847	ATM-1c																									
2848	ATM-11																									
2849	ARG-1																									
2850	DWPF-EA	900	13.959	1000	4.7	1100.0	2.0	1200.0	1.0																	
2851	Hal-01																									
2852	Hal-02																									
2853	Hal-03																									
2854	Hal-04																									
2855	Hal-05																									
2856	Hal-06																									
2857	Hal-07																									
2858	Hal-08																									
2859	Hal-09																									
2860	Hal-10																									
2861	Hal-11																									
2862	Hal-12																									
2863	Hal-13																									
2864	Hal-14																									
2865	Hal-15																									
2866	Hal-16																									
2867	Hal-17																									
2868	Hal-18																									
2869	KRI-01 (repl. US-08)	1000	74.348	1050	42.4	1100.0	25.5	1150.0	16.0																	
2870	KRI-02 (repl. US-19)																									

#	Glass ID	TCLP Se	TCLP Zn	TCLP Al	TCLP B	TCLP Sb	TCLP Tl	TCLP V	Q PCT B (g/m²)	Q PCT Li (g/m²)	Q PCT Na (g/m²)	Q PCT Si (g/m²)	Q PCT pH	CCC PCT B (g/m²)	CCC PCT Li (g/m²)	CCC PCT Na (g/m²)	CCC PCT Si (g/m²)	CCC PCT pH	T1 (°C)
2789	HLW06-28								2.246	1.814	1.528		9.830						
2790	HLW06-29								0.134	0.320	0.231		10.810						
2791	HLW06-30								0.537		0.597		11.380						
2792	HLW06-31								0.093	0.167	0.099		10.670						
2793	HLW06-32								5.916		3.616		10.450						1223
2794	HLW06-33								0.063	0.162	0.105		10.680						
2795	HLW06-34								6.212		3.293		10.180						1220
2796	HLW06-35								0.244	0.287	0.220		10.540						
2797	HLW98-66																		
2798	HLW98-67								0.055	0.125	0.045	0.025							
2799	HLW98-68																		
2800	HLW98-69																		
2801	HLW98-70																		
2802	HLW98-71																		
2803	HLW98-72																		1243
2804	HLW98-73																		
2805	HLW98-74								0.411	0.382	0.402	0.220	10.940						
2806	HLW98-75								0.367	0.360	0.380	0.218	10.950						
2807	HLW98-76																		
2808	HLW98-78		0.617	0.281	1.1														
2809	HLW98-79																		
2810	HLW98-80, HLW98-80R1		0.575	0.318	1.26				0.336	0.355	0.259	0.170	10.120						1249
2811	HLW98-80CG													0.346	0.296	0.232			
2812	HLW98-81																		
2813	HLW98-82		0.63	0.302	1.29														
2814	HLW98-83								3.204	2.377	2.080	0.640	10.170						1228
2815	HLW98-84, HLW98-84R1	0.0235	0.705	0.282	1.4				0.370	0.320	0.288	0.185	10.210						1211
2816	HLW98-84CG													0.453	0.354	0.331			
2817	HLW98-85																		
2818	HLW98-86, HLW98-86R2	0.0264	0.58	0.31	0.954				0.403	0.331	0.323	0.200	10.340						
2819	HLW98-86AG								0.415	0.341	0.341								1228
2820	HLW98-87								0.261	0.285	0.197	0.140	10.350						
2821	HLW98-88								0.259	0.286	0.224	0.120	10.450						1228
2822	HLW98-89								0.166	0.301	0.192	0.120	10.340						1224
2823	HLW98-90	0.0133	1.26	1.2	1.93														
2824	HLW98-91	0.013	0.601	0.971	1.14														
2825	HLW98-92	0.0083	0.524	0.249	1.09														
2826	HLW98-93	0.0054	0.326	0.478	0.612	0.0109													
2827	HLW98-94	0.0093	0.451	0.631	0.861	0.0074			0.425	0.003	0.887	0.195	11.050						
2828	HLW98-95, HLW98-95R1	0.0106	0.552	0.626	1.04	0.0149			0.277	0.292	0.230	0.159	10.340						1234
2829	HLW98-95CG	<0.90	0.68	0.47	1.44	<0.50								0.262	0.276	0.230	0.149		
2830	HLW98-96, HLW98-96R1	0.008	0.485	0.316	0.844			0.0021	0.243	0.294	0.200	0.130	10.330						1233
2831	HLW98-96CG													0.173	0.266	0.199			
2832	HLW98-96NRE4								0.326	0.353	0.253								
2833	HLW98-96NRE4CCC													0.245	0.274	0.194			
2834	HLW98-96RE7								0.282	0.340	0.233								
2835	HLW98-96RE7CCC													0.203	0.266	0.184			
2836	HLW98-96A								0.285	0.297	0.233	0.120	10.250						1247
2837	HLW98-96B								0.270	0.301	0.218	0.115	10.250						1245
2838	HLW98-96C		0.672	0.263	1.17														
2839	HLW98-96D								0.326	0.360	0.237								1247
2840	HLW98-96DR2	<0.90	0.47	0.15	0.76				0.326	0.260	0.237	0.131							
2841	HLW98-97		0.481	0.744	0.918				0.322	0.294	0.250	0.160	10.650						1241
2842	LRM								0.013		0.080	0.041	10.920						
2843	DWPF Startup Frit																		
2844	ARM-1								0.250	0.304	0.265	0.070	10.330						
2845	ATM-1a																		
2846	ATM-1b																		
2847	ATM-1c																		
2848	ATM-11																		
2849	ARG-1																		
2850	DWPF-EA								8.196	4.776	6.619	1.939	11.889						
2851	Hal-01																		
2852	Hal-02																		
2853	Hal-03																		
2854	Hal-04																		
2855	Hal-05																		
2856	Hal-06								0.103	0.165	0.103	0.047		0.116	0.193	0.111	0.055		
2857	Hal-07								0.240	0.231	0.122	0.026		0.103	0.188	0.136	0.050		
2858	Hal-08																		
2859	Hal-09								0.299	0.207	0.099	0.012		0.091	0.141	0.080	0.032		
2860	Hal-10								0.126	0.175	0.123	0.051		0.156	0.223	0.164	0.056		
2861	Hal-11								0.108	0.155	0.102	0.050		0.194	0.249	0.189	0.064		
2862	Hal-12								0.302	0.277	0.186	0.012		0.266	0.338	0.303	0.055		
2863	Hal-13								0.098	0.163	0.092	0.054		0.110	0.171	0.089	0.045		
2864	Hal-14								0.121		0.117	0.027		0.140		0.134	0.024		
2865	Hal-15								0.831	0.552	0.326	0.013		0.203	0.284	0.183	0.074		
2866	Hal-16																		
2867	Hal-17																		
2868	Hal-18																		
2869	KRI-01 (repl. US-08)																		
2870	KRI-02 (repl. US-19)																		

#	Glass ID	EC1 (S/cm)	T2 (°C)	EC2 (S/cm)	T3 (°C)	EC3 (S/cm)	T4 (°C)	EC4 (S/cm)	T5 (°C)	EC5 (S/cm)	T6 (°C)	EC6 (S/cm)	A	B	To
2789	HLW06-28														
2790	HLW06-29														
2791	HLW06-30														
2792	HLW06-31														
2793	HLW06-32	0.699	1133	0.557	1043	0.398	954	0.277							
2794	HLW06-33														
2795	HLW06-34	0.65	1130	0.475	1033	0.333	932	0.214							
2796	HLW06-35														
2797	HLW98-66														
2798	HLW98-67														
2799	HLW98-68														
2800	HLW98-69														
2801	HLW98-70														
2802	HLW98-71														
2803	HLW98-72	0.827	1142	0.582	1046	0.467	950	0.27					1.4438	-1232.99	500
2804	HLW98-73														
2805	HLW98-74														
2806	HLW98-75														
2807	HLW98-76														
2808	HLW98-78														
2809	HLW98-79														
2810	HLW98-80, HLW98-80R1	0.491	1151	0.37	1054	0.242	958	0.146					1.8577	-2299.62	350
2811	HLW98-80CG														
2812	HLW98-81														
2813	HLW98-82														
2814	HLW98-83	0.425	1135	0.323	1041	0.223	947	0.138					1.5382	-2099.29	350
2815	HLW98-84, HLW98-84R1	0.479	1118	0.348	1026	0.238	933	0.149					2.5534	-3492.39	150
2816	HLW98-84CG														
2817	HLW98-85														
2818	HLW98-86, HLW98-86R2														
2819	HLW98-86AG	0.462	1134	0.348	1040	0.239	952	0.158					2.3695	-3379.61	150
2820	HLW98-87														
2821	HLW98-88	0.441	1135	0.329	1037	0.223	943	0.138					2.0099	-2763.68	250
2822	HLW98-89	0.451	1129	0.332	1037	0.224	942	0.138					2.1236	-2842.45	250
2823	HLW98-90														
2824	HLW98-91														
2825	HLW98-92														
2826	HLW98-93														
2827	HLW98-94														
2828	HLW98-95, HLW98-95R1	0.472	1137	0.35	1043	0.247	948	0.156					1.9474	-2655.35	250
2829	HLW98-95CG														
2830	HLW98-96, HLW98-96R1	0.353	1138	0.266	1044	0.19	950	0.109					1.0349	-1618.69	450
2831	HLW98-96CG														
2832	HLW98-96NRE4														
2833	HLW98-96NRE4CCC														
2834	HLW98-96RE7														
2835	HLW98-96RE7CCC														
2836	HLW98-96A	0.5	1153	0.312	1059	0.237	964	0.145					4.4488	-7871.34	-270
2837	HLW98-96B	0.527	1152	0.4	1057	0.262	963	0.152					2.5539	-3153.77	250
2838	HLW98-96C														
2839	HLW98-96D	0.64	1154	0.479	1058	0.316	964	0.189					2.2210	-2386.40	350
2840	HLW98-96DR2														
2841	HLW98-97	0.502	1147	0.365	1052	0.257	958	0.159					4.2899	-7506.06	-270
2842	LRM														
2843	DWPF Startup Frit														
2844	ARM-1														
2845	ATM-1a														
2846	ATM-1b														
2847	ATM-1c														
2848	ATM-11														
2849	ARG-1														
2850	DWPF-EA														
2851	Hal-01														
2852	Hal-02														
2853	Hal-03														
2854	Hal-04														
2855	Hal-05														
2856	Hal-06														
2857	Hal-07														
2858	Hal-08														
2859	Hal-09														
2860	Hal-10														
2861	Hal-11														
2862	Hal-12														
2863	Hal-13														
2864	Hal-14														
2865	Hal-15														
2866	Hal-16														
2867	Hal-17														
2868	Hal-18														
2869	KRI-01 (repl. US-08)														
2870	KRI-02 (repl. US-19)														

#	Glass ID	Study	Reference	Al2O3-t	B2O3-t	CaO-t	Fe2O3-t	FeO-t	K2O-t	Li2O-t	MgO-t	Na2O-t	NiO-t	P2O5-t	SiO2-t	ZrO2-t	Ag2O-t	As2O3-t	As2O5-t	BaO-t	BeO-t	Bi2O3-t	Br-t	CdO-t	Ce2O3-t	CeO2-t	Cl-t
2871	KRI-03 (repl. US-20)	Russian High Alumina - Rus	Fox et al. 2008	0.1447	0.1440	0.0070	0.0823		0.0078	0.0364	0.0033	0.1080	0.0021		0.4282	0.0027											
2872	KRI-04 (repl. US-24)	Russian High Alumina - Rus	Fox et al. 2008	0.1450	0.1225	0.0075	0.0779		0.0075	0.0300	0.0037	0.1157	0.0050		0.4444	0.0038											
2873	KRI-05 (repl. US-35)	Russian High Alumina - Rus	Fox et al. 2008	0.1002	0.1996	0.0100	0.1135		0.0000	0.0200	0.0050	0.0794	0.0000		0.3800	0.0000											
2874	KRI-06 (repl. US-44)	Russian High Alumina - Rus	Fox et al. 2008	0.1280	0.1259	0.0056	0.0886		0.0064	0.0405	0.0025	0.1273	0.0036		0.3955	0.0146											
2875	KRI-07 (repl. (US-45)	Russian High Alumina - Rus	Fox et al. 2008	0.1280	0.1259	0.0056	0.0886		0.0064	0.0405	0.0025	0.1273	0.0036		0.3955	0.0146											
2876	KRI-08	Russian High Alumina - Rus	Fox et al. 2008	0.1269	0.1625	0.0025	0.0800		0.0075	0.0300	0.0038	0.1003	0.0081		0.3949	0.0100											
2877	KRI-09	Russian High Alumina - Rus	Fox et al. 2008	0.1331	0.1434	0.0025	0.0800		0.0025	0.0300	0.0038	0.1121	0.0075		0.4023	0.0300											
2878	KRI-10	Russian High Alumina - Rus	Fox et al. 2008	0.1250	0.0938	0.0075	0.0800		0.0075	0.0311	0.0013	0.1280	0.0075		0.4558	0.0100											
2879	KRI-11	Russian High Alumina - Rus	Fox et al. 2008	0.1579	0.1399	0.0025	0.0991		0.0045	0.0408	0.0013	0.1066	0.0075		0.3985	0.0100											
2880	KRI-12	Russian High Alumina - Rus	Fox et al. 2008	0.1282	0.1409	0.0075	0.0848		0.0075	0.0387	0.0013	0.0909	0.0087		0.3951	0.0300											
2881	KRI-13	Russian High Alumina - Rus	Fox et al. 2008	0.1250	0.1079	0.0025	0.0800		0.0075	0.0300	0.0013	0.1180	0.0075		0.4152	0.0300											
2882	KRI-14	Russian High Alumina - Rus	Fox et al. 2008	0.1312	0.1546	0.0025	0.0800		0.0025	0.0500	0.0038	0.0876	0.0110		0.3929	0.0100											
2883	KRI-15	Russian High Alumina - Rus	Fox et al. 2008	0.1623	0.1368	0.0025	0.0800		0.0075	0.0332	0.0013	0.1036	0.0075		0.4156	0.0100											
2884	KRI-16	Russian High Alumina - Rus	Fox et al. 2008	0.1250	0.0875	0.0025	0.0800		0.0025	0.0492	0.0013	0.0902	0.0075		0.4625	0.0230											
2885	KRI-17	Russian High Alumina - Rus	Fox et al. 2008	0.1286	0.1240	0.0075	0.0859		0.0037	0.0388	0.0038	0.1033	0.0075		0.4087	0.0300											
2886	KRI-18	Russian High Alumina - Rus	Fox et al. 2008	0.1338	0.1483	0.0075	0.0891		0.0055	0.0352	0.0013	0.1037	0.0083		0.3875	0.0300											
2887	KRI-19	Russian High Alumina - Rus	Fox et al. 2008	0.1354	0.1112	0.0025	0.0981		0.0025	0.0437	0.0013	0.1251	0.0103		0.3875	0.0100											
2888	KRI-20	Russian High Alumina - Rus	Fox et al. 2008	0.1440	0.1479	0.0075	0.0864		0.0025	0.0300	0.0038	0.1162	0.0078		0.3918	0.0100											
2889	KRI-21	Russian High Alumina - Rus	Fox et al. 2008	0.1352	0.1183	0.0075	0.0906		0.0044	0.0329	0.0021	0.1259	0.0105		0.4017	0.0300											
2890	KRI-22	Russian High Alumina - Rus	Fox et al. 2008	0.1574	0.1152	0.0025	0.0800		0.0025	0.0500	0.0013	0.1108	0.0075		0.3890	0.0300											
2891	KRI-23	Russian High Alumina - Rus	Fox et al. 2008	0.1626	0.1260	0.0025	0.0800		0.0025	0.0300	0.0035	0.1220	0.0075		0.4095	0.0100											
2892	KRI-24	Russian High Alumina - Rus	Fox et al. 2008	0.1265	0.0969	0.0075	0.0830		0.0075	0.0377	0.0013	0.1024	0.0075		0.4372	0.0300											
2893	KRI-25	Russian High Alumina - Rus	Fox et al. 2008	0.1506	0.1351	0.0028	0.1123		0.0068	0.0375	0.0013	0.1151	0.0075		0.3878	0.0100											
2894	KRI-26	Russian High Alumina - Rus	Fox et al. 2008	0.1048	0.1019	0.0100	0.1114		0.0000	0.0600	0.0000	0.1354	0.0300		0.3959	0.0000											
2895	KRI-27	Russian High Alumina - Rus	Fox et al. 2008	0.1044	0.1720	0.0100	0.0987		0.0000	0.0573	0.0050	0.1023	0.0047		0.3556	0.0400											
2896	KRI-28	Russian High Alumina - Rus	Fox et al. 2008	0.1835	0.0613	0.0000	0.0500		0.0000	0.0572	0.0000	0.1852	0.0000		0.3650	0.0000											
2897	KRI-29	Russian High Alumina - Rus	Fox et al. 2008	0.1427	0.1138	0.0000	0.0565		0.0100	0.0200	0.0050	0.2000	0.0300		0.3500	0.0000											
2898	KRI-30	Russian High Alumina - Rus	Fox et al. 2008	0.2000	0.1530	0.0075	0.0551		0.0000	0.0579	0.0050	0.0724	0.0000		0.3574	0.0000											
2899	US-01	Russian High Alumina - US	Riley et al. 2009	0.1493	0.0789	0.0000	0.0859		0.0100	0.0562	0.0050	0.1237	0.0006		0.4553	0.0050											
2900	US-02	Russian High Alumina - US	Riley et al. 2009	0.1600	0.1686	0.0000	0.0659		0.0000	0.0529	0.0000	0.1233	0.0000		0.4168	0.0050											
2901	US-03	Russian High Alumina - US	Riley et al. 2009	0.1600	0.1731	0.0100	0.0653		0.0100	0.0407	0.0050	0.0788	0.0029		0.4421	0.0000											
2902	US-04	Russian High Alumina - US	Riley et al. 2009	0.1600	0.1129	0.0100	0.0827		0.0100	0.0374	0.0050	0.1033	0.0000		0.4338	0.0050											
2903	US-05	Russian High Alumina - US	Riley et al. 2009	0.1599	0.1670	0.0070	0.0816		0.0100	0.0200	0.0050	0.0958	0.0000		0.4064	0.0050											
2904	US-06	Russian High Alumina - US	Riley et al. 2009	0.1600	0.1406	0.0100	0.0815		0.0100	0.0247	0.0050	0.1078	0.0000		0.4142	0.0000											
2905	US-07	Russian High Alumina - US	Riley et al. 2009	0.1600	0.1349	0.0100	0.0730		0.0100	0.0266	0.0050	0.1067	0.0020		0.4188	0.0050											
2906	US-08 (repl. KRI-01)	Russian High Alumina - US	Riley et al. 2009	0.1519	0.0956	0.0000	0.0975		0.0100	0.0486	0.0000	0.0981	0.0000		0.4577	0.0000											
2907	US-09	Russian High Alumina - US	Riley et al. 2009	0.1337	0.1505	0.0100	0.1088		0.0000	0.0200	0.0050	0.1411	0.0000		0.4117	0.0000											
2908	US-10	Russian High Alumina - US	Riley et al. 2009	0.1412	0.1099	0.0100	0.1069		0.0100	0.0200	0.0050	0.1267	0.0000		0.4198	0.0050											
2909	US-11	Russian High Alumina - US	Riley et al. 2009	0.1370	0.1998	0.0100	0.0776		0.0100	0.0200	0.0050	0.0669	0.0000		0.4366	0.0000											
2910	US-12	Russian High Alumina - US	Riley et al. 2009	0.1324	0.1608	0.0100	0.0874		0.0100	0.0600	0.0000	0.1116	0.0184		0.3913	0.0045											
2911	US-13	Russian High Alumina - US	Riley et al. 2009	0.1600	0.1457	0.0100	0.0730		0.0100	0.0215	0.0050	0.1153	0.0028		0.4165	0.0000											
2912	US-14	Russian High Alumina - US	Riley et al. 2009	0.1302	0.1790	0.0040	0.0941		0.0100	0.0574	0.0050	0.1122	0.0000		0.3652	0.0050											
2913	US-15	Russian High Alumina - US	Riley et al. 2009	0.1000	0.1780	0.0050	0.0500		0.0100	0.0200	0.0000	0.1500	0.0000		0.4659	0.0000											
2914	US-16	Russian High Alumina - US	Riley et al. 2009	0.1332	0.1881	0.0100	0.0903		0.0100	0.0256	0.0000	0.0630	0.0000		0.4391	0.0050											
2915	US-17	Russian High Alumina - US	Riley et al. 2009	0.1166	0.1178	0.0000	0.0622		0.0000	0.0536	0.0050	0.0858	0.0108		0.4999	0.0050											
2916	US-18	Russian High Alumina - US	Riley et al. 2009	0.1600	0.0913	0.0100	0.0975		0.0000	0.0495	0.0000	0.1341	0.0000		0.4145	0.0000											
2917	US-19 (repl. KRI-02)	Russian High Alumina - US	Riley et al. 2009	0.1447	0.1440	0.0070	0.0823		0.0078	0.0364	0.0033	0.1080	0.0021		0.4281	0.0027											
2918	US-20 (repl. KRI-03)	Russian High Alumina - US	Riley et al. 2009	0.1447	0.1440	0.0070	0.0823		0.0078	0.0364	0.0033	0.1080	0.0021		0.4281	0.0027											
2919	US-21	Russian High Alumina - US	Riley et al. 2009	0.1422	0.1375	0.0038	0.0845		0.0075	0.0300	0.0037	0.1075	0.0050		0.4495	0.0013											
2920	US-22	Russian High Alumina - US	Riley et al. 2009	0.1334	0.1169	0.0075	0.0947		0.0075	0.0500	0.0037	0.1178	0.0092		0.4240	0.0013											
2921	US-23	Russian High Alumina - US	Riley et al. 2009	0.1450	0.1332	0.0075	0.0762		0.0025	0.0350	0.0012	0.1168	0.0050		0.4446	0.0013											
2922	US-24 (repl. KRI-04)	Russian High Alumina - US	Riley et al. 2009	0.1450	0.1225	0.0075	0.0779		0.0075	0.0300	0.0037	0.1157	0.0050		0.4443	0.0038											
2923	US-25	Russian High Alumina - US	Riley et al. 2009	0.1158	0.1625	0.0075	0.0854		0.0029	0.0500	0.0037	0.1088	0.0145		0.4079	0.0038											
2924	US-26	Russian High Alumina - US	Riley et al. 2009	0.1883	0.1069	0.0100	0.0500		0.0000	0.0600	0.0050	0.1102	0.0000		0.3805	0.0235											
2925	US-27	Russian High Alumina - US	Riley et al. 2009	0.1040	0.0648	0.0000	0.1518		0.0100	0.0600	0.0050	0.1687	0.0000		0.4004	0.0000											
2926	US-28	Russian High Alumina - US	Riley et al. 2009	0.1747	0.1796	0.0000	0.0572		0.0100	0.0200	0.0000	0.1336	0.0000		0.3597	0.0000											
2927	US-29	Russian High Alumina - US	Riley et al. 2009	0.1000	0.0873	0.0100	0.0500		0.0100	0.0600	0.0050	0.1868	0.0000		0.4526	0.0000											
2928	US-30	Russian High Alumina - US	Riley et al. 2009	0.1265	0.1819	0.0100	0.0533		0.0100	0.0600	0.0000	0.0500	0.0000		0.3752	0.0400											
2929	US-31	Russian High Alumina - US	Riley et al. 2009	0.1267	0.1452	0.0000	0.1545		0.0000	0.0491	0.0050	0.0710	0.0000		0.3860	0.0000											
2930	US-32	Russian High Alumina - US	Riley et al. 2009	0.1000	0.1901	0.0100	0.0500		0.0000	0.0600	0.0000	0.0750	0.0000		0.4397	0.0000											
2931	US-33	Russian High Alumina - US	Riley et al. 2009	0.1134	0.0500	0.0000	0.0500		0.0000	0.0200	0.0050	0.1976	0.0097		0.4591	0.0000											
2932	US-34	Russian High Alumina - US	Riley et al. 2009	0.1000	0.1369	0.0000	0.0639		0.0100	0.0242	0.0050	0.2000	0.0000		0.3499	0.0400											
2933	US-35 (repl. KRI-05)	Russian High Alumina - US	Riley et al. 2009	0.1002	0.1996	0.0100	0.1135		0.0000	0.0200	0.0050	0.0794	0.0000		0.3800	0.0000											
2934	US-36	Russian High Alumina - US	Riley et al. 2009	0.1286	0.1551	0.0021	0.0976		0.0052	0.0242	0.0005	0.1252	0.0056		0.3884	0.0400											
2935	US-37	Russian High Alumina - US	Riley et al. 2009	0.1000	0.0577	0.0100	0.1700		0.0000	0.0200	0.0000	0.1889	0.0000		0.3733	0.0400											
2936	US-38	Russian High Alumina - US	Riley et al. 2009	0.1000	0.0731	0.0079	0.0500		0.0100	0.0200	0.0000	0.1972	0.0291		0.3975	0.0000											
2937	US-39	Russian High Alumina - US	Riley et al. 2009	0.1155	0.1635	0.0000	0.0750		0.0100	0.0600	0.0050	0.0500	0.0183		0.4246	0.0400											
2938	US-40	Russian High Alumina - US	Riley et al. 2009	0.1552	0.1700	0.0000	0.1142		0.0100	0.0251	0.0000	0.1013	0.0000		0.3730	0.0000											
2939	US-41	Russian High Alumina - US	Riley et al. 2009	0.1000	0.1555	0.0100	0.1553		0.0100	0.0372	0.0000	0.0652	0.0000		0.4265	0.0000											
2940	US-42	Russian High Alumina - US	Riley et al. 2009	0.2000	0.0619	0.0100	0.0500		0.0100	0.0600	0.0000	0.1882	0.0000		0.3549	0.0000											
2941	US-43	Russian High Alumina - US	Riley et al. 2009	0.1717	0.0864	0.0100	0.0886		0.0100	0.0490	0.0050	0.1029	0.0020		0.3970	0.0400											
2942	US-44 (repl. KRI-06)	Russian High Alumina - US	Riley et al. 2009	0.1280	0.1259	0.0056	0.0886		0.0064	0.0405	0.0025	0.1273	0.0036		0.3955	0.0146											
2943	US-45 (repl. KRI-07)	Russian High Alumina - US	Riley et al. 2009	0.1280	0.1259	0.0056	0.0886		0.0064	0.0405	0.0025	0.1273	0.0036		0.3955	0.0146											
2944	HLW98-T01	T series	Kot et al. 2003b	0.0529	0.1206	0.0027	0.1230		0.0003	0.0346	0.0010	0.1175	0.0057	0.0001	0.4767	0.0330	0.0002	0.0000		0.0000		0.0000		0.0008	0.0000		0.0000
2945	HLW98-T02	T series	Kot et al. 2003b	0.0539	0.1222	0.0026	0.1238		0.0003	0.0339	0.0009	0.1185	0.0053	0.0001	0.4788	0.0279	0.0003	0.0000		0.0000		0.0000		0.0009	0.0000		0.0000
2946	HLW98-T03	T series	Kot et al. 2003b	0.0549	0.1237	0.0024	0.1245		0.0003	0.0333	0.0008	0.1194	0.0049	0.0002	0.4809	0.0228	0.0003	0.0000		0.0000		0.0000		0.0010	0.0000		0.0000
2947	HLW98-T04	T series	Kot et al. 2003b	0.0549	0.1219	0.0034	0.1258		0.0002	0.0313	0.0020	0.1202	0.0043	0.0004	0.4816	0.0136	0.0006	0.0005		0.0000		0.0000		0.0009	0.0000		0.0003
2948	HLW98-T05	T series	Kot et al. 2003b	0.0539	0.1185	0.0045	0.1264		0.0002	0.0301	0.0032	0.1201	0.0041	0.0006	0.4800	0.0095	0.0009		0.0010	0.0000		0.0000		0.0006	0.0000		0.0007
2949	HLW98-T06	T series	Kot et al. 2003b	0.0528	0.1150	0.0056	0.1269		0.0001	0.0288	0.0044	0.1200	0.0039	0.0008	0.4784	0.0054	0.0012	0.0015		0.0000		0.0000		0.0003	0.0000		0.0010
2950	HLW98-T07	T series	Kot et al. 2003b	0.0481	0.0957	0.0034	0.1165		0.0000	0.0303	0.0087	0.1156	0.0024	0.0008	0.4613	0.0241	0.0012	0.0014		0.0000		0.0000		0.0000	0.0000		0.0008
2951	HLW98-T08	T series	Kot et al. 2003b	0.0432	0.0974	0.0038	0.1075		0.0000	0.0305	0.0058	0.1129	0.0031	0.0007	0.4517	0.0455	0.0009	0.0010		0.0000		0.0000		0.0000	0.0000		0.0005
2952	HLW98-T09	T series	Kot et al. 2003b	0.0385	0.0992	0.0041	0.0985		0.0000	0.0308	0.0029	0.1101	0.0037	0.0005	0.4427	0.0670	0.0006	0.0005		0.0000		0.0000		0.0000	0.0000		0.0003

#	Glass ID	CoO-t	Co2O3-t	Cr2O3-t	Cs2O-t	CuO-t	Dy2O3-t	Eu2O3-t	F-t	Ga2O3-t	Gd2O3-t	HfO2-t	HgO-t	I-t	La2O3-t	MnO2-t	MnO-t	MoO-t	MoO2-t	MoO3-t	Nb2O5-t	Nd2O3-t	NpO2-t	PbO-t	PdO2-t	PdO-t	Pr2O3-t	Pr6O11-t	Rb2O-t	ReO-t
2871	KRI-03 (repl. US-20)			0.0007													0.0199							0.0007						
2872	KRI-04 (repl. US-24)			0.0008													0.0225							0.0008						
2873	KRI-05 (repl. US-35)			0.0052													0.0400							0.0000						
2874	KRI-06 (repl. US-44)			0.0031													0.0183							0.0067						
2875	KRI-07 (repl. (US-45)			0.0031													0.0183							0.0067						
2876	KRI-08			0.0047													0.0300							0.0075						
2877	KRI-09			0.0041													0.0100							0.0075						
2878	KRI-10			0.0061													0.0114							0.0025						
2879	KRI-11			0.0025													0.0100							0.0025						
2880	KRI-12			0.0026													0.0300							0.0025						
2881	KRI-13			0.0039													0.0300							0.0075						
2882	KRI-14			0.0034													0.0300							0.0075						
2883	KRI-15			0.0025													0.0111							0.0055						
2884	KRI-16			0.0025													0.0100							0.0075						
2885	KRI-17			0.0025													0.0182							0.0038						
2886	KRI-18			0.0032													0.0203							0.0075						
2887	KRI-19			0.0035													0.0300							0.0025						
2888	KRI-20			0.0032													0.0100							0.0075						
2889	KRI-21			0.0026													0.0127							0.0047						
2890	KRI-22			0.0025													0.0100							0.0025						
2891	KRI-23			0.0025													0.0100							0.0025						
2892	KRI-24			0.0025													0.0188							0.0075						
2893	KRI-25			0.0025													0.0112							0.0025						
2894	KRI-26			0.0000													0.0000							0.0000						
2895	KRI-27			0.0085													0.0066							0.0100						
2896	KRI-28			0.0100													0.0385							0.0100						
2897	KRI-29			0.0000													0.0000							0.0100						
2898	KRI-30			0.0000													0.0000							0.0100						
2899	US-01			0.0030													0.0250							0.0010						
2900	US-02			0.0000													0.0063							0.0000						
2901	US-03			0.0000													0.0000							0.0010						
2902	US-04			0.0000													0.0219							0.0010						
2903	US-05			0.0000													0.0241							0.0010						
2904	US-06			0.0000													0.0300							0.0000						
2905	US-07			0.0000													0.0300							0.0010						
2906	US-08 (repl. KRI-01)			0.0000													0.0244							0.0010						
2907	US-09			0.0030													0.0000							0.0010						
2908	US-10			0.0000													0.0274							0.0010						
2909	US-11			0.0000													0.0300							0.0010						
2910	US-12			0.0014													0.0000							0.0000						
2911	US-13			0.0000													0.0280							0.0010						
2912	US-14			0.0000													0.0260							0.0007						
2913	US-15			0.0030													0.0000							0.0010						
2914	US-16			0.0008													0.0248							0.0000						
2915	US-17			0.0011													0.0300							0.0000						
2916	US-18			0.0000													0.0300							0.0010						
2917	US-19 (repl. KRI-02)			0.0007													0.0199							0.0007						
2918	US-20 (repl. KRI-03)			0.0007													0.0199							0.0007						
2919	US-21			0.0008													0.0178							0.0008						
2920	US-22			0.0008													0.0225							0.0003						
2921	US-23			0.0008													0.0225							0.0008						
2922	US-24 (repl. KRI-04)			0.0008													0.0225							0.0008						
2923	US-25			0.0022													0.0216							0.0003						
2924	US-26			0.0055													0.0000							0.0000						
2925	US-27			0.0100													0.0000							0.0000						
2926	US-28			0.0000													0.0000							0.0000						
2927	US-29			0.0067													0.0000							0.0100						
2928	US-30			0.0082													0.0350							0.0000						
2929	US-31			0.0000													0.0074							0.0100						
2930	US-32			0.0000													0.0400							0.0100						
2931	US-33			0.0100													0.0400							0.0100						
2932	US-34			0.0000													0.0400							0.0000						
2933	US-35 (repl. KRI-05)			0.0052													0.0400							0.0000						
2934	US-36			0.0051													0.0121							0.0100						
2935	US-37			0.0000													0.0000							0.0100						
2936	US-38			0.0000													0.0400							0.0100						
2937	US-39			0.0000													0.0000							0.0100						
2938	US-40			0.0043													0.0276							0.0100						
2939	US-41			0.0000													0.0000							0.0100						
2940	US-42			0.0000													0.0400							0.0100						
2941	US-43			0.0000													0.0081							0.0100						
2942	US-44 (repl. KRI-06)			0.0031													0.0183							0.0067						
2943	US-45 (repl. KRI-07)			0.0031													0.0183							0.0067						
2944	HLW98-T01	0.0000		0.0000	0.0000	0.0002			0.0003			0.0000			0.0040		0.0022		0.0000		0.0027			0.0004		0.0000	0.0000				
2945	HLW98-T02	0.0000		0.0000	0.0000	0.0002			0.0002			0.0000			0.0039		0.0026		0.0000		0.0024			0.0005		0.0000	0.0000				
2946	HLW98-T03	0.0000		0.0000	0.0000	0.0001			0.0001			0.0000			0.0038		0.0031		0.0000		0.0020			0.0006		0.0000	0.0000				
2947	HLW98-T04	0.0000		0.0001	0.0000	0.0001			0.0000			0.0000			0.0034		0.0103		0.0000		0.0016			0.0012		0.0000	0.0000				
2948	HLW98-T05	0.0000		0.0002	0.0000	0.0002			0.0000			0.0000			0.0031		0.0170		0.0000		0.0016			0.0016		0.0000	0.0000				
2949	HLW98-T06	0.0000		0.0003	0.0000	0.0004			0.0000			0.0000			0.0028		0.0237		0.0000		0.0016			0.0021		0.0000	0.0000				
2950	HLW98-T07	0.0000		0.0007	0.0000	0.0004			0.0003			0.0000			0.0022		0.0335		0.0000		0.0014			0.0014		0.0000	0.0000				
2951	HLW98-T08	0.0000		0.0007	0.0000	0.0004			0.0006			0.0000			0.0020		0.0271		0.0000		0.0013			0.0013		0.0000	0.0000				
2952	HLW98-T09	0.0000		0.0006	0.0000	0.0003			0.0008			0.0000			0.0017		0.0207		0.0000		0.0011			0.0012		0.0000	0.0000				

#	Glass ID	ReO2-t	Re2O7-t	Rh2O3-t	RhO2-t	RuO2-t	Ru2O3-t	Sb2O3-t	Sb2O5-t	SeO2-t	Sm2O3-t	SnO-t	SnO2-t	SO3-t	SrO-t	Tc2O7-t	TeO2-t	ThO2-t	TiO2-t	Tl2O-t	Tl2O3-t	U3O8-t	UO2-t	UO3-t	V2O5-t	WO3-t	Y2O3-t	ZnO-t	Sum-t	Al2O3-a
2871	KRI-03 (repl. US-20)													0.0028	0.0006				0.0080					0.0000				0.0007	1.0000	
2872	KRI-04 (repl. US-24)													0.0037	0.0008				0.0075					0.0000				0.0008	1.0000	
2873	KRI-05 (repl. US-35)													0.0000	0.0270				0.0000					0.0000				0.0200	1.0000	
2874	KRI-06 (repl. US-44)													0.0022	0.0162				0.0047					0.0000				0.0102	1.0000	
2875	KRI-07 (repl. (US-45)													0.0022	0.0162				0.0047					0.0000				0.0102	1.0000	
2876	KRI-08													0.0013	0.0075				0.0075					0.0000				0.0150	1.0000	
2877	KRI-09													0.0013	0.0075				0.0075					0.0000				0.0150	1.0000	
2878	KRI-10													0.0013	0.0179				0.0025					0.0000				0.0107	1.0000	
2879	KRI-11													0.0013	0.0075				0.0025					0.0000				0.0050	1.0000	
2880	KRI-12													0.0013	0.0225				0.0025					0.0000				0.0050	1.0000	
2881	KRI-13													0.0038	0.0075				0.0075					0.0000				0.0150	1.0000	
2882	KRI-14													0.0038	0.0075				0.0075					0.0000				0.0142	1.0000	
2883	KRI-15													0.0033	0.0077				0.0025					0.0000				0.0070	1.0000	
2884	KRI-16													0.0038	0.0225				0.0075					0.0000				0.0150	1.0000	
2885	KRI-17													0.0038	0.0225				0.0025					0.0000				0.0050	1.0000	
2886	KRI-18													0.0038	0.0075				0.0025					0.0000				0.0050	1.0000	
2887	KRI-19													0.0013	0.0225				0.0075					0.0000				0.0050	1.0000	
2888	KRI-20													0.0013	0.0225				0.0025					0.0000				0.0050	1.0000	
2889	KRI-21													0.0038	0.0082				0.0032					0.0000				0.0057	1.0000	
2890	KRI-22													0.0038	0.0225				0.0075					0.0000				0.0050	1.0000	
2891	KRI-23													0.0038	0.0075				0.0025					0.0000				0.0150	1.0000	
2892	KRI-24													0.0038	0.0118				0.0061					0.0000				0.0120	1.0000	
2893	KRI-25													0.0019	0.0075				0.0025					0.0000				0.0050	1.0000	
2894	KRI-26													0.0050	0.0300				0.0000					0.0156				0.0000	1.0000	
2895	KRI-27													0.0050	0.0000				0.0100					0.0099				0.0000	1.0000	
2896	KRI-28													0.0050	0.0000				0.0100					0.0243				0.0000	1.0000	
2897	KRI-29													0.0000	0.0220				0.0100					0.0300				0.0000	1.0000	
2898	KRI-30													0.0050	0.0300				0.0000					0.0267				0.0200	1.0000	
2899	US-01					0.0002								0.0000	0.0010				0.0000									0.0000	1.0000	
2900	US-02					0.0002								0.0000	0.0000				0.0000									0.0010	1.0000	
2901	US-03					0.0002								0.0000	0.0010				0.0100									0.0000	1.0000	
2902	US-04					0.0002								0.0050	0.0010				0.0100									0.0010	1.0000	
2903	US-05					0.0002								0.0050	0.0010				0.0100									0.0010	1.0000	
2904	US-06					0.0002								0.0050	0.0010				0.0100									0.0000	1.0000	
2905	US-07					0.0002								0.0050	0.0010				0.0100									0.0010	1.0000	
2906	US-08 (repl. KRI-01)					0.0002								0.0050	0.0000				0.0100									0.0000	1.0000	
2907	US-09					0.0002								0.0050	0.0000				0.0100									0.0000	1.0000	
2908	US-10					0.0002								0.0050	0.0010				0.0100									0.0010	1.0000	
2909	US-11					0.0002								0.0050	0.0000				0.0000									0.0010	1.0000	
2910	US-12					0.0002								0.0050	0.0010				0.0050									0.0010	1.0000	
2911	US-13					0.0002								0.0000	0.0000				0.0100									0.0010	1.0000	
2912	US-14					0.0002								0.0000	0.0000				0.0100									0.0010	1.0000	
2913	US-15					0.0002								0.0050	0.0010				0.0100									0.0010	1.0000	
2914	US-16					0.0002								0.0000	0.0000				0.0100									0.0000	1.0000	
2915	US-17					0.0002								0.0000	0.0010				0.0100									0.0010	1.0000	
2916	US-18					0.0002								0.0000	0.0010				0.0100									0.0010	1.0000	
2917	US-19 (repl. KRI-02)					0.0002								0.0028	0.0006				0.0080									0.0007	1.0000	
2918	US-20 (repl. KRI-03)					0.0002								0.0028	0.0006				0.0080									0.0007	1.0000	
2919	US-21					0.0002								0.0012	0.0008				0.0054									0.0003	1.0000	
2920	US-22					0.0002								0.0012	0.0008				0.0075									0.0008	1.0000	
2921	US-23					0.0002								0.0037	0.0003				0.0025									0.0008	1.0000	
2922	US-24 (repl. KRI-04)					0.0002								0.0037	0.0008				0.0075									0.0008	1.0000	
2923	US-25					0.0002								0.0037	0.0008				0.0075									0.0008	1.0000	
2924	US-26					0.0002								0.0000	0.0300				0.0100									0.0200	1.0000	
2925	US-27					0.0002								0.0050	0.0000				0.0000									0.0200	1.0000	
2926	US-28					0.0002								0.0050	0.0300				0.0100									0.0200	1.0000	
2927	US-29					0.0002								0.0000	0.0118				0.0096									0.0000	1.0000	
2928	US-30					0.0002								0.0050	0.0300				0.0100									0.0048	1.0000	
2929	US-31					0.0002								0.0050	0.0300				0.0100									0.0000	1.0000	
2930	US-32					0.0002								0.0050	0.0000				0.0000									0.0200	1.0000	
2931	US-33					0.0002								0.0050	0.0300				0.0000									0.0000	1.0000	
2932	US-34					0.0002								0.0000	0.0300				0.0000									0.0000	1.0000	
2933	US-35 (repl. KRI-05)					0.0002								0.0000	0.0270				0.0000									0.0200	1.0000	
2934	US-36					0.0002								0.0000	0.0001				0.0001									0.0001	1.0000	
2935	US-37					0.0002								0.0000	0.0000				0.0100									0.0200	1.0000	
2936	US-38					0.0002								0.0050	0.0300				0.0100									0.0200	1.0000	
2937	US-39					0.0002								0.0000	0.0080				0.0000									0.0200	1.0000	
2938	US-40					0.0002								0.0000	0.0000				0.0092									0.0000	1.0000	
2939	US-41					0.0002								0.0000	0.0300				0.0000									0.0000	1.0000	
2940	US-42					0.0002								0.0000	0.0000				0.0000									0.0149	1.0000	
2941	US-43					0.0002								0.0050	0.0047				0.0048									0.0045	1.0000	
2942	US-44 (repl. KRI-06)					0.0002								0.0022	0.0162				0.0047									0.0102	1.0000	
2943	US-45 (repl. KRI-07)					0.0002								0.0022	0.0162				0.0047									0.0102	1.0000	
2944	HLW98-T01			0.0000		0.0000		0.0000		0.0000		0.0000	0.0007	0.0002		0.0000	0.0000	0.0000	0.0000					0.0000	0.0000			0.0202	1.0000	
2945	HLW98-T02			0.0000		0.0000		0.0000		0.0000		0.0000	0.0006	0.0002		0.0000	0.0000	0.0000	0.0000					0.0000	0.0000			0.0201	1.0000	
2946	HLW98-T03			0.0000		0.0000		0.0000		0.0000		0.0000	0.0005	0.0001		0.0000	0.0000	0.0000	0.0000					0.0000	0.0000			0.0201	1.0000	
2947	HLW98-T04			0.0000		0.0000		0.0003		0.0005		0.0000	0.0003	0.0000		0.0000	0.0000	0.0001	0.0000					0.0000	0.0000			0.0201	1.0000	
2948	HLW98-T05			0.0000		0.0000		0.0005		0.0011		0.0000	0.0002	0.0000		0.0000	0.0000	0.0001	0.0000					0.0000	0.0000			0.0202	1.0000	
2949	HLW98-T06			0.0000		0.0000		0.0008		0.0016		0.0000	0.0001	0.0000		0.0000	0.0000	0.0002	0.0000					0.0000	0.0000			0.0202	1.0000	
2950	HLW98-T07			0.0000		0.0000		0.0019		0.0028		0.0000	0.0000	0.0069		0.0000	0.0101	0.0011	0.0000					0.0065	0.0000			0.0206	1.0000	
2951	HLW98-T08			0.0000		0.0000		0.0013		0.0018		0.0000	0.0000	0.0046		0.0000	0.0203	0.0008	0.0000					0.0129	0.0000			0.0205	1.0000	
2952	HLW98-T09			0.0000		0.0000		0.0006		0.0009		0.0000	0.0000	0.0023		0.0000	0.0304	0.0005	0.0000					0.0193	0.0000			0.0203	1.0000	

#	Glass ID	B2O3-a	CaO-a	Fe2O3-a	FeO-a	K2O-a	Li2O-a	MgO-a	Na2O-a	NiO-a	P2O5-a	SiO2-a	ZrO2-a	Ag2O-a	As2O3-a	As2O5-a	BaO-a	BeO-a	Bi2O3-a	Br-a	CdO-a	Ce2O3-a	CeO2-a	Cl-a	CoO-a	Co2O3-a	Cr2O3-a	Cs2O-a	CuO-a	F-a
2871	KRI-03 (repl. US-20)																													
2872	KRI-04 (repl. US-24)																													
2873	KRI-05 (repl. US-35)																													
2874	KRI-06 (repl. US-44)																													
2875	KRI-07 (repl. (US-45)																													
2876	KRI-08																													
2877	KRI-09																													
2878	KRI-10																													
2879	KRI-11																													
2880	KRI-12																													
2881	KRI-13																													
2882	KRI-14																													
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2884	KRI-16																													
2885	KRI-17																													
2886	KRI-18																													
2887	KRI-19																													
2888	KRI-20																													
2889	KRI-21																													
2890	KRI-22																													
2891	KRI-23																													
2892	KRI-24																													
2893	KRI-25																													
2894	KRI-26																													
2895	KRI-27																													
2896	KRI-28																													
2897	KRI-29																													
2898	KRI-30																													
2899	US-01																													
2900	US-02																													
2901	US-03																													
2902	US-04																													
2903	US-05																													
2904	US-06																													
2905	US-07																													
2906	US-08 (repl. KRI-01)																													
2907	US-09																													
2908	US-10																													
2909	US-11																													
2910	US-12																													
2911	US-13																													
2912	US-14																													
2913	US-15																													
2914	US-16																													
2915	US-17																													
2916	US-18																													
2917	US-19 (repl. KRI-02)																													
2918	US-20 (repl. KRI-03)																													
2919	US-21																													
2920	US-22																													
2921	US-23																													
2922	US-24 (repl. KRI-04)																													
2923	US-25																													
2924	US-26																													
2925	US-27																													
2926	US-28																													
2927	US-29																													
2928	US-30																													
2929	US-31																													
2930	US-32																													
2931	US-33																													
2932	US-34																													
2933	US-35 (repl. KRI-05)																													
2934	US-36																													
2935	US-37																													
2936	US-38																													
2937	US-39																													
2938	US-40																													
2939	US-41																													
2940	US-42																													
2941	US-43																													
2942	US-44 (repl. KRI-06)																													
2943	US-45 (repl. KRI-07)																													
2944	HLW98-T01																													
2945	HLW98-T02																													
2946	HLW98-T03																													
2947	HLW98-T04																													
2948	HLW98-T05																													
2949	HLW98-T06																													
2950	HLW98-T07																													
2951	HLW98-T08																													
2952	HLW98-T09																													

#	Glass ID	Ga2O3-a	Gd2O3-a	I-a	La2O3-a	MnO2-a	MnO-a	MoO-a	MoO3-a	Nb2O5-a	Nd2O3-a	NpO2-a	PbO-a	PdO2-a	PdO-a	Pr2O3-a	Pr6O11-a	PuO2-a	Rb2O-a	ReO-a	ReO2-a	Re2O7-a	Rh2O3-a	RhO2-a	RuO2-a	Sb2O3-a	Sb2O5-a	SeO2-a
2871	KRI-03 (repl. US-20)																											
2872	KRI-04 (repl. US-24)																											
2873	KRI-05 (repl. US-35)																											
2874	KRI-06 (repl. US-44)																											
2875	KRI-07 (repl. (US-45)																											
2876	KRI-08																											
2877	KRI-09																											
2878	KRI-10																											
2879	KRI-11																											
2880	KRI-12																											
2881	KRI-13																											
2882	KRI-14																											
2883	KRI-15																											
2884	KRI-16																											
2885	KRI-17																											
2886	KRI-18																											
2887	KRI-19																											
2888	KRI-20																											
2889	KRI-21																											
2890	KRI-22																											
2891	KRI-23																											
2892	KRI-24																											
2893	KRI-25																											
2894	KRI-26																											
2895	KRI-27																											
2896	KRI-28																											
2897	KRI-29																											
2898	KRI-30																											
2899	US-01																											
2900	US-02																											
2901	US-03																											
2902	US-04																											
2903	US-05																											
2904	US-06																											
2905	US-07																											
2906	US-08 (repl. KRI-01)																											
2907	US-09																											
2908	US-10																											
2909	US-11																											
2910	US-12																											
2911	US-13																											
2912	US-14																											
2913	US-15																											
2914	US-16																											
2915	US-17																											
2916	US-18																											
2917	US-19 (repl. KRI-02)																											
2918	US-20 (repl. KRI-03)																											
2919	US-21																											
2920	US-22																											
2921	US-23																											
2922	US-24 (repl. KRI-04)																											
2923	US-25																											
2924	US-26																											
2925	US-27																											
2926	US-28																											
2927	US-29																											
2928	US-30																											
2929	US-31																											
2930	US-32																											
2931	US-33																											
2932	US-34																											
2933	US-35 (repl. KRI-05)																											
2934	US-36																											
2935	US-37																											
2936	US-38																											
2937	US-39																											
2938	US-40																											
2939	US-41																											
2940	US-42																											
2941	US-43																											
2942	US-44 (repl. KRI-06)																											
2943	US-45 (repl. KRI-07)																											
2944	HLW98-T01																											
2945	HLW98-T02																											
2946	HLW98-T03																											
2947	HLW98-T04																											
2948	HLW98-T05																											
2949	HLW98-T06																											
2950	HLW98-T07																											
2951	HLW98-T08																											
2952	HLW98-T09																											

#	Glass ID	Sm2O3-a	SnO-a	SnO2-a	SO3-a	SrO-a	Tc2O7-a	TeO2-a	ThO2-a	TiO2-a	Tl2O-a	Tl2O3-a	U3O8-a	UO2-a	UO3-a	V2O5-a	WO3-a	Y2O3-a	ZnO-a	Sum-a	T_M (°C)	$T_{L,G}$ (°C)	$T_{L,U}$ (°C)	$T_{1\%}$ (°C)	Primary Phase	$C_{650°C}$	$C_{700°C}$	$C_{750°C}$
2871	KRI-03 (repl. US-20)																			0.0000								
2872	KRI-04 (repl. US-24)																			0.0000								
2873	KRI-05 (repl. US-35)																			0.0000								
2874	KRI-06 (repl. US-44)																			0.0000								
2875	KRI-07 (repl. (US-45)																			0.0000								
2876	KRI-08																			0.0000								
2877	KRI-09																			0.0000								
2878	KRI-10																			0.0000								
2879	KRI-11																			0.0000								
2880	KRI-12																			0.0000								
2881	KRI-13																			0.0000								
2882	KRI-14																			0.0000								
2883	KRI-15																			0.0000								
2884	KRI-16																			0.0000								
2885	KRI-17																			0.0000								
2886	KRI-18																			0.0000								
2887	KRI-19																			0.0000								
2888	KRI-20																			0.0000								
2889	KRI-21																			0.0000								
2890	KRI-22																			0.0000								
2891	KRI-23																			0.0000								
2892	KRI-24																			0.0000								
2893	KRI-25																			0.0000								
2894	KRI-26																			0.0000								
2895	KRI-27																			0.0000								
2896	KRI-28																			0.0000								
2897	KRI-29																			0.0000								
2898	KRI-30																			0.0000								
2899	US-01																			0.0000								
2900	US-02																			0.0000								
2901	US-03																			0.0000								
2902	US-04																			0.0000								
2903	US-05																			0.0000								
2904	US-06																			0.0000								
2905	US-07																			0.0000								
2906	US-08 (repl. KRI-01)																			0.0000								
2907	US-09																			0.0000								
2908	US-10																			0.0000								
2909	US-11																			0.0000								
2910	US-12																			0.0000								
2911	US-13																			0.0000								
2912	US-14																			0.0000								
2913	US-15																			0.0000								
2914	US-16																			0.0000								
2915	US-17																			0.0000								
2916	US-18																			0.0000								
2917	US-19 (repl. KRI-02)																			0.0000								
2918	US-20 (repl. KRI-03)																			0.0000								
2919	US-21																			0.0000								
2920	US-22																			0.0000								
2921	US-23																			0.0000								
2922	US-24 (repl. KRI-04)																			0.0000								
2923	US-25																			0.0000								
2924	US-26																			0.0000								
2925	US-27																			0.0000								
2926	US-28																			0.0000								
2927	US-29																			0.0000								
2928	US-30																			0.0000								
2929	US-31																			0.0000								
2930	US-32																			0.0000								
2931	US-33																			0.0000								
2932	US-34																			0.0000								
2933	US-35 (repl. KRI-05)																			0.0000								
2934	US-36																			0.0000								
2935	US-37																			0.0000								
2936	US-38																			0.0000								
2937	US-39																			0.0000								
2938	US-40																			0.0000								
2939	US-41																			0.0000								
2940	US-42																			0.0000								
2941	US-43																			0.0000								
2942	US-44 (repl. KRI-06)																			0.0000								
2943	US-45 (repl. KRI-07)																			0.0000								
2944	HLW98-T01																			0.0000			975					
2945	HLW98-T02																			0.0000			938					
2946	HLW98-T03																			0.0000			925					
2947	HLW98-T04																			0.0000			925					
2948	HLW98-T05																			0.0000								
2949	HLW98-T06																			0.0000			990					
2950	HLW98-T07																			0.0000								
2951	HLW98-T08																			0.0000								
2952	HLW98-T09																			0.0000								

#	Glass ID	$C_{800°C}$	$C_{850°C}$	$C_{900°C}$	$C_{950°C}$	$C_{1000°C}$	$C_{1050°C}$	$C_{1100°C}$	$C_{1150°C}$	$C_{1200°C}$	Quenched Visual/OM	Quenched XRD	CCC XRD	ρ (g/cm³)	Fulc Visc A	Fulc Visc B	Fulc Visc To	Arrh Visc E	Arrh Visc F	T1 (°C)	V1 (Pa·s)
2871	KRI-03 (repl. US-20)																			860.0	257.249
2872	KRI-04 (repl. US-24)																				
2873	KRI-05 (repl. US-35)																				
2874	KRI-06 (repl. US-44)																				
2875	KRI-07 (repl. (US-45)																			820.0	170.477
2876	KRI-08																				
2877	KRI-09																				
2878	KRI-10																				
2879	KRI-11																			900.0	223.011
2880	KRI-12																				
2881	KRI-13																				
2882	KRI-14																				
2883	KRI-15																				
2884	KRI-16																				
2885	KRI-17																				
2886	KRI-18																				
2887	KRI-19																				
2888	KRI-20																				
2889	KRI-21																				
2890	KRI-22																				
2891	KRI-23																				
2892	KRI-24																			950.0	156.066
2893	KRI-25																				
2894	KRI-26																				
2895	KRI-27																				
2896	KRI-28																				
2897	KRI-29																				
2898	KRI-30																				
2899	US-01																				
2900	US-02																				
2901	US-03																				
2902	US-04																				
2903	US-05																				
2904	US-06																				
2905	US-07																				
2906	US-08 (repl. KRI-01)																				
2907	US-09																				
2908	US-10																				
2909	US-11																				
2910	US-12																				
2911	US-13																				
2912	US-14																				
2913	US-15																				
2914	US-16																				
2915	US-17																				
2916	US-18												nepheline								
2917	US-19 (repl. KRI-02)																				
2918	US-20 (repl. KRI-03)																				
2919	US-21																				
2920	US-22																				
2921	US-23																				
2922	US-24 (repl. KRI-04)																				
2923	US-25																				
2924	US-26												nepheline								
2925	US-27												nepheline								
2926	US-28																				
2927	US-29																				
2928	US-30																				
2929	US-31																				
2930	US-32																				
2931	US-33																				
2932	US-34																				
2933	US-35 (repl. KRI-05)																				
2934	US-36																				
2935	US-37												nepheline								
2936	US-38																				
2937	US-39																				
2938	US-40																				
2939	US-41																				
2940	US-42												nepheline								
2941	US-43												nepheline								
2942	US-44 (repl. KRI-06)																				
2943	US-45 (repl. KRI-07)																				
2944	HLW98-T01																				
2945	HLW98-T02													2.690							
2946	HLW98-T03													2.660							
2947	HLW98-T04																				
2948	HLW98-T05														-4.037	7859.9	150.0			1245.0	2.292
2949	HLW98-T06																				
2950	HLW98-T07																				
2951	HLW98-T08																				
2952	HLW98-T09																				

#	Glass ID	T2 (°C)	V2 (Pa·s)	T3 (°C)	V3 (Pa·s)	T4 (°C)	V4 (Pa·s)	T5 (°C)	V5 (Pa·s)	T6 (°C)	V6 (Pa·s)	T7 (°C)	V7 (Pa·s)	T8 (°C)	V8 (Pa·s)	T9 (°C)	V9 (Pa·s)	T10 (°C)	V10 (Pa·s)	TCLP Ag	TCLP As	TCLP Ba	TCLP Cd	TCLP Cr	TCLP Ni	TCLP Pb
2871	KRI-03 (repl. US-20)	900	136.272	950	70.0	1000.0	40.1	1050.0	25.0	1100.0	16.6	1150.0	11.7	1190.0	9.1											
2872	KRI-04 (repl. US-24)																									
2873	KRI-05 (repl. US-35)																									
2874	KRI-06 (repl. US-44)																									
2875	KRI-07 (repl. (US-45)	850	88.507	900	36.9	950.0	18.7	1000.0	10.9	1050.0	7.0	1100.0	4.8													
2876	KRI-08																									
2877	KRI-09																									
2878	KRI-10																									
2879	KRI-11	950	88.624	1000	43.7	1050.0	25.0	1100.0	15.9																	
2880	KRI-12																									
2881	KRI-13																									
2882	KRI-14																									
2883	KRI-15																									
2884	KRI-16																									
2885	KRI-17																									
2886	KRI-18																									
2887	KRI-19																									
2888	KRI-20																									
2889	KRI-21																									
2890	KRI-22																									
2891	KRI-23																									
2892	KRI-24	1000	63.891	1050	35.1	1100.0	22.8																			
2893	KRI-25																									
2894	KRI-26																									
2895	KRI-27																									
2896	KRI-28																									
2897	KRI-29																									
2898	KRI-30																									
2899	US-01																									
2900	US-02																									
2901	US-03																									
2902	US-04																									
2903	US-05																									
2904	US-06																									
2905	US-07																									
2906	US-08 (repl. KRI-01)																									
2907	US-09																									
2908	US-10																									
2909	US-11																									
2910	US-12																									
2911	US-13																									
2912	US-14																									
2913	US-15																									
2914	US-16																									
2915	US-17																									
2916	US-18																									
2917	US-19 (repl. KRI-02)																									
2918	US-20 (repl. KRI-03)																									
2919	US-21																									
2920	US-22																									
2921	US-23																									
2922	US-24 (repl. KRI-04)																									
2923	US-25																									
2924	US-26																									
2925	US-27																									
2926	US-28																									
2927	US-29																									
2928	US-30																									
2929	US-31																									
2930	US-32																									
2931	US-33																									
2932	US-34																									
2933	US-35 (repl. KRI-05)																									
2934	US-36																									
2935	US-37																									
2936	US-38																									
2937	US-39																									
2938	US-40																									
2939	US-41																									
2940	US-42																									
2941	US-43																									
2942	US-44 (repl. KRI-06)																									
2943	US-45 (repl. KRI-07)																									
2944	HLW98-T01																									
2945	HLW98-T02																			0.0054		0.019	0.0246		0.0734	0.0139
2946	HLW98-T03																									
2947	HLW98-T04																									
2948	HLW98-T05	1141	4.977	1036	12.6	932.0	40.8													0.042	0.076		0.015	<.0055		0.051
2949	HLW98-T06																			0.144	0.0145	0.0168	0.0121		0.0624	0.0599
2950	HLW98-T07																			0.063	<0.049			0.007		0.029
2951	HLW98-T08																			0.0139		0.0038	0.0326		0.109	0.017
2952	HLW98-T09																			0.009	0.117			<0.0055		0.051

#	Glass ID	TCLP Se	TCLP Zn	TCLP Al	TCLP B	TCLP Sb	TCLP Tl	TCLP V	Q PCT B (g/m²)	Q PCT Li (g/m²)	Q PCT Na (g/m²)	Q PCT Si (g/m²)	Q PCT pH	CCC PCT B (g/m²)	CCC PCT Li (g/m²)	CCC PCT Na (g/m²)	CCC PCT Si (g/m²)	CCC PCT pH	T1 (°C)
2871	KRI-03 (repl. US-20)																		
2872	KRI-04 (repl. US-24)																		
2873	KRI-05 (repl. US-35)																		
2874	KRI-06 (repl. US-44)																		
2875	KRI-07 (repl. (US-45)																		
2876	KRI-08																		
2877	KRI-09																		
2878	KRI-10																		
2879	KRI-11																		
2880	KRI-12																		
2881	KRI-13																		
2882	KRI-14																		
2883	KRI-15																		
2884	KRI-16																		
2885	KRI-17																		
2886	KRI-18																		
2887	KRI-19																		
2888	KRI-20																		
2889	KRI-21																		
2890	KRI-22																		
2891	KRI-23																		
2892	KRI-24																		
2893	KRI-25																		
2894	KRI-26																		
2895	KRI-27																		
2896	KRI-28																		
2897	KRI-29																		
2898	KRI-30																		
2899	US-01								0.235	0.277	0.267	0.202		0.231	0.271	0.253	0.197		
2900	US-02								0.867	0.758	0.447	0.172		0.699	0.613	0.381	0.172		
2901	US-03								0.178	0.214	0.122	0.135		0.162	0.238	0.082	0.128		
2902	US-04								0.175	0.250	0.143	0.126		0.166	0.229	0.142	0.122		
2903	US-05								0.170	0.348	0.099	0.120		0.245	0.340	0.179	0.137		
2904	US-06								0.168	0.255	0.145	0.114		0.154	0.224	0.137	0.112		
2905	US-07								0.177	0.258	0.147	0.117		0.161	0.226	0.135	0.113		
2906	US-08 (repl. KRI-01)								0.217	0.304	0.163	0.190		0.204	0.267	0.162	0.178		
2907	US-09								0.217	0.279	0.201	0.140		0.221	0.266	0.131	0.122		
2908	US-10								0.178	0.248	0.195	0.122		0.174	0.240	0.190	0.119		
2909	US-11								0.165	0.289	0.127	0.097		0.399	0.457	0.256	0.115		
2910	US-12								0.636	0.560	0.448	0.178		0.873	0.748	0.548	0.192		
2911	US-13								0.176	0.250	0.165	0.121		0.149	0.217	0.146	0.112		
2912	US-14								1.562	1.325	0.918	0.170		1.309	1.114	0.784	0.169		
2913	US-15								2.327	1.964	1.314	0.109		1.825	1.550	1.050	0.116		
2914	US-16								0.320	0.401	0.155	0.126		0.432	0.470	0.226	0.133		
2915	US-17								0.247	0.312	0.144	0.196		0.241	0.282	0.156	0.188		
2916	US-18								0.262	0.298	0.291	0.202		5.330	4.106	1.664	0.431		
2917	US-19 (repl. KRI-02)								0.222	0.290	0.172	0.160		0.207	0.267	0.171	0.149		
2918	US-20 (repl. KRI-03)								0.223	0.297	0.177	0.156		0.209	0.275	0.172	0.150		
2919	US-21								0.208	0.303	0.159	0.180		0.198	0.280	0.154	0.150		
2920	US-22								0.283	0.286	0.258	0.180		0.266	0.274	0.286	0.208		
2921	US-23								0.225	0.304	0.181	0.176		0.219	0.282	0.179	0.161		
2922	US-24 (repl. KRI-04)								0.198	0.279	0.169	0.145		0.204	0.274	0.177	0.148		
2923	US-25								0.573	0.517	0.390	0.171		0.707	0.619	0.462	0.212		
2924	US-26								0.210	0.260	0.209	0.133		1.801	1.273	0.606	0.165		
2925	US-27								0.625	0.515	0.782	0.415		8.226	3.571	3.732	1.152		
2926	US-28								0.854	0.753	0.525	0.133		0.689	0.629	0.454	0.139		
2927	US-29								0.914	0.735	1.044	0.386		0.768	0.687	0.874	0.371		
2928	US-30								0.288	0.286	0.195	0.114		0.320	0.311	0.221	0.127		
2929	US-31								0.249	0.318	0.148	0.143		0.154	0.247	0.101	0.125		
2930	US-32								1.784	1.490	0.933	0.171		1.410	1.181	0.754	0.169		
2931	US-33								0.181	0.260	0.449	0.178		0.172	0.285	0.426	0.185		
2932	US-34								2.078	1.710	1.483	0.235		1.923	1.599	1.360	0.224		
2933	US-35 (repl. KRI-05)								0.401	0.455	0.317	0.104		1.980	1.773	1.259	0.110		
2934	US-36								0.325	0.347	0.211	0.113		0.401	0.394	0.247	0.119		
2935	US-37								0.363	0.330	0.466	0.199		1.064	0.830	0.707	0.261		
2936	US-38								0.395	0.359	0.542	0.217		0.400	0.407	0.562	0.247		
2937	US-39								0.248	0.276	0.110	0.137		0.219	0.259	0.091	0.138		
2938	US-40								0.547	0.537	0.320	0.150		0.770	0.694	0.418	0.146		
2939	US-41								0.163	0.246	0.104	0.106		0.140	0.245	0.090	0.103		
2940	US-42								0.649	0.548	0.828	0.356		0.463	1.001	1.822	0.098		
2941	US-43								0.203	0.298	0.180	0.140		0.878	0.890	0.263	0.172		
2942	US-44 (repl. KRI-06)								0.262	0.283	0.250	0.141		0.256	0.284	0.247	0.146		
2943	US-45 (repl. KRI-07)								0.237	0.285	0.247	0.143		0.226	0.274	0.230	0.142		
2944	HLW98-T01																		
2945	HLW98-T02	0.0059	0.326	0.236	0.684	0.006													
2946	HLW98-T03																		
2947	HLW98-T04																		
2948	HLW98-T05	0.145							0.342	0.321	0.277	0.165	10.140						1240
2949	HLW98-T06	0.0186	0.364	0.197	0.726	0.013													
2950	HLW98-T07	<0.0532																	
2951	HLW98-T08		0.5	0.381	1.09														
2952	HLW98-T09	<0.0532																	

#	Glass ID	EC1 (S/cm)	T2 (°C)	EC2 (S/cm)	T3 (°C)	EC3 (S/cm)	T4 (°C)	EC4 (S/cm)	T5 (°C)	EC5 (S/cm)	T6 (°C)	EC6 (S/cm)	A	B	To
2871	KRI-03 (repl. US-20)														
2872	KRI-04 (repl. US-24)														
2873	KRI-05 (repl. US-35)														
2874	KRI-06 (repl. US-44)														
2875	KRI-07 (repl. (US-45)														
2876	KRI-08														
2877	KRI-09														
2878	KRI-10														
2879	KRI-11														
2880	KRI-12														
2881	KRI-13														
2882	KRI-14														
2883	KRI-15														
2884	KRI-16														
2885	KRI-17														
2886	KRI-18														
2887	KRI-19														
2888	KRI-20														
2889	KRI-21														
2890	KRI-22														
2891	KRI-23														
2892	KRI-24														
2893	KRI-25														
2894	KRI-26														
2895	KRI-27														
2896	KRI-28														
2897	KRI-29														
2898	KRI-30														
2899	US-01														
2900	US-02														
2901	US-03														
2902	US-04														
2903	US-05														
2904	US-06														
2905	US-07														
2906	US-08 (repl. KRI-01)														
2907	US-09														
2908	US-10														
2909	US-11														
2910	US-12														
2911	US-13														
2912	US-14														
2913	US-15														
2914	US-16														
2915	US-17														
2916	US-18														
2917	US-19 (repl. KRI-02)														
2918	US-20 (repl. KRI-03)														
2919	US-21														
2920	US-22														
2921	US-23														
2922	US-24 (repl. KRI-04)														
2923	US-25														
2924	US-26														
2925	US-27														
2926	US-28														
2927	US-29														
2928	US-30														
2929	US-31														
2930	US-32														
2931	US-33														
2932	US-34														
2933	US-35 (repl. KRI-05)														
2934	US-36														
2935	US-37														
2936	US-38														
2937	US-39														
2938	US-40														
2939	US-41														
2940	US-42														
2941	US-43														
2942	US-44 (repl. KRI-06)														
2943	US-45 (repl. KRI-07)														
2944	HLW98-T01														
2945	HLW98-T02														
2946	HLW98-T03														
2947	HLW98-T04														
2948	HLW98-T05	0.464	1148	0.368	1054	0.237	961	0.156							
2949	HLW98-T06														
2950	HLW98-T07														
2951	HLW98-T08														
2952	HLW98-T09														

#	Glass ID	Study	Reference	Al2O3-t	B2O3-t	CaO-t	Fe2O3-t	FeO-t	K2O-t	Li2O-t	MgO-t	Na2O-t	NiO-t	P2O5-t	SiO2-t	ZrO2-t	Ag2O-t	As2O3-t	As2O5-t	BaO-t	BeO-t	Bi2O3-t	Br-t	CdO-t	Ce2O3-t	CeO2-t	Cl-t
2953	HLW98-V01	V series	Kot et al. 2003b	0.0611	0.1124	0.0033	0.1437		0.0004	0.0332	0.0013	0.1124	0.0072	0.0000	0.4474	0.0448	0.0003	0.0000		0.0000		0.0000		0.0008	0.0000		0.0000
2954	HLW98-V02	V series	Kot et al. 2003b	0.0576	0.1150	0.0031	0.1354		0.0004	0.0340	0.0012	0.1140	0.0068	0.0000	0.4578	0.0422	0.0002	0.0000		0.0000		0.0000		0.0007	0.0000		0.0000
2955	HLW98-V03	V series	Kot et al. 2003b	0.0539	0.1177	0.0029	0.1267		0.0003	0.0348	0.0011	0.1157	0.0064	0.0000	0.4688	0.0395	0.0002	0.0000		0.0000		0.0000		0.0007	0.0000		0.0000
2956	HLW98-V04	V series	Kot et al. 2003b	0.0500	0.1205	0.0027	0.1176		0.0003	0.0357	0.0010	0.1175	0.0059	0.0000	0.4804	0.0366	0.0002	0.0000		0.0000		0.0000		0.0006	0.0000		0.0000
2957	HLW98-V05	V series	Kot et al. 2003b	0.0459	0.1235	0.0025	0.1080		0.0003	0.0366	0.0009	0.1194	0.0054	0.0000	0.4925	0.0336	0.0002	0.0000		0.0000		0.0000		0.0006	0.0000		0.0000
2958	HLW98-V06	V series	Kot et al. 2003b	0.0416	0.1267	0.0022	0.0978		0.0003	0.0376	0.0009	0.1214	0.0049	0.0000	0.5053	0.0305	0.0002	0.0000		0.0000		0.0000		0.0005	0.0000		0.0000
2959	HLW98-V07	V series	Kot et al. 2003b	0.0659	0.1194	0.0027	0.1477		0.0004	0.0308	0.0009	0.1153	0.0053	0.0003	0.4579	0.0209	0.0004	0.0000		0.0000		0.0000		0.0013	0.0000		0.0000
2960	HLW98-V08	V series	Kot et al. 2003b	0.0620	0.1217	0.0026	0.1391		0.0004	0.0315	0.0008	0.1172	0.0050	0.0003	0.4676	0.0197	0.0004	0.0000		0.0000		0.0000		0.0013	0.0000		0.0000
2961	HLW98-V09	V series	Kot et al. 2003b	0.0580	0.1240	0.0024	0.1300		0.0003	0.0322	0.0008	0.1193	0.0046	0.0003	0.4778	0.0184	0.0004	0.0000		0.0000		0.0000		0.0012	0.0000		0.0000
2962	HLW98-V10	V series	Kot et al. 2003b	0.0538	0.1266	0.0022	0.1205		0.0003	0.0330	0.0007	0.1214	0.0043	0.0002	0.4885	0.0170	0.0003	0.0000		0.0000		0.0000		0.0011	0.0000		0.0000
2963	HLW98-V11	V series	Kot et al. 2003b	0.0493	0.1292	0.0021	0.1105		0.0003	0.0338	0.0006	0.1237	0.0039	0.0002	0.4997	0.0156	0.0003	0.0000		0.0000		0.0000		0.0010	0.0000		0.0000
2964	HLW98-V12	V series	Kot et al. 2003b	0.0446	0.1320	0.0019	0.1000		0.0003	0.0347	0.0006	0.1260	0.0036	0.0002	0.5115	0.0141	0.0003	0.0000		0.0000		0.0000		0.0009	0.0000		0.0000
2965	HLW98-V13	V series	Kot et al. 2003b	0.0523	0.1058	0.0079	0.1505		0.0000	0.0260	0.0067	0.1144	0.0044	0.0012	0.4555	0.0015	0.0018	0.0024		0.0000		0.0000		0.0000	0.0000		0.0016
2966	HLW98-V14	V series	Kot et al. 2003b	0.0521	0.1081	0.0074	0.1416		0.0000	0.0266	0.0063	0.1165	0.0042	0.0011	0.4638	0.0014	0.0017	0.0022		0.0000		0.0000		0.0000	0.0000		0.0015
2967	HLW98-V15	V series	Kot et al. 2003b	0.0519	0.1104	0.0069	0.1323		0.0000	0.0272	0.0059	0.1187	0.0039	0.0010	0.4724	0.0013	0.0016	0.0021		0.0000		0.0000		0.0000	0.0000		0.0014
2968	HLW98-V16	V series	Kot et al. 2003b	0.0517	0.1129	0.0064	0.1225		0.0000	0.0279	0.0054	0.1211	0.0036	0.0009	0.4815	0.0012	0.0015	0.0019		0.0000		0.0000		0.0000	0.0000		0.0013
2969	HLW98-V17	V series	Kot et al. 2003b	0.0515	0.1155	0.0059	0.1123		0.0000	0.0286	0.0050	0.1235	0.0033	0.0009	0.4908	0.0011	0.0013	0.0018		0.0000		0.0000		0.0000	0.0000		0.0012
2970	HLW98-V18	V series	Kot et al. 2003b	0.0513	0.1182	0.0053	0.1015		0.0000	0.0293	0.0045	0.1261	0.0030	0.0008	0.5007	0.0010	0.0012	0.0016		0.0000		0.0000		0.0000	0.0000		0.0011
2971	HLW98-V19	V series	Kot et al. 2003b	0.0577	0.0882	0.0035	0.1469		0.0000	0.0281	0.0136	0.1121	0.0020	0.0011	0.4450	0.0030	0.0017		0.0022	0.0000		0.0000		0.0000	0.0000		0.0013
2972	HLW98-V20	V series	Kot et al. 2003b	0.0559	0.0904	0.0033	0.1387		0.0000	0.0289	0.0129	0.1145	0.0019	0.0010	0.4548	0.0029	0.0016	0.0021		0.0000		0.0000		0.0000	0.0000		0.0012
2973	HLW98-V21	V series	Kot et al. 2003b	0.0539	0.0927	0.0031	0.1301		0.0000	0.0297	0.0121	0.1171	0.0018	0.0010	0.4653	0.0027	0.0015	0.0020		0.0000		0.0000		0.0000	0.0000		0.0011
2974	HLW98-V22	V series	Kot et al. 2003b	0.0518	0.0952	0.0029	0.1210		0.0000	0.0305	0.0112	0.1198	0.0017	0.0009	0.4764	0.0025	0.0014	0.0018		0.0000		0.0000		0.0000	0.0000		0.0010
2975	HLW98-V23	V series	Kot et al. 2003b	0.0496	0.0978	0.0027	0.1114		0.0000	0.0314	0.0103	0.1226	0.0015	0.0008	0.4879	0.0023	0.0013	0.0017		0.0000		0.0000		0.0000	0.0000		0.0010
2976	HLW98-V24	V series	Kot et al. 2003b	0.0473	0.1005	0.0024	0.1012		0.0000	0.0323	0.0094	0.1257	0.0014	0.0008	0.5002	0.0021	0.0012		0.0015	0.0000		0.0000		0.0000	0.0000		0.0009
2977	HLW98-V25	V series	Kot et al. 2003b	0.0386	0.0931	0.0052	0.1029		0.0000	0.0287	0.0000	0.1022	0.0050	0.0004	0.4039	0.1017	0.0003	0.0000		0.0000		0.0000		0.0000	0.0000		0.0000
2978	HLW98-V26	V series	Kot et al. 2003b	0.0368	0.0961	0.0049	0.0978		0.0000	0.0295	0.0000	0.1042	0.0048	0.0004	0.4152	0.0967	0.0003	0.0000		0.0000		0.0000		0.0000	0.0000		0.0000
2979	HLW98-V27	V series	Kot et al. 2003b	0.0347	0.0993	0.0047	0.0924		0.0000	0.0305	0.0000	0.1063	0.0045	0.0004	0.4270	0.0913	0.0003	0.0000		0.0000		0.0000		0.0000	0.0000		0.0000
2980	HLW98-V28	V series	Kot et al. 2003b	0.0325	0.1027	0.0044	0.0865		0.0000	0.0315	0.0000	0.1085	0.0042	0.0004	0.4397	0.0855	0.0003	0.0000		0.0000		0.0000		0.0000	0.0000		0.0000
2981	HLW98-V29	V series	Kot et al. 2003b	0.0302	0.1064	0.0041	0.0802		0.0000	0.0325	0.0000	0.1110	0.0039	0.0003	0.4534	0.0793	0.0002	0.0000		0.0000		0.0000		0.0000	0.0000		0.0000
2982	HLW98-V30	V series	Kot et al. 2003b	0.0276	0.1103	0.0037	0.0735		0.0000	0.0337	0.0000	0.1135	0.0036	0.0003	0.4681	0.0726	0.0002	0.0000		0.0000		0.0000		0.0000	0.0000		0.0000
2983	HLW-E-Cr-10	VSL Enhanced HLW	Matlack et al. 2007	0.1106	0.1444	0.0107	0.0569		0.0542	0.0331	0.0007	0.0870	0.0046	0.0145	0.4194	0.0005				0.0001		0.0316		<0.0001			
2984	HLW-E-Cr-M	VSL Enhanced HLW	Matlack et al. 2007	0.0898	0.1617	0.0087	0.0462		0.0605	0.0368	0.0006	0.0707	0.0037	0.0118	0.4576	0.0004				0.0001		0.0256		<0.0001			
2985	HLW-E-Bi-6	VSL Enhanced HLW	Matlack et al. 2007	0.1166	0.1130	0.0084	0.0696		0.0046	0.0016	0.0043	0.1574	0.0193	0.0499	0.3626	0.0021				0.0001		0.0671					
2986	HLW-E-Al-27	VSL Enhanced HLW	Matlack et al. 2007	0.2397	0.1519	0.0608	0.0590		0.0014	0.0357	0.0012	0.0958	0.0040	0.0105	0.3050	0.0039				0.0005		0.0114		0.0002			
2987	HLW-E-Al-01	VSL Enhanced HLW	Matlack et al. 2007	0.2663	0.1021	0.0120	0.0655		0.0016	0.0019	0.0913	0.1098	0.0044	0.0117	0.2944	0.0044				0.0006		0.0127		0.0003			
2988	HLW-E-Al-02	VSL Enhanced HLW	Matlack et al. 2007	0.2663	0.0321	0.1420	0.0655		0.0156	0.0019	0.0013	0.0958	0.0044	0.0117	0.3244	0.0044				0.0006		0.0127		0.0003			
2989	HLW-E-Al-03	VSL Enhanced HLW	Matlack et al. 2007	0.2663	0.0821	0.1420	0.0655		0.0016	0.0019	0.0013	0.0898	0.0044	0.0117	0.2944	0.0044				0.0006		0.0127		0.0003			
2990	HLW-E-Al-04	VSL Enhanced HLW	Matlack et al. 2007	0.2663	0.1021	0.1620	0.0655		0.0016	0.0019	0.0013	0.0698	0.0044	0.0117	0.2744	0.0044				0.0006		0.0127		0.0003			
2991	HLW-E-Al-05	VSL Enhanced HLW	Matlack et al. 2007	0.2663	0.0821	0.1120	0.0655		0.0016	0.0019	0.0013	0.1198	0.0044	0.0117	0.2944	0.0044				0.0006		0.0127		0.0003			
2992	HLW-E-Al-06	VSL Enhanced HLW	Matlack et al. 2007	0.2663	0.1221	0.1820	0.0655		0.0016	0.0019	0.0013	0.0498	0.0044	0.0117	0.2544	0.0044				0.0006		0.0127		0.0003			
2993	HLW-E-Al-07	VSL Enhanced HLW	Matlack et al. 2007	0.2663	0.1521	0.2020	0.0655		0.0016	0.0119	0.0013	0.0398	0.0044	0.0117	0.2044	0.0044				0.0006		0.0127		0.0003			
2994	HLW-E-Al-08	VSL Enhanced HLW	Matlack et al. 2007	0.2663	0.1821	0.1820	0.0655		0.0016	0.0119	0.0013	0.0398	0.0044	0.0117	0.1944	0.0044				0.0006		0.0127		0.0003			
2995	HLW-E-Al-09	VSL Enhanced HLW	Matlack et al. 2007	0.2663	0.1821	0.1620	0.0655		0.0016	0.0319	0.0013	0.0398	0.0044	0.0117	0.1944	0.0044				0.0006		0.0127		0.0003			
2996	HLW-E-Al-10	VSL Enhanced HLW	Matlack et al. 2007	0.2663	0.2021	0.1420	0.0655		0.0016	0.0519	0.0013	0.0398	0.0044	0.0117	0.1744	0.0044				0.0006		0.0127		0.0003			
2997	HLW-E-Al-11	VSL Enhanced HLW	Matlack et al. 2007	0.2663	0.1621	0.1420	0.0655		0.0016	0.0519	0.0013	0.0398	0.0044	0.0117	0.2144	0.0044				0.0006		0.0127		0.0003			
2998	HLW-E-Al-12	VSL Enhanced HLW	Matlack et al. 2007	0.2397	0.2019	0.1408	0.0590		0.0014	0.0517	0.0012	0.0358	0.0040	0.0105	0.2190	0.0039				0.0005		0.0114		0.0002			
2999	HLW-E-Al-13	VSL Enhanced HLW	Matlack et al. 2007	0.2530	0.1929	0.1355	0.0623		0.0015	0.0495	0.0012	0.0378	0.0042	0.0111	0.2139	0.0042				0.0006		0.0121		0.0003			
3000	HLW-E-Al-14	VSL Enhanced HLW	Matlack et al. 2007	0.2663	0.1821	0.0120	0.0655		0.0016	0.0719	0.0013	0.0398	0.0044	0.0117	0.3044	0.0044				0.0006		0.0127		0.0003			
3001	HLW-E-Al-15	VSL Enhanced HLW	Matlack et al. 2007	0.2530	0.2020	0.0114	0.0623		0.0015	0.0768	0.0012	0.0378	0.0042	0.0111	0.3017	0.0042				0.0006		0.0121		0.0003			
3002	HLW-E-Al-16	VSL Enhanced HLW	Matlack et al. 2007	0.2397	0.2019	0.0108	0.0590		0.0014	0.0767	0.0012	0.0358	0.0040	0.0355	0.2990	0.0039				0.0005		0.0114		0.0002			
3003	HLW-E-Al-17	VSL Enhanced HLW	Matlack et al. 2007	0.2930	0.1823	0.0132	0.0721		0.0017	0.0771	0.0014	0.0438	0.0049	0.0129	0.2548	0.0048				0.0007		0.0140		0.0003			
3004	HLW-E-Al-18	VSL Enhanced HLW	Matlack et al. 2007	0.2397	0.1919	0.1308	0.0590		0.0014	0.0517	0.0012	0.0358	0.0040	0.0105	0.2190	0.0239				0.0005		0.0114		0.0002			
3005	HLW-E-Al-19	VSL Enhanced HLW	Matlack et al. 2007	0.2663	0.1441	0.0120	0.0655		0.0016	0.0349	0.0013	0.1398	0.0044	0.0117	0.2794	0.0044				0.0006		0.0127		0.0003			
3006	HLW-E-Al-20	VSL Enhanced HLW	Matlack et al. 2007	0.2530	0.1440	0.0114	0.0623		0.0015	0.0418	0.0012	0.1378	0.0042	0.0111	0.2947	0.0042				0.0006		0.0121		0.0003			
3007	HLW-E-Al-21	VSL Enhanced HLW	Matlack et al. 2007	0.2530	0.1400	0.0114	0.0623		0.0015	0.0503	0.0012	0.1478	0.0042	0.0111	0.2802	0.0042				0.0006		0.0121		0.0003			
3008	HLW-E-Al-22	VSL Enhanced HLW	Matlack et al. 2007	0.2530	0.1400	0.0114	0.0623		0.0515	0.0503	0.0012	0.0978	0.0042	0.0111	0.2802	0.0042				0.0006		0.0121		0.0003			
3009	HLW-E-Al-23	VSL Enhanced HLW	Matlack et al. 2007	0.2397	0.1419	0.0108	0.0590		0.0014	0.0357	0.0012	0.1408	0.0040	0.0105	0.3200	0.0039				0.0005		0.0114		0.0002			
3010	HLW-E-Al-24	VSL Enhanced HLW	Matlack et al. 2007	0.1864	0.1515	0.0084	0.0459		0.0011	0.0353	0.0009	0.1478	0.0031	0.0082	0.3581	0.0291				0.0004		0.0089		0.0002			
3011	HLW-E-Al-25	VSL Enhanced HLW	Matlack et al. 2007	0.2397	0.1419	0.0608	0.0590		0.0014	0.0357	0.0012	0.0958	0.0040	0.0105	0.3150	0.0039				0.0005		0.0114		0.0002			
3012	HLW-E-Al-26	VSL Enhanced HLW	Matlack et al. 2007	0.2397	0.1619	0.0108	0.0590		0.0014	0.0357	0.0012	0.1308	0.0040	0.0105	0.3100	0.0039				0.0005		0.0114		0.0002			
3013	HLW-E-Al-27	VSL Enhanced HLW	Matlack et al. 2007	0.2397	0.1519	0.0608	0.0590		0.0014	0.0357	0.0012	0.0958	0.0040	0.0105	0.3050	0.0039				0.0005		0.0114		0.0002			
3014	HLW-E-Al-28	VSL Enhanced HLW	Matlack et al. 2007	0.2530	0.1440	0.0614	0.0623		0.0015	0.0368	0.0012	0.0978	0.0042	0.0111	0.2897	0.0042				0.0006		0.0121		0.0003			
3015	HLW-E-Al-29	VSL Enhanced HLW	Matlack et al. 2007	0.2530	0.1440	0.0914	0.0623		0.0015	0.0268	0.0012	0.0978	0.0042	0.0111	0.2697	0.0042				0.0006		0.0121		0.0003			
3016	HLW-E-ANa-01	VSL Enhanced HLW	Matlack et al. 2007	0.1907	0.1433	0.0065	0.0252		0.0059	0.0407	0.0019	0.1136	0.0009	0.0381	0.3974	0.0111				0.0003		0.0103		0.0001			
3017	HLW-E-ANa-02	VSL Enhanced HLW	Matlack et al. 2007	0.2134	0.1437	0.0072	0.0282		0.0066	0.0308	0.0022	0.1271	0.0010	0.0202	0.3906	0.0012				0.0003		0.0116		0.0001			
3018	HLW-E-ANa-03	VSL Enhanced HLW	Matlack et al. 2007	0.2361	0.1341	0.0080	0.0311		0.0073	0.0258	0.0024	0.1406	0.0011	0.0224	0.3589	0.0014				0.0003		0.0128		0.0001			
3019	HLW-E-ANa-04	VSL Enhanced HLW	Matlack et al. 2007	0.2134	0.1437	0.0072	0.0282		0.0066	0.0408	0.0022	0.1271	0.0010	0.0202	0.3806	0.0012				0.0003		0.0116		0.0001			
3020	HLW-E-ANa-05	VSL Enhanced HLW	Matlack et al. 2007	0.2361	0.1441	0.0080	0.0311		0.0073	0.0358	0.0024	0.1406	0.0011	0.0224	0.3389	0.0014				0.0003		0.0128		0.0001			
3021	HLW-E-ANa-06	VSL Enhanced HLW	Matlack et al. 2007	0.2588	0.1444	0.0088	0.0341		0.0080	0.0281	0.0026	0.1541	0.0012	0.0245	0.3000	0.0015				0.0003		0.0140		0.0001			
3022	HLW-E-ANa-07	VSL Enhanced HLW	Matlack et al. 2007	0.2724	0.1447	0.0092	0.0359		0.0085	0.0282	0.0028	0.1622	0.0013	0.0258	0.2719	0.0016				0.0004		0.0148		0.0001			
3023	HLW-E-ANa-08	VSL Enhanced HLW	Matlack et al. 2007	0.2588	0.1444	0.0088	0.0341		0.0080	0.0359	0.0026	0.1541	0.0012	0.0245	0.2922	0.0015				0.0003		0.0140		0.0001			
3024	HLW-E-ANa-09	VSL Enhanced HLW	Matlack et al. 2007	0.2588	0.1444	0.0088	0.0341		0.0080	0.0509	0.0026	0.1541	0.0012	0.0245	0.2772	0.0015				0.0003		0.0140		0.0001			
3025	HLW-E-ANa-10	VSL Enhanced HLW	Matlack et al. 2007	0.2588	0.1594	0.0088	0.0341		0.0080	0.0359	0.0026	0.1541	0.0012	0.0245	0.2772	0.0015				0.0003		0.0140		0.0001			
3026	HLW-E-ANa-11	VSL Enhanced HLW	Matlack et al. 2007	0.2588	0.1344	0.0088	0.0341		0.0080	0.0509	0.0026	0.1541	0.0012	0.0245	0.2872	0.0015				0.0003		0.0140		0.0001			
3027	HLW-E-ANa-12	VSL Enhanced HLW	Matlack et al. 2007	0.2951	0.1351	0.0100	0.0389		0.0092	0.0210	0.0030	0.1758	0.0014	0.0280	0.2424	0.0017				0.0004		0.0160		0.0001			
3028	HLW-E-ANa-13	VSL Enhanced HLW	Matlack et al. 2007	0.2134	0.1437	0.0572	0.0282		0.0066	0.0308	0.0022	0.1271	0.0010	0.0202	0.3406	0.0012				0.0003		0.0116		0.0001			
3029	HLW-E-ANa-14	VSL Enhanced HLW	Matlack et al. 2007	0.2361	0.1441	0.0580	0.0311		0.0073	0.0258	0.0024	0.1406	0.0011	0.0224	0.2989	0.0014				0.0003		0.0128		0.0001			
3030	HLW-E-ANa-15	VSL Enhanced HLW	Matlack et al. 2007	0.2361	0.1541	0.0580	0.0311		0.0073	0.0258	0.0024	0.1406	0.0011	0.0224	0.2889	0.0014				0.0003		0.0128		0.0001			
3031	HLW-E-ANa-16	VSL Enhanced HLW	Matlack et al. 2007	0.2361	0.1441	0.0580	0.0311		0.0073	0.0358	0.0024	0.1406	0.0011	0.0224	0.2889	0.0014				0.0003		0.0128		0.0001			
3032	HLW-E-ANa-17	VSL Enhanced HLW	Matlack et al. 2007	0.2043	0.1535	0.0569	0.0270		0.0063	0.0307	0.0021	0.1217	0.0009	0.0194	0.3493	0.0012				0.0003		0.0111		0.0001			
3033	HLW-E-ANa-18	VSL Enhanced HLW	Matlack et al. 2007	0.2043	0.1535	0.0569	0.0270		0.0063	0.0307	0.0021	0.1217	0.0009	0.0194	0.3293	0.0212				0.0003		0.0111		0.0001			
3034	HLW-E-ANa-19	VSL Enhanced HLW	Matlack et al. 2007	0.1952	0.1534	0.0566	0.0258		0.0061	0.0357	0.0020	0.1163	0.0009	0.0185	0.3430	0.0211				0.0003		0.0106		0.0001			

#	Glass ID	CoO-t	Co2O3-t	Cr2O3-t	Cs2O-t	CuO-t	Dy2O3-t	Eu2O3-t	F-t	Ga2O3-t	Gd2O3-t	HfO2-t	HgO-t	I-t	La2O3-t	MnO2-t	MnO-t	MoO-t	MoO2-t	MoO3-t	Nb2O5-t	Nd2O3-t	NpO2-t	PbO-t	PdO2-t	PdO-t	Pr2O3-t	Pr6O11-t	Rb2O-t	ReO-t
2953	HLW98-V01	0.0000		0.0000	0.0000	0.0004			0.0004			0.0000			0.0048		0.0020			0.0000		0.0036		0.0004		0.0000	0.0000			
2954	HLW98-V02	0.0000		0.0000	0.0000	0.0003			0.0004			0.0000			0.0045		0.0019			0.0000		0.0034		0.0004		0.0000	0.0000			
2955	HLW98-V03	0.0000		0.0000	0.0000	0.0003			0.0004			0.0000			0.0042		0.0018			0.0000		0.0032		0.0004		0.0000	0.0000			
2956	HLW98-V04	0.0000		0.0000	0.0000	0.0003			0.0004			0.0000			0.0039		0.0016			0.0000		0.0030		0.0003		0.0000	0.0000			
2957	HLW98-V05	0.0000		0.0000	0.0000	0.0003			0.0003			0.0000			0.0036		0.0015			0.0000		0.0027		0.0003		0.0000	0.0000			
2958	HLW98-V06	0.0000		0.0000	0.0000	0.0002			0.0003			0.0000			0.0033		0.0014			0.0000		0.0025		0.0003		0.0000	0.0000			
2959	HLW98-V07	0.0000		0.0000	0.0000	0.0000			0.0000			0.0000			0.0044		0.0042			0.0000		0.0019		0.0008		0.0000	0.0000			
2960	HLW98-V08	0.0000		0.0000	0.0000	0.0000			0.0000			0.0000			0.0042		0.0040			0.0000		0.0018		0.0008		0.0000	0.0000			
2961	HLW98-V09	0.0000		0.0000	0.0000	0.0000			0.0000			0.0000			0.0039		0.0037			0.0000		0.0017		0.0007		0.0000	0.0000			
2962	HLW98-V10	0.0000		0.0000	0.0000	0.0000			0.0000			0.0000			0.0036		0.0034			0.0000		0.0016		0.0007		0.0000	0.0000			
2963	HLW98-V11	0.0000		0.0000	0.0000	0.0000			0.0000			0.0000			0.0033		0.0031			0.0000		0.0015		0.0006		0.0000	0.0000			
2964	HLW98-V12	0.0000		0.0000	0.0000	0.0000			0.0000			0.0000			0.0030		0.0028			0.0000		0.0013		0.0006		0.0000	0.0000			
2965	HLW98-V13	0.0000		0.0005	0.0000	0.0006			0.0000			0.0000			0.0029		0.0359			0.0000		0.0019		0.0030		0.0000	0.0000			
2966	HLW98-V14	0.0000		0.0005	0.0000	0.0005			0.0000			0.0000			0.0028		0.0338			0.0000		0.0018		0.0028		0.0000	0.0000			
2967	HLW98-V15	0.0000		0.0005	0.0000	0.0005			0.0000			0.0000			0.0026		0.0315			0.0000		0.0016		0.0026		0.0000	0.0000			
2968	HLW98-V16	0.0000		0.0004	0.0000	0.0005			0.0000			0.0000			0.0024		0.0292			0.0000		0.0015		0.0024		0.0000	0.0000			
2969	HLW98-V17	0.0000		0.0004	0.0000	0.0004			0.0000			0.0000			0.0022		0.0268			0.0000		0.0014		0.0022		0.0000	0.0000			
2970	HLW98-V18	0.0000		0.0004	0.0000	0.0004			0.0000			0.0000			0.0020		0.0242			0.0000		0.0013		0.0020		0.0000	0.0000			
2971	HLW98-V19	0.0000		0.0009	0.0000	0.0005			0.0000			0.0000			0.0028		0.0467			0.0000		0.0018		0.0017		0.0000	0.0000			
2972	HLW98-V20	0.0000		0.0009	0.0000	0.0005			0.0000			0.0000			0.0027		0.0441			0.0000		0.0017		0.0016		0.0000	0.0000			
2973	HLW98-V21	0.0000		0.0008	0.0000	0.0005			0.0000			0.0000			0.0025		0.0413			0.0000		0.0016		0.0015		0.0000	0.0000			
2974	HLW98-V22	0.0000		0.0007	0.0000	0.0004			0.0000			0.0000			0.0023		0.0384			0.0000		0.0014		0.0014		0.0000	0.0000			
2975	HLW98-V23	0.0000		0.0007	0.0000	0.0004			0.0000			0.0000			0.0021		0.0354			0.0000		0.0013		0.0013		0.0000	0.0000			
2976	HLW98-V24	0.0000		0.0006	0.0000	0.0004			0.0000			0.0000			0.0019		0.0322			0.0000		0.0012		0.0012		0.0000	0.0000			
2977	HLW98-V25	0.0000		0.0007	0.0000	0.0003			0.0013			0.0000			0.0017		0.0164			0.0000		0.0012		0.0013		0.0000	0.0000			
2978	HLW98-V26	0.0000		0.0006	0.0000	0.0003			0.0012			0.0000			0.0016		0.0156			0.0000		0.0011		0.0013		0.0000	0.0000			
2979	HLW98-V27	0.0000		0.0006	0.0000	0.0003			0.0011			0.0000			0.0015		0.0147			0.0000		0.0010		0.0012		0.0000	0.0000			
2980	HLW98-V28	0.0000		0.0006	0.0000	0.0003			0.0011			0.0000			0.0014		0.0138			0.0000		0.0010		0.0011		0.0000	0.0000			
2981	HLW98-V29	0.0000		0.0005	0.0000	0.0002			0.0010			0.0000			0.0013		0.0128			0.0000		0.0009		0.0010		0.0000	0.0000			
2982	HLW98-V30	0.0000		0.0005	0.0000	0.0002			0.0009			0.0000			0.0012		0.0117			0.0000		0.0008		0.0009		0.0000	0.0000			
2983	HLW-E-Cr-10			0.0133					0.0087															0.0021						
2984	HLW-E-Cr-M			0.0108					0.0070															0.0017						
2985	HLW-E-Bi-6			0.0052					0.0082															0.0025						
2986	HLW-E-Al-27			0.0052					0.0067															0.0041						
2987	HLW-E-Al-01			0.0058					0.0074															0.0045						
2988	HLW-E-Al-02			0.0058					0.0074															0.0045						
2989	HLW-E-Al-03			0.0058					0.0074															0.0045						
2990	HLW-E-Al-04			0.0058					0.0074															0.0045						
2991	HLW-E-Al-05			0.0058					0.0074															0.0045						
2992	HLW-E-Al-06			0.0058					0.0074															0.0045						
2993	HLW-E-Al-07			0.0058					0.0074															0.0045						
2994	HLW-E-Al-08			0.0058					0.0074															0.0045						
2995	HLW-E-Al-09			0.0058					0.0074															0.0045						
2996	HLW-E-Al-10			0.0058					0.0074															0.0045						
2997	HLW-E-Al-11			0.0058					0.0074															0.0045						
2998	HLW-E-Al-12			0.0052					0.0067															0.0041						
2999	HLW-E-Al-13			0.0055					0.0070															0.0043						
3000	HLW-E-Al-14			0.0058					0.0074															0.0045						
3001	HLW-E-Al-15			0.0055					0.0070															0.0043						
3002	HLW-E-Al-16			0.0052					0.0067															0.0041						
3003	HLW-E-Al-17			0.0064					0.0082															0.0050						
3004	HLW-E-Al-18			0.0052					0.0067															0.0041						
3005	HLW-E-Al-19			0.0058					0.0074															0.0045						
3006	HLW-E-Al-20			0.0055					0.0070															0.0043						
3007	HLW-E-Al-21			0.0055					0.0070															0.0043						
3008	HLW-E-Al-22			0.0055					0.0070															0.0043						
3009	HLW-E-Al-23			0.0052					0.0067															0.0041						
3010	HLW-E-Al-24			0.0041					0.0052															0.0032						
3011	HLW-E-Al-25			0.0052					0.0067															0.0041						
3012	HLW-E-Al-26			0.0052					0.0067															0.0041						
3013	HLW-E-Al-27			0.0052					0.0067															0.0041						
3014	HLW-E-Al-28			0.0055					0.0070															0.0043						
3015	HLW-E-Al-29			0.0055					0.0070															0.0043						
3016	HLW-E-ANa-01			0.0063					0.0020															0.0008						
3017	HLW-E-ANa-02			0.0071					0.0023															0.0009						
3018	HLW-E-ANa-03			0.0079					0.0025															0.0010						
3019	HLW-E-ANa-04			0.0071					0.0023															0.0009						
3020	HLW-E-ANa-05			0.0079					0.0025															0.0010						
3021	HLW-E-ANa-06			0.0086					0.0027															0.0011						
3022	HLW-E-ANa-07			0.0091					0.0029															0.0011						
3023	HLW-E-ANa-08			0.0086					0.0027															0.0011						
3024	HLW-E-ANa-09			0.0086					0.0027															0.0011						
3025	HLW-E-ANa-10			0.0086					0.0027															0.0011						
3026	HLW-E-ANa-11			0.0086					0.0027															0.0011						
3027	HLW-E-ANa-12			0.0098					0.0031															0.0012						
3028	HLW-E-ANa-13			0.0071					0.0023															0.0009						
3029	HLW-E-ANa-14			0.0079					0.0025															0.0010						
3030	HLW-E-ANa-15			0.0079					0.0025															0.0010						
3031	HLW-E-ANa-16			0.0079					0.0025															0.0010						
3032	HLW-E-ANa-17			0.0068					0.0022															0.0009						
3033	HLW-E-ANa-18			0.0068					0.0022															0.0009						
3034	HLW-E-ANa-19			0.0065					0.0021															0.0008						

#	Glass ID	ReO2-t	Re2O7-t	Rh2O3-t	RhO2-t	RuO2-t	Ru2O3-t	Sb2O3-t	Sb2O5-t	SeO2-t	Sm2O3-t	SnO-t	SnO2-t	SO3-t	SrO-t	Tc2O7-t	TeO2-t	ThO2-t	TiO2-t	Tl2O-t	Tl2O3-t	U3O8-t	UO2-t	UO3-t	V2O5-t	WO3-t	Y2O3-t	ZnO-t	Sum-t	Al2O3-a
2953	HLW98-V01			0.0000		0.0000		0.0000		0.0000			0.0000	0.0009	0.0004			0.0000	0.0000	0.0000				0.0000	0.0000			0.0190	1.0000	
2954	HLW98-V02			0.0000		0.0000		0.0000		0.0000			0.0000	0.0008	0.0004			0.0000	0.0000	0.0000				0.0000	0.0000			0.0194	1.0000	
2955	HLW98-V03			0.0000		0.0000		0.0000		0.0000			0.0000	0.0008	0.0003			0.0000	0.0000	0.0000				0.0000	0.0000			0.0199	1.0000	
2956	HLW98-V04			0.0000		0.0000		0.0000		0.0000			0.0000	0.0007	0.0003			0.0000	0.0000	0.0000				0.0000	0.0000			0.0204	1.0000	
2957	HLW98-V05			0.0000		0.0000		0.0000		0.0000			0.0000	0.0007	0.0003			0.0000	0.0000	0.0000				0.0000	0.0000			0.0209	1.0000	
2958	HLW98-V06			0.0000		0.0000		0.0000		0.0000			0.0000	0.0006	0.0003			0.0000	0.0000	0.0000				0.0000	0.0000			0.0215	1.0000	
2959	HLW98-V07			0.0000		0.0000		0.0000		0.0000			0.0000	0.0005	0.0000			0.0000	0.0000	0.0000				0.0000	0.0000			0.0190	1.0000	
2960	HLW98-V08			0.0000		0.0000		0.0000		0.0000			0.0000	0.0005	0.0000			0.0000	0.0000	0.0000				0.0000	0.0000			0.0194	1.0000	
2961	HLW98-V09			0.0000		0.0000		0.0000		0.0000			0.0000	0.0004	0.0000			0.0000	0.0000	0.0000				0.0000	0.0000			0.0199	1.0000	
2962	HLW98-V10			0.0000		0.0000		0.0000		0.0000			0.0000	0.0004	0.0000			0.0000	0.0000	0.0000				0.0000	0.0000			0.0204	1.0000	
2963	HLW98-V11			0.0000		0.0000		0.0000		0.0000			0.0000	0.0004	0.0000			0.0000	0.0000	0.0000				0.0000	0.0000			0.0209	1.0000	
2964	HLW98-V12			0.0000		0.0000		0.0000		0.0000			0.0000	0.0003	0.0000			0.0000	0.0000	0.0000				0.0000	0.0000			0.0214	1.0000	
2965	HLW98-V13			0.0000		0.0000		0.0013		0.0025			0.0000	0.0000	0.0000			0.0000	0.0003	0.0000				0.0000	0.0000			0.0191	1.0000	
2966	HLW98-V14			0.0000		0.0000		0.0012		0.0024			0.0000	0.0000	0.0000			0.0000	0.0003	0.0000				0.0000	0.0000			0.0195	1.0000	
2967	HLW98-V15			0.0000		0.0000		0.0011		0.0022			0.0000	0.0000	0.0000			0.0000	0.0003	0.0000				0.0000	0.0000			0.0200	1.0000	
2968	HLW98-V16			0.0000		0.0000		0.0010		0.0020			0.0000	0.0000	0.0000			0.0000	0.0003	0.0000				0.0000	0.0000			0.0204	1.0000	
2969	HLW98-V17			0.0000		0.0000		0.0010		0.0019			0.0000	0.0000	0.0000			0.0000	0.0002	0.0000				0.0000	0.0000			0.0209	1.0000	
2970	HLW98-V18			0.0000		0.0000		0.0009		0.0017			0.0000	0.0000	0.0000			0.0000	0.0002	0.0000				0.0000	0.0000			0.0214	1.0000	
2971	HLW98-V19			0.0000		0.0000		0.0030		0.0043			0.0000	0.0000	0.0107			0.0000	0.0016	0.0000				0.0000	0.0000			0.0195	1.0000	
2972	HLW98-V20			0.0000		0.0000		0.0028		0.0041			0.0000	0.0000	0.0101			0.0000	0.0015	0.0000				0.0000	0.0000			0.0200	1.0000	
2973	HLW98-V21			0.0000		0.0000		0.0026		0.0038			0.0000	0.0000	0.0095			0.0000	0.0014	0.0000				0.0000	0.0000			0.0205	1.0000	
2974	HLW98-V22			0.0000		0.0000		0.0025		0.0036			0.0000	0.0000	0.0088			0.0000	0.0013	0.0000				0.0000	0.0000			0.0210	1.0000	
2975	HLW98-V23			0.0000		0.0000		0.0023		0.0033			0.0000	0.0000	0.0081			0.0000	0.0012	0.0000				0.0000	0.0000			0.0215	1.0000	
2976	HLW98-V24			0.0000		0.0000		0.0021		0.0030			0.0000	0.0000	0.0074			0.0000	0.0011	0.0000				0.0000	0.0000			0.0221	1.0000	
2977	HLW98-V25			0.0000		0.0000		0.0000		0.0000			0.0000	0.0000	0.0000			0.0466	0.0002	0.0000				0.0296	0.0000			0.0186	1.0000	
2978	HLW98-V26			0.0000		0.0000		0.0000		0.0000			0.0000	0.0000	0.0000			0.0443	0.0002	0.0000				0.0281	0.0000			0.0192	1.0000	
2979	HLW98-V27			0.0000		0.0000		0.0000		0.0000			0.0000	0.0000	0.0000			0.0418	0.0002	0.0000				0.0266	0.0000			0.0199	1.0000	
2980	HLW98-V28			0.0000		0.0000		0.0000		0.0000			0.0000	0.0000	0.0000			0.0391	0.0002	0.0000				0.0249	0.0000			0.0205	1.0000	
2981	HLW98-V29			0.0000		0.0000		0.0000		0.0000			0.0000	0.0000	0.0000			0.0364	0.0002	0.0000				0.0231	0.0000			0.0213	1.0000	
2982	HLW98-V30			0.0000		0.0000		0.0000		0.0000			0.0000	0.0000	0.0000			0.0333	0.0002	0.0000				0.0212	0.0000			0.0221	1.0000	
2983	HLW-E-Cr-10													0.0066					<0.0001									0.0011	1.0001	
2984	HLW-E-Cr-M													0.0053					<0.0001									0.0009	0.9999	
2985	HLW-E-Bi-6													0.0048					0.0016									0.0016	1.0005	
2986	HLW-E-Al-27													0.0020					0.0001									0.0008	0.9999	
2987	HLW-E-Al-01													0.0022	0.0000				0.0001					0.0000				0.0009	1.0000	
2988	HLW-E-Al-02													0.0022	0.0000				0.0001					0.0000				0.0009	1.0000	
2989	HLW-E-Al-03													0.0022	0.0000				0.0001					0.0000				0.0009	1.0000	
2990	HLW-E-Al-04													0.0022	0.0000				0.0001					0.0000				0.0009	1.0000	
2991	HLW-E-Al-05													0.0022	0.0000				0.0001					0.0000				0.0009	1.0000	
2992	HLW-E-Al-06													0.0022	0.0000				0.0001					0.0000				0.0009	1.0000	
2993	HLW-E-Al-07													0.0022	0.0000				0.0001					0.0000				0.0009	1.0000	
2994	HLW-E-Al-08													0.0022	0.0000				0.0001					0.0000				0.0009	1.0000	
2995	HLW-E-Al-09													0.0022	0.0000				0.0001					0.0000				0.0009	1.0000	
2996	HLW-E-Al-10													0.0022	0.0000				0.0001					0.0000				0.0009	1.0000	
2997	HLW-E-Al-11													0.0022	0.0000				0.0001					0.0000				0.0009	1.0000	
2998	HLW-E-Al-12													0.0020	0.0000				0.0001					0.0000				0.0008	1.0000	
2999	HLW-E-Al-13													0.0021	0.0000				0.0001					0.0000				0.0009	1.0000	
3000	HLW-E-Al-14													0.0022	0.0000				0.0001					0.0000				0.0009	1.0000	
3001	HLW-E-Al-15													0.0021	0.0000				0.0001					0.0000				0.0009	1.0000	
3002	HLW-E-Al-16													0.0020	0.0000				0.0001					0.0000				0.0008	1.0000	
3003	HLW-E-Al-17													0.0024	0.0000				0.0001					0.0000				0.0010	1.0000	
3004	HLW-E-Al-18													0.0020	0.0000				0.0001					0.0000				0.0008	1.0000	
3005	HLW-E-Al-19													0.0022	0.0000				0.0001					0.0000				0.0009	1.0000	
3006	HLW-E-Al-20													0.0021	0.0000				0.0001					0.0000				0.0009	1.0000	
3007	HLW-E-Al-21													0.0021	0.0000				0.0001					0.0000				0.0009	1.0000	
3008	HLW-E-Al-22													0.0021	0.0000				0.0001					0.0000				0.0009	1.0000	
3009	HLW-E-Al-23													0.0020	0.0000				0.0001					0.0000				0.0008	1.0000	
3010	HLW-E-Al-24													0.0016	0.0000				0.0001					0.0000				0.0006	1.0000	
3011	HLW-E-Al-25													0.0020	0.0000				0.0001					0.0000				0.0008	1.0000	
3012	HLW-E-Al-26													0.0020	0.0000				0.0001					0.0000				0.0008	1.0000	
3013	HLW-E-Al-27													0.0020	0.0000				0.0001					0.0000				0.0008	1.0000	
3014	HLW-E-Al-28													0.0021	0.0000				0.0001					0.0000				0.0009	1.0000	
3015	HLW-E-Al-29													0.0021	0.0000				0.0001					0.0000				0.0009	1.0000	
3016	HLW-E-ANa-01													0.0019	0.0000				0.0016					0.0000				0.0016	1.0000	
3017	HLW-E-ANa-02													0.0022	0.0000				0.0017					0.0000				0.0018	1.0000	
3018	HLW-E-ANa-03													0.0024	0.0000				0.0019					0.0000				0.0020	1.0000	
3019	HLW-E-ANa-04													0.0022	0.0000				0.0017					0.0000				0.0018	1.0000	
3020	HLW-E-ANa-05													0.0024	0.0000				0.0019					0.0000				0.0020	1.0000	
3021	HLW-E-ANa-06													0.0026	0.0000				0.0021					0.0000				0.0022	1.0000	
3022	HLW-E-ANa-07													0.0028	0.0000				0.0022					0.0000				0.0023	1.0000	
3023	HLW-E-ANa-08													0.0026	0.0000				0.0021					0.0000				0.0022	1.0000	
3024	HLW-E-ANa-09													0.0026	0.0000				0.0021					0.0000				0.0022	1.0000	
3025	HLW-E-ANa-10													0.0026	0.0000				0.0021					0.0000				0.0022	1.0000	
3026	HLW-E-ANa-11													0.0026	0.0000				0.0021					0.0000				0.0022	1.0000	
3027	HLW-E-ANa-12													0.0030	0.0000				0.0024					0.0000				0.0025	1.0000	
3028	HLW-E-ANa-13													0.0022	0.0000				0.0017					0.0000				0.0018	1.0000	
3029	HLW-E-ANa-14													0.0024	0.0000				0.0019					0.0000				0.0020	1.0000	
3030	HLW-E-ANa-15													0.0024	0.0000				0.0019					0.0000				0.0020	1.0000	
3031	HLW-E-ANa-16													0.0024	0.0000				0.0019					0.0000				0.0020	1.0000	
3032	HLW-E-ANa-17													0.0021	0.0000				0.0017					0.0000				0.0017	1.0000	
3033	HLW-E-ANa-18													0.0021	0.0000				0.0017					0.0000				0.0017	1.0000	
3034	HLW-E-ANa-19													0.0020	0.0000				0.0016					0.0000				0.0016	1.0000	

#	Glass ID	B2O3-a	CaO-a	Fe2O3-a	FeO-a	K2O-a	Li2O-a	MgO-a	Na2O-a	NiO-a	P2O5-a	SiO2-a	ZrO2-a	Ag2O-a	As2O3-a	As2O5-a	BaO-a	BeO-a	Bi2O3-a	Br-a	CdO-a	Ce2O3-a	CeO2-a	Cl-a	CoO-a	Co2O3-a	Cr2O3-a	Cs2O-a	CuO-a	F-a
2953	HLW98-V01																													
2954	HLW98-V02																													
2955	HLW98-V03																													
2956	HLW98-V04																													
2957	HLW98-V05																													
2958	HLW98-V06																													
2959	HLW98-V07																													
2960	HLW98-V08																													
2961	HLW98-V09																													
2962	HLW98-V10																													
2963	HLW98-V11																													
2964	HLW98-V12																													
2965	HLW98-V13																													
2966	HLW98-V14																													
2967	HLW98-V15																													
2968	HLW98-V16																													
2969	HLW98-V17																													
2970	HLW98-V18																													
2971	HLW98-V19																													
2972	HLW98-V20																													
2973	HLW98-V21																													
2974	HLW98-V22																													
2975	HLW98-V23																													
2976	HLW98-V24																													
2977	HLW98-V25																													
2978	HLW98-V26																													
2979	HLW98-V27																													
2980	HLW98-V28																													
2981	HLW98-V29																													
2982	HLW98-V30																													
2983	HLW-E-Cr-10																													
2984	HLW-E-Cr-M																													
2985	HLW-E-Bi-6																													
2986	HLW-E-Al-27																													
2987	HLW-E-Al-01																													
2988	HLW-E-Al-02																													
2989	HLW-E-Al-03																													
2990	HLW-E-Al-04																													
2991	HLW-E-Al-05																													
2992	HLW-E-Al-06																													
2993	HLW-E-Al-07																													
2994	HLW-E-Al-08																													
2995	HLW-E-Al-09																													
2996	HLW-E-Al-10																													
2997	HLW-E-Al-11																													
2998	HLW-E-Al-12																													
2999	HLW-E-Al-13																													
3000	HLW-E-Al-14																													
3001	HLW-E-Al-15																													
3002	HLW-E-Al-16																													
3003	HLW-E-Al-17																													
3004	HLW-E-Al-18																													
3005	HLW-E-Al-19																													
3006	HLW-E-Al-20																													
3007	HLW-E-Al-21																													
3008	HLW-E-Al-22																													
3009	HLW-E-Al-23																													
3010	HLW-E-Al-24																													
3011	HLW-E-Al-25																													
3012	HLW-E-Al-26																													
3013	HLW-E-Al-27																													
3014	HLW-E-Al-28																													
3015	HLW-E-Al-29																													
3016	HLW-E-ANa-01																													
3017	HLW-E-ANa-02																													
3018	HLW-E-ANa-03																													
3019	HLW-E-ANa-04																													
3020	HLW-E-ANa-05																													
3021	HLW-E-ANa-06																													
3022	HLW-E-ANa-07																													
3023	HLW-E-ANa-08																													
3024	HLW-E-ANa-09																													
3025	HLW-E-ANa-10																													
3026	HLW-E-ANa-11																													
3027	HLW-E-ANa-12																													
3028	HLW-E-ANa-13																													
3029	HLW-E-ANa-14																													
3030	HLW-E-ANa-15																													
3031	HLW-E-ANa-16																													
3032	HLW-E-ANa-17																													
3033	HLW-E-ANa-18																													
3034	HLW-E-ANa-19																													

#	Glass ID	Ga2O3-a	Gd2O3-a	I-a	La2O3-a	MnO2-a	MnO-a	MoO-a	MoO3-a	Nb2O5-a	Nd2O3-a	NpO2-a	PbO-a	PdO2-a	PdO-a	Pr2O3-a	Pr6O11-a	PuO2-a	Rb2O-a	ReO-a	ReO2-a	Re2O7-a	Rh2O3-a	RhO2-a	RuO2-a	Sb2O3-a	Sb2O5-a	SeO2-a
2953	HLW98-V01																											
2954	HLW98-V02																											
2955	HLW98-V03																											
2956	HLW98-V04																											
2957	HLW98-V05																											
2958	HLW98-V06																											
2959	HLW98-V07																											
2960	HLW98-V08																											
2961	HLW98-V09																											
2962	HLW98-V10																											
2963	HLW98-V11																											
2964	HLW98-V12																											
2965	HLW98-V13																											
2966	HLW98-V14																											
2967	HLW98-V15																											
2968	HLW98-V16																											
2969	HLW98-V17																											
2970	HLW98-V18																											
2971	HLW98-V19																											
2972	HLW98-V20																											
2973	HLW98-V21																											
2974	HLW98-V22																											
2975	HLW98-V23																											
2976	HLW98-V24																											
2977	HLW98-V25																											
2978	HLW98-V26																											
2979	HLW98-V27																											
2980	HLW98-V28																											
2981	HLW98-V29																											
2982	HLW98-V30																											
2983	HLW-E-Cr-10																											
2984	HLW-E-Cr-M																											
2985	HLW-E-Bi-6																											
2986	HLW-E-Al-27																											
2987	HLW-E-Al-01																											
2988	HLW-E-Al-02																											
2989	HLW-E-Al-03																											
2990	HLW-E-Al-04																											
2991	HLW-E-Al-05																											
2992	HLW-E-Al-06																											
2993	HLW-E-Al-07																											
2994	HLW-E-Al-08																											
2995	HLW-E-Al-09																											
2996	HLW-E-Al-10																											
2997	HLW-E-Al-11																											
2998	HLW-E-Al-12																											
2999	HLW-E-Al-13																											
3000	HLW-E-Al-14																											
3001	HLW-E-Al-15																											
3002	HLW-E-Al-16																											
3003	HLW-E-Al-17																											
3004	HLW-E-Al-18																											
3005	HLW-E-Al-19																											
3006	HLW-E-Al-20																											
3007	HLW-E-Al-21																											
3008	HLW-E-Al-22																											
3009	HLW-E-Al-23																											
3010	HLW-E-Al-24																											
3011	HLW-E-Al-25																											
3012	HLW-E-Al-26																											
3013	HLW-E-Al-27																											
3014	HLW-E-Al-28																											
3015	HLW-E-Al-29																											
3016	HLW-E-ANa-01																											
3017	HLW-E-ANa-02																											
3018	HLW-E-ANa-03																											
3019	HLW-E-ANa-04																											
3020	HLW-E-ANa-05																											
3021	HLW-E-ANa-06																											
3022	HLW-E-ANa-07																											
3023	HLW-E-ANa-08																											
3024	HLW-E-ANa-09																											
3025	HLW-E-ANa-10																											
3026	HLW-E-ANa-11																											
3027	HLW-E-ANa-12																											
3028	HLW-E-ANa-13																											
3029	HLW-E-ANa-14																											
3030	HLW-E-ANa-15																											
3031	HLW-E-ANa-16																											
3032	HLW-E-ANa-17																											
3033	HLW-E-ANa-18																											
3034	HLW-E-ANa-19																											

#	Glass ID	Sm2O3-a	SnO-a	SnO2-a	SO3-a	SrO-a	Tc2O7-a	TeO2-a	ThO2-a	TiO2-a	Tl2O-a	Tl2O3-a	U3O8-a	UO2-a	UO3-a	V2O5-a	WO3-a	Y2O3-a	ZnO-a	Sum-a	T_M (°C)	$T_{L,G}$ (°C)	$T_{L,U}$ (°C)	$T_{1\%}$ (°C)	Primary Phase	$C_{650°C}$	$C_{700°C}$	$C_{750°C}$
2953	HLW98-V01																			0.0000			1087					
2954	HLW98-V02																			0.0000			1025					
2955	HLW98-V03																			0.0000			1000					
2956	HLW98-V04																			0.0000			925					
2957	HLW98-V05																			0.0000			920					
2958	HLW98-V06																			0.0000			935					
2959	HLW98-V07																			0.0000			1025					
2960	HLW98-V08																			0.0000								
2961	HLW98-V09																			0.0000								
2962	HLW98-V10																			0.0000			865					
2963	HLW98-V11																			0.0000								
2964	HLW98-V12																			0.0000								
2965	HLW98-V13																			0.0000			1115					
2966	HLW98-V14																			0.0000			1015					
2967	HLW98-V15																			0.0000								
2968	HLW98-V16																			0.0000			935					
2969	HLW98-V17																			0.0000			925					
2970	HLW98-V18																			0.0000								
2971	HLW98-V19																			0.0000			1087					
2972	HLW98-V20																			0.0000								
2973	HLW98-V21																			0.0000								
2974	HLW98-V22																			0.0000								
2975	HLW98-V23																			0.0000								
2976	HLW98-V24																			0.0000								
2977	HLW98-V25																			0.0000								
2978	HLW98-V26																			0.0000								
2979	HLW98-V27																			0.0000								
2980	HLW98-V28																			0.0000								
2981	HLW98-V29																			0.0000								
2982	HLW98-V30																			0.0000								
2983	HLW-E-Cr-10																			0.0000								
2984	HLW-E-Cr-M																			0.0000								
2985	HLW-E-Bi-6																			0.0000								
2986	HLW-E-Al-27																			0.0000								
2987	HLW-E-Al-01																			0.0000								
2988	HLW-E-Al-02																			0.0000								
2989	HLW-E-Al-03																			0.0000								
2990	HLW-E-Al-04																			0.0000								
2991	HLW-E-Al-05																			0.0000								
2992	HLW-E-Al-06																			0.0000								
2993	HLW-E-Al-07																			0.0000								
2994	HLW-E-Al-08																			0.0000								
2995	HLW-E-Al-09																			0.0000								
2996	HLW-E-Al-10																			0.0000								
2997	HLW-E-Al-11																			0.0000								
2998	HLW-E-Al-12																			0.0000								
2999	HLW-E-Al-13																			0.0000								
3000	HLW-E-Al-14																			0.0000								
3001	HLW-E-Al-15																			0.0000								
3002	HLW-E-Al-16																			0.0000								
3003	HLW-E-Al-17																			0.0000								
3004	HLW-E-Al-18																			0.0000								
3005	HLW-E-Al-19																			0.0000								
3006	HLW-E-Al-20																			0.0000								
3007	HLW-E-Al-21																			0.0000								
3008	HLW-E-Al-22																			0.0000								
3009	HLW-E-Al-23																			0.0000								
3010	HLW-E-Al-24																			0.0000								
3011	HLW-E-Al-25																			0.0000								
3012	HLW-E-Al-26																			0.0000								
3013	HLW-E-Al-27																			0.0000								
3014	HLW-E-Al-28																			0.0000								
3015	HLW-E-Al-29																			0.0000								
3016	HLW-E-ANa-01																			0.0000								
3017	HLW-E-ANa-02																			0.0000								
3018	HLW-E-ANa-03																			0.0000								
3019	HLW-E-ANa-04																			0.0000								
3020	HLW-E-ANa-05																			0.0000								
3021	HLW-E-ANa-06																			0.0000								
3022	HLW-E-ANa-07																			0.0000								
3023	HLW-E-ANa-08																			0.0000								
3024	HLW-E-ANa-09																			0.0000								
3025	HLW-E-ANa-10																			0.0000								
3026	HLW-E-ANa-11																			0.0000								
3027	HLW-E-ANa-12																			0.0000								
3028	HLW-E-ANa-13																			0.0000								
3029	HLW-E-ANa-14																			0.0000								
3030	HLW-E-ANa-15																			0.0000								
3031	HLW-E-ANa-16																			0.0000								
3032	HLW-E-ANa-17																			0.0000								
3033	HLW-E-ANa-18																			0.0000								
3034	HLW-E-ANa-19																			0.0000								

#	Glass ID	$C_{800°C}$	$C_{850°C}$	$C_{900°C}$	$C_{950°C}$	$C_{1000°C}$	$C_{1050°C}$	$C_{1100°C}$	$C_{1150°C}$	$C_{1200°C}$	Quenched Visual/OM	Quenched XRD	CCC XRD	ρ (g/cm³)	Fulc Visc A	Fulc Visc B	Fulc Visc To	Arrh Visc E	Arrh Visc F	T1 (°C)	V1 (Pa·s)
2953	HLW98-V01																				
2954	HLW98-V02													2.730							
2955	HLW98-V03													2.750							
2956	HLW98-V04													2.640							
2957	HLW98-V05													2.670							
2958	HLW98-V06													2.620							
2959	HLW98-V07													2.670							
2960	HLW98-V08																				
2961	HLW98-V09													2.650							
2962	HLW98-V10													2.670							
2963	HLW98-V11																				
2964	HLW98-V12													2.630							
2965	HLW98-V13																				
2966	HLW98-V14													2.710							
2967	HLW98-V15																				
2968	HLW98-V16																				
2969	HLW98-V17																				
2970	HLW98-V18																				
2971	HLW98-V19													2.770						1255.0	1.571
2972	HLW98-V20																				
2973	HLW98-V21																				
2974	HLW98-V22																				
2975	HLW98-V23																				
2976	HLW98-V24													2.700	-3.817	7627.2	150.0			1256.0	2.228
2977	HLW98-V25																				
2978	HLW98-V26													2.940							
2979	HLW98-V27																				
2980	HLW98-V28													2.890							
2981	HLW98-V29													2.860							
2982	HLW98-V30													2.820							
2983	HLW-E-Cr-10																				
2984	HLW-E-Cr-M																				
2985	HLW-E-Bi-6																				
2986	HLW-E-Al-27																				
2987	HLW-E-Al-01										crystals									1150.0	Too high
2988	HLW-E-Al-02										crystals									1150.0	Too high
2989	HLW-E-Al-03										crystals									1150.0	Too high
2990	HLW-E-Al-04				34% (R-Al-Silicate+Apatite+Spinel)						crystal crystal tracess									1150.0	OK
2991	HLW-E-Al-05										crystals									1150.0	OK
2992	HLW-E-Al-06				32% (R-Al-Silicate+Apatite+Spinel)															1150.0	10.100
2993	HLW-E-Al-07				6.7% (Apatite+R-Al-silicate+Spinel)						crystal crystal tracess									1150.0	OK (?)
2994	HLW-E-Al-08				6.8% (Spinel+R-Al-Silicate)						crystal crystal tracess									1150.0	2.700
2995	HLW-E-Al-09				4% (Spinel+Apatite)						crystal crystal tracess									1150.0	OK (?)
2996	HLW-E-Al-10				0.021						crystals									1150.0	Low (?)
2997	HLW-E-Al-11				2.9 % (Spinel+Apatite)						crystal crystal tracess									1150.0	1.400
2998	HLW-E-Al-12				1.6 % (Spinel)						crystal crystal tracess									1150.0	1.100
2999	HLW-E-Al-13				1.5 % (Spinel+Apatite)						crystal crystal tracess									1150.0	Low (?)
3000	HLW-E-Al-14										crystals									1150.0	OK
3001	HLW-E-Al-15										crystals									1150.0	OK
3002	HLW-E-Al-16										crystals									1150.0	OK
3003	HLW-E-Al-17										crystals									1150.0	OK
3004	HLW-E-Al-18				1.8 % (Spinel+ZrO2)						crystal traces									1150.0	1.000
3005	HLW-E-Al-19										crystals									1150.0	OK
3006	HLW-E-Al-20										crystals									1150.0	Low (?)
3007	HLW-E-Al-21										crystals									1150.0	Low (?)
3008	HLW-E-Al-22										crystals									1150.0	Low (?)
3009	HLW-E-Al-23										crystals									1150.0	OK
3010	HLW-E-Al-24										Clear									1150.0	OK
3011	HLW-E-Al-25										crystal traces									1150.0	6.000
3012	HLW-E-Al-26										crystals									1150.0	Low (?)
3013	HLW-E-Al-27										Clear									1150.0	4.600
3014	HLW-E-Al-28										crystals									1150.0	Low (?)
3015	HLW-E-Al-29										crystals									1150.0	Low (?)
3016	HLW-E-ANa-01				0.3% (Cr-Fe oxide)						crystal traces (Spinel/Cr2O3)									1150.0	Too high
3017	HLW-E-ANa-02				~0.3 vol%						Clear									1150.0	Too high
3018	HLW-E-ANa-03				0.5 % (Spinel)						crystal traces (Spinel)									1150.0	Too high
3019	HLW-E-ANa-04				0.2 % (Spinel)						Clear									1150.0	8.900
3020	HLW-E-ANa-05				0.3 % (Spinel)						crystal traces (Spinel)									1150.0	8.200
3021	HLW-E-ANa-06				~0.4 vol%						crystal traces (Spinel)									1150.0	11.500
3022	HLW-E-ANa-07				0.8 % (Spinel)						Heterogeneous									1150.0	OK
3023	HLW-E-ANa-08				crystals						Heterogeneous									1150.0	OK (?)
3024	HLW-E-ANa-09				0.4 % (Spinel)						Clear									1150.0	3.800
3025	HLW-E-ANa-10				crystals						crystals									1150.0	OK
3026	HLW-E-ANa-11				~0.5vol%						Clear									1150.0	4.400
3027	HLW-E-ANa-12										Heterogeneous									1150.0	High
3028	HLW-E-ANa-13										Minor (Ca phosphate+Nephline)									1150.0	4.700
3029	HLW-E-ANa-14										Minor (Ca-phosphate+Nepheline)									1150.0	OK
3030	HLW-E-ANa-15										Minor (Ca-phosphate+Nepheline)									1150.0	High
3031	HLW-E-ANa-16										crystal traces (Ca-phosphate+Nepheline)									1150.0	OK
3032	HLW-E-ANa-17										Minor (Ca phosphate)									1150.0	OK
3033	HLW-E-ANa-18										crystal traces (Ca phosphate)									1150.0	OK
3034	HLW-E-ANa-19										crystal traces (Ca phosphate)									1150.0	OK

#	Glass ID	T2 (°C)	V2 (Pa·s)	T3 (°C)	V3 (Pa·s)	T4 (°C)	V4 (Pa·s)	T5 (°C)	V5 (Pa·s)	T6 (°C)	V6 (Pa·s)	T7 (°C)	V7 (Pa·s)	T8 (°C)	V8 (Pa·s)	T9 (°C)	V9 (Pa·s)	T10 (°C)	V10 (Pa·s)	TCLP Ag	TCLP As	TCLP Ba	TCLP Cd	TCLP Cr	TCLP Ni	TCLP Pb
2953	HLW98-V01																									
2954	HLW98-V02																									
2955	HLW98-V03																									
2956	HLW98-V04																									
2957	HLW98-V05																			<0.0031			0.01			<0.0243
2958	HLW98-V06																			0.005			<0.0027			<0.0243
2959	HLW98-V07																									
2960	HLW98-V08																			0.0139			0.0326			
2961	HLW98-V09																									
2962	HLW98-V10																			0.0133		0.0038	0.0312		0.1	0.0149
2963	HLW98-V11																									
2964	HLW98-V12																			0.0054	0.0038	0.0147	0.0248			0.0107
2965	HLW98-V13																									
2966	HLW98-V14																									
2967	HLW98-V15																			0.036	0.182			<0.0055		0.056
2968	HLW98-V16																									
2969	HLW98-V17																									
2970	HLW98-V18																									
2971	HLW98-V19	1152	3.418	1050	8.9	946.0	29.4																			
2972	HLW98-V20																									
2973	HLW98-V21																			0.043	<0.049			0.007		0.037
2974	HLW98-V22																									
2975	HLW98-V23																									
2976	HLW98-V24	1153	4.275	1048	10.7	945.0	32.6																			
2977	HLW98-V25																									
2978	HLW98-V26																									
2979	HLW98-V27																									
2980	HLW98-V28																			<0.0031				0.006		0.03
2981	HLW98-V29																									
2982	HLW98-V30																			0.005				0.006		0.029
2983	HLW-E-Cr-10																									
2984	HLW-E-Cr-M																									
2985	HLW-E-Bi-6																									
2986	HLW-E-Al-27																									
2987	HLW-E-Al-01																									
2988	HLW-E-Al-02																									
2989	HLW-E-Al-03																									
2990	HLW-E-Al-04																									
2991	HLW-E-Al-05																									
2992	HLW-E-Al-06																									
2993	HLW-E-Al-07																									
2994	HLW-E-Al-08																									
2995	HLW-E-Al-09																									
2996	HLW-E-Al-10																									
2997	HLW-E-Al-11																									
2998	HLW-E-Al-12																									
2999	HLW-E-Al-13																									
3000	HLW-E-Al-14																									
3001	HLW-E-Al-15																									
3002	HLW-E-Al-16																									
3003	HLW-E-Al-17																									
3004	HLW-E-Al-18																									
3005	HLW-E-Al-19																									
3006	HLW-E-Al-20																									
3007	HLW-E-Al-21																									
3008	HLW-E-Al-22																									
3009	HLW-E-Al-23																									
3010	HLW-E-Al-24																									
3011	HLW-E-Al-25																									
3012	HLW-E-Al-26																									
3013	HLW-E-Al-27																									
3014	HLW-E-Al-28																									
3015	HLW-E-Al-29																									
3016	HLW-E-ANa-01																									
3017	HLW-E-ANa-02																									
3018	HLW-E-ANa-03																									
3019	HLW-E-ANa-04																									
3020	HLW-E-ANa-05																									
3021	HLW-E-ANa-06																									
3022	HLW-E-ANa-07																									
3023	HLW-E-ANa-08																									
3024	HLW-E-ANa-09																									
3025	HLW-E-ANa-10																									
3026	HLW-E-ANa-11																									
3027	HLW-E-ANa-12																									
3028	HLW-E-ANa-13																									
3029	HLW-E-ANa-14																									
3030	HLW-E-ANa-15																									
3031	HLW-E-ANa-16																									
3032	HLW-E-ANa-17																									
3033	HLW-E-ANa-18																									
3034	HLW-E-ANa-19																									

#	Glass ID	TCLP Se	TCLP Zn	TCLP Al	TCLP B	TCLP Sb	TCLP Tl	TCLP V	Q PCT B (g/m²)	Q PCT Li (g/m²)	Q PCT Na (g/m²)	Q PCT Si (g/m²)	Q PCT pH	CCC PCT B (g/m²)	CCC PCT Li (g/m²)	CCC PCT Na (g/m²)	CCC PCT Si (g/m²)	CCC PCT pH	T1 (°C)
2953	HLW98-V01								0.282	0.291	0.195	0.145	10.240						
2954	HLW98-V02																		
2955	HLW98-V03																		
2956	HLW98-V04																		
2957	HLW98-V05																		
2958	HLW98-V06																		
2959	HLW98-V07								0.286	0.300	0.210	0.155	10.840						
2960	HLW98-V08																		
2961	HLW98-V09																		
2962	HLW98-V10		0.571	0.258	1.28														
2963	HLW98-V11																		
2964	HLW98-V12	0.0056	0.575	0.149	1.08														
2965	HLW98-V13								0.433	0.367	0.331	0.205	10.350						
2966	HLW98-V14																		
2967	HLW98-V15	0.095																	
2968	HLW98-V16																		
2969	HLW98-V17																		
2970	HLW98-V18																		
2971	HLW98-V19								0.394	0.378	0.368	0.205	10.240						1245
2972	HLW98-V20																		
2973	HLW98-V21	0.22																	
2974	HLW98-V22																		
2975	HLW98-V23																		
2976	HLW98-V24								0.479	0.472	0.457	0.245	10.320						1240
2977	HLW98-V25																		
2978	HLW98-V26																		
2979	HLW98-V27																		
2980	HLW98-V28																		
2981	HLW98-V29																		
2982	HLW98-V30																		
2983	HLW-E-Cr-10								1.450	1.000	0.750								1150
2984	HLW-E-Cr-M																		1150
2985	HLW-E-Bi-6								0.245	0.090	0.265								1150
2986	HLW-E-Al-27								0.135	0.220	0.150								1150
2987	HLW-E-Al-01																		
2988	HLW-E-Al-02																		
2989	HLW-E-Al-03																		
2990	HLW-E-Al-04																		
2991	HLW-E-Al-05																		
2992	HLW-E-Al-06																		1150
2993	HLW-E-Al-07																		
2994	HLW-E-Al-08																		1150
2995	HLW-E-Al-09																		
2996	HLW-E-Al-10								0.885	0.920	0.930								
2997	HLW-E-Al-11								0.225	0.275	0.260								1150
2998	HLW-E-Al-12								0.260	0.255	0.270								1150
2999	HLW-E-Al-13																		
3000	HLW-E-Al-14																		
3001	HLW-E-Al-15																		
3002	HLW-E-Al-16																		
3003	HLW-E-Al-17																		
3004	HLW-E-Al-18								0.355	0.315	0.345								1150
3005	HLW-E-Al-19																		
3006	HLW-E-Al-20																		
3007	HLW-E-Al-21																		
3008	HLW-E-Al-22																		
3009	HLW-E-Al-23																		
3010	HLW-E-Al-24								Pass	Pass	Pass								
3011	HLW-E-Al-25								Pass	Pass	Pass								1150
3012	HLW-E-Al-26																		
3013	HLW-E-Al-27								Pass	Pass	Pass								1150
3014	HLW-E-Al-28																		
3015	HLW-E-Al-29																		
3016	HLW-E-ANa-01								Pass	Pass	Pass								1150
3017	HLW-E-ANa-02								0.175	0.330	0.145								1150
3018	HLW-E-ANa-03								0.165	0.340	0.195								1150
3019	HLW-E-ANa-04								0.210	0.300	0.170			0.360	0.590	0.235			1150
3020	HLW-E-ANa-05								0.320	0.410	0.300								1150
3021	HLW-E-ANa-06								0.645	0.600	0.465								1150
3022	HLW-E-ANa-07								Pass	Pass	Pass								1150
3023	HLW-E-ANa-08								0.930	0.760	0.615								1150
3024	HLW-E-ANa-09								1.360	1.010	0.880			40.550	24.650	9.200			1150
3025	HLW-E-ANa-10								1.130	0.855	0.710								1150
3026	HLW-E-ANa-11								1.165	0.800	0.750								1150
3027	HLW-E-ANa-12																		
3028	HLW-E-ANa-13																		1150
3029	HLW-E-ANa-14																		
3030	HLW-E-ANa-15																		
3031	HLW-E-ANa-16																		
3032	HLW-E-ANa-17																		
3033	HLW-E-ANa-18																		
3034	HLW-E-ANa-19																		

#	Glass ID	EC1 (S/cm)	T2 (°C)	EC2 (S/cm)	T3 (°C)	EC3 (S/cm)	T4 (°C)	EC4 (S/cm)	T5 (°C)	EC5 (S/cm)	T6 (°C)	EC6 (S/cm)	A	B	To
2953	HLW98-V01														
2954	HLW98-V02														
2955	HLW98-V03														
2956	HLW98-V04														
2957	HLW98-V05														
2958	HLW98-V06														
2959	HLW98-V07														
2960	HLW98-V08														
2961	HLW98-V09														
2962	HLW98-V10														
2963	HLW98-V11														
2964	HLW98-V12														
2965	HLW98-V13														
2966	HLW98-V14														
2967	HLW98-V15														
2968	HLW98-V16														
2969	HLW98-V17														
2970	HLW98-V18														
2971	HLW98-V19	0.448	1153	0.354	1059	0.241	966	0.145					1.3208	-1674.12	450
2972	HLW98-V20														
2973	HLW98-V21														
2974	HLW98-V22														
2975	HLW98-V23														
2976	HLW98-V24	0.508	1148	0.378	1054	0.273	962	0.169							
2977	HLW98-V25														
2978	HLW98-V26														
2979	HLW98-V27														
2980	HLW98-V28														
2981	HLW98-V29														
2982	HLW98-V30														
2983	HLW-E-Cr-10	0.37													
2984	HLW-E-Cr-M	0.2													
2985	HLW-E-Bi-6	0.47													
2986	HLW-E-Al-27	0.26													
2987	HLW-E-Al-01														
2988	HLW-E-Al-02														
2989	HLW-E-Al-03														
2990	HLW-E-Al-04														
2991	HLW-E-Al-05														
2992	HLW-E-Al-06	0.03													
2993	HLW-E-Al-07														
2994	HLW-E-Al-08	0.07													
2995	HLW-E-Al-09														
2996	HLW-E-Al-10														
2997	HLW-E-Al-11	0.32													
2998	HLW-E-Al-12	0.25													
2999	HLW-E-Al-13														
3000	HLW-E-Al-14														
3001	HLW-E-Al-15														
3002	HLW-E-Al-16														
3003	HLW-E-Al-17														
3004	HLW-E-Al-18	0.2													
3005	HLW-E-Al-19														
3006	HLW-E-Al-20														
3007	HLW-E-Al-21														
3008	HLW-E-Al-22														
3009	HLW-E-Al-23														
3010	HLW-E-Al-24														
3011	HLW-E-Al-25	0.26													
3012	HLW-E-Al-26														
3013	HLW-E-Al-27	0.26													
3014	HLW-E-Al-28														
3015	HLW-E-Al-29														
3016	HLW-E-ANa-01	OK													
3017	HLW-E-ANa-02	OK													
3018	HLW-E-ANa-03	OK													
3019	HLW-E-ANa-04	0.34													
3020	HLW-E-ANa-05	0.35													
3021	HLW-E-ANa-06	0.48													
3022	HLW-E-ANa-07	OK													
3023	HLW-E-ANa-08	OK													
3024	HLW-E-ANa-09	0.48													
3025	HLW-E-ANa-10	OK													
3026	HLW-E-ANa-11	0.5													
3027	HLW-E-ANa-12														
3028	HLW-E-ANa-13	0.31													
3029	HLW-E-ANa-14														
3030	HLW-E-ANa-15														
3031	HLW-E-ANa-16														
3032	HLW-E-ANa-17														
3033	HLW-E-ANa-18														
3034	HLW-E-ANa-19														

#	Glass ID	Study	Reference	Al2O3-t	B2O3-t	CaO-t	Fe2O3-t	FeO-t	K2O-t	Li2O-t	MgO-t	Na2O-t	NiO-t	P2O5-t	SiO2-t	ZrO2-t	Ag2O-t	As2O3-t	As2O5-t	BaO-t	BeO-t	Bi2O3-t	Br-t	CdO-t	Ce2O3-t	CeO2-t	Cl-t
3035	HLW-E-ANa-20	VSL Enhanced HLW	Matlack et al. 2007	0.2134	0.1437	0.0372	0.0282		0.0066	0.0308	0.0022	0.1271	0.0010	0.0202	0.3206	0.0412				0.0003		0.0116		0.0001			
3036	HLW-E-ANa-21	VSL Enhanced HLW	Matlack et al. 2007	0.2134	0.1537	0.0372	0.0282		0.0066	0.0308	0.0022	0.1271	0.0010	0.0202	0.3006	0.0312				0.0003		0.0116		0.0001			
3037	HLW-E-ANa-22	VSL Enhanced HLW	Matlack et al. 2007	0.2134	0.1837	0.0072	0.0282		0.0066	0.0358	0.0022	0.1271	0.0010	0.0202	0.3456	0.0012				0.0003		0.0116		0.0001			
3038	HLW-E-ANa-23	VSL Enhanced HLW	Matlack et al. 2007	0.2134	0.1837	0.0072	0.0282		0.0066	0.0358	0.0022	0.1271	0.0010	0.0202	0.3156	0.0312				0.0003		0.0116		0.0001			
3039	HLW-E-ANa-24	VSL Enhanced HLW	Matlack et al. 2007	0.2270	0.1839	0.0077	0.0300		0.0071	0.0308	0.0023	0.1352	0.0011	0.0215	0.3226	0.0013				0.0003		0.0123		0.0001			
3040	HLW-E-ANa-25	VSL Enhanced HLW	Matlack et al. 2007	0.2270	0.1939	0.0077	0.0300		0.0071	0.0308	0.0023	0.1352	0.0011	0.0215	0.3126	0.0013				0.0003		0.0123		0.0001			
3041	HLW-E-ANa-26	VSL Enhanced HLW	Matlack et al. 2007	0.2361	0.1941	0.0080	0.0311		0.0073	0.0308	0.0024	0.1406	0.0011	0.0224	0.2939	0.0014				0.0003		0.0128		0.0001			
3042	HLW-E-Bi-01	VSL Enhanced HLW	Matlack et al. 2007	0.0932	0.1374	0.0067	0.0557		0.0037	0.0013	0.0034	0.1739	0.0154	0.0399	0.3950	0.0017				0.0001		0.0536		0.0000			
3043	HLW-E-Bi-02	VSL Enhanced HLW	Matlack et al. 2007	0.0932	0.1274	0.0067	0.0557		0.0037	0.0013	0.0034	0.1639	0.0154	0.0399	0.3950	0.0117				0.0001		0.0536		0.0000			
3044	HLW-E-Bi-03	VSL Enhanced HLW	Matlack et al. 2007	0.0932	0.1374	0.0067	0.0557		0.0037	0.0013	0.0034	0.1739	0.0154	0.0399	0.3800	0.0067				0.0001		0.0536		0.0000			
3045	HLW-E-Bi-04	VSL Enhanced HLW	Matlack et al. 2007	0.0932	0.1274	0.0067	0.0557		0.0037	0.0013	0.0034	0.1639	0.0154	0.0399	0.3900	0.0217				0.0001		0.0536		0.0000			
3046	HLW-E-Bi-05	VSL Enhanced HLW	Matlack et al. 2007	0.1049	0.1227	0.0075	0.0626		0.0041	0.0014	0.0038	0.1606	0.0173	0.0449	0.3763	0.0119				0.0001		0.0603		0.0000			
3047	HLW-E-Bi-06	VSL Enhanced HLW	Matlack et al. 2007	0.1166	0.1130	0.0084	0.0696		0.0046	0.0016	0.0043	0.1574	0.0193	0.0499	0.3626	0.0021				0.0001		0.0671		0.0000			
3048	HLW-E-Bi-07	VSL Enhanced HLW	Matlack et al. 2007	0.1282	0.1033	0.0092	0.0766		0.0051	0.0018	0.0047	0.1541	0.0212	0.0548	0.3388	0.0023				0.0001		0.0738		0.0000			
3049	HLW-E-Bi-08	VSL Enhanced HLW	Matlack et al. 2007	0.1049	0.1427	0.0075	0.0626		0.0041	0.0014	0.0038	0.1606	0.0173	0.0449	0.3663	0.0019				0.0001		0.0603		0.0000			
3050	HLW-E-Bi-09	VSL Enhanced HLW	Matlack et al. 2007	0.1049	0.1227	0.0075	0.0626		0.0041	0.0014	0.0038	0.1806	0.0173	0.0449	0.3663	0.0019				0.0001		0.0603		0.0000			
3051	HLW-E-Bi-10	VSL Enhanced HLW	Matlack et al. 2007	0.1049	0.1227	0.0075	0.0626		0.0241	0.0014	0.0038	0.1606	0.0173	0.0449	0.3663	0.0019				0.0001		0.0603		0.0000			
3052	HLW-E-Bi-11	VSL Enhanced HLW	Matlack et al. 2007	0.0699	0.1268	0.0050	0.0418		0.0028	0.0010	0.0026	0.1804	0.0116	0.0299	0.4425	0.0213				0.0001		0.0402		0.0000			
3053	HLW-E-Bi-12	VSL Enhanced HLW	Matlack et al. 2007	0.1399	0.1136	0.0100	0.0835		0.0055	0.0019	0.0051	0.1508	0.0231	0.0598	0.2951	0.0025				0.0001		0.0805		0.0000			
3054	HLW-E-Bi-13	VSL Enhanced HLW	Matlack et al. 2007	0.1282	0.1033	0.0092	0.0766		0.0251	0.0018	0.0047	0.1491	0.0212	0.0548	0.3238	0.0023				0.0001		0.0738		0.0000			
3055	HLW-E-Bi-14	VSL Enhanced HLW	Matlack et al. 2007	0.1515	0.1039	0.0109	0.0905		0.0060	0.0021	0.0055	0.1576	0.0250	0.0648	0.2613	0.0027				0.0001		0.0872		0.0000			
3056	HLW-E-Cr-01	VSL Enhanced HLW	Matlack et al. 2007	0.1106	0.1423	0.0107	0.0569		0.1116	0.0016	0.0007	0.0870	0.0046	0.0145	0.3907	0.0005				0.0001		0.0316		0.0000			
3057	HLW-E-Cr-02	VSL Enhanced HLW	Matlack et al. 2007	0.1106	0.1373	0.0107	0.0569		0.1016	0.0116	0.0007	0.0870	0.0046	0.0145	0.3907	0.0005				0.0001		0.0316		0.0000			
3058	HLW-E-Cr-03	VSL Enhanced HLW	Matlack et al. 2007	0.1106	0.1373	0.0107	0.0569		0.0766	0.0266	0.0007	0.0870	0.0046	0.0145	0.3907	0.0005				0.0001		0.0316		0.0000			
3059	HLW-E-Cr-04	VSL Enhanced HLW	Matlack et al. 2007	0.1106	0.1373	0.0107	0.0569		0.0266	0.0316	0.0007	0.0870	0.0046	0.0145	0.4457	0.0005				0.0001		0.0316		0.0000			
3060	HLW-E-Cr-05	VSL Enhanced HLW	Matlack et al. 2007	0.1106	0.1373	0.0107	0.0569		0.0516	0.0216	0.0007	0.0870	0.0046	0.0145	0.4057	0.0005				0.0001		0.0316		0.0000			
3061	HLW-E-Cr-06	VSL Enhanced HLW	Matlack et al. 2007	0.1106	0.1373	0.0107	0.0569		0.0366	0.0316	0.0007	0.0870	0.0046	0.0145	0.4257	0.0005				0.0001		0.0316		0.0000			
3062	HLW-E-Cr-07	VSL Enhanced HLW	Matlack et al. 2007	0.1106	0.1373	0.0107	0.0569		0.0516	0.0316	0.0007	0.0870	0.0046	0.0145	0.4007	0.0005				0.0001		0.0316		0.0000			
3063	HLW-E-Cr-08	VSL Enhanced HLW	Matlack et al. 2007	0.1106	0.1373	0.0107	0.0569		0.0766	0.0266	0.0007	0.0870	0.0046	0.0145	0.3807	0.0005				0.0001		0.0316		0.0000			
3064	HLW-E-Cr-09	VSL Enhanced HLW	Matlack et al. 2007	0.1106	0.1573	0.0107	0.0569		0.0516	0.0316	0.0007	0.0870	0.0046	0.0145	0.3807	0.0005				0.0001		0.0316		0.0000			
3065	HLW-E-Cr-10	VSL Enhanced HLW	Matlack et al. 2007	0.1106	0.1444	0.0107	0.0569		0.0542	0.0331	0.0007	0.0870	0.0046	0.0145	0.4194	0.0005				0.0001		0.0316		0.0000			
3066	HLW-E-Cr-11	VSL Enhanced HLW	Matlack et al. 2007	0.1106	0.1444	0.0107	0.0569		0.0542	0.0331	0.0007	0.0870	0.0046	0.0145	0.4094	0.0105				0.0001		0.0316		0.0000			
3067	HLW-E-Cr-12	VSL Enhanced HLW	Matlack et al. 2007	0.1244	0.1447	0.0120	0.0640		0.0544	0.0333	0.0008	0.0979	0.0052	0.0163	0.3751	0.0005				0.0001		0.0355		0.0000			
3068	HLW-E-Cr-13	VSL Enhanced HLW	Matlack et al. 2007	0.1382	0.1400	0.0134	0.0711		0.0520	0.0220	0.0009	0.1087	0.0057	0.0181	0.3500	0.0006				0.0002		0.0395		0.0001			
3069	HLW-E-Cr-14	VSL Enhanced HLW	Matlack et al. 2007	0.0829	0.1438	0.0159	0.0426		0.0612	0.0412	0.0005	0.0652	0.0034	0.0108	0.4543	0.0304				0.0001		0.0237		0.0000			
3070	HLW-E-Cr-15	VSL Enhanced HLW	Matlack et al. 2007	0.1244	0.1447	0.0120	0.0640		0.0544	0.0333	0.0008	0.0979	0.0052	0.0163	0.3601	0.0005				0.0001		0.0355		0.0000			
3071	HLW-E-Cr-16	VSL Enhanced HLW	Matlack et al. 2007	0.1382	0.1409	0.0134	0.0711		0.0520	0.0221	0.0009	0.1087	0.0057	0.0181	0.3341	0.0006				0.0002		0.0395		0.0001			
3072	HLW-E-Cr-17	VSL Enhanced HLW	Matlack et al. 2007	0.1175	0.1445	0.0114	0.0604		0.0543	0.0331	0.0007	0.0924	0.0049	0.0154	0.3975	0.0005				0.0001		0.0335		0.0000			
3073	HLW-E-Cr-18	VSL Enhanced HLW	Matlack et al. 2007	0.1175	0.1445	0.0317	0.0604		0.0543	0.0317	0.0007	0.0924	0.0049	0.0154	0.3786	0.0005				0.0001		0.0335		0.0000			
3074	AW-101 Actual	WTP Actual LAW	Smith et al. 2000	0.0608	0.0971	0.0199	0.0554	0.0000	0.0258	0.0000	0.0148	0.2000	0.0000	0.0007	0.4405	0.0299	0.0000	0.0000		0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0008
3075	AN-107 Actual (LAWC15)	WTP Actual LAW	Urie et al. 1999	0.0623	0.0894	0.0201	0.0702	0.0000	0.0014	0.0000	0.0201	0.2000	0.0004	0.0002	0.4478	0.0301	0.0000	0.0000		0.0002		0.0000	0.0008	0.0000	0.0000	0.0000	0.0008
3076	AZ-102 Actual	WTP Actual LAW	Brooks et al. 2000	0.0650	0.1299	0.0800	0.0220	0.0000	0.0021	0.0469	0.0141	0.0500	0.0000	0.0002	0.4997	0.0319	0.0000	0.0000		0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0001
3077	AZ-102 Actual CCC	WTP Actual LAW	Brooks et al. 2000	0.0650	0.1299	0.0800	0.0220	0.0000	0.0021	0.0469	0.0141	0.0500	0.0000	0.0002	0.4997	0.0319	0.0000	0.0000		0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0001
3078	AP-101 Actual	WTP Actual LAW	Fiskum et al. 2000	0.0566	0.0985	0.0200	0.0556	0.0000	0.0382	0.0000	0.0149	0.1846	0.0000	0.0009	0.4427	0.0301	0.0000	0.0000		0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0017
3079	AN-103 Actual	WTP Actual LAW	Crawford et al. 2000b	0.0622	0.0895	0.0201	0.0702	0.0000	0.0060	0.0000	0.0201	0.2000	0.0000	0.0005	0.4468	0.0301	0.0000	0.0000		0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0031
3080	AN-102 Actual	WTP Actual LAW	Crawford et al. 2000a	0.0615	0.1013	0.0642	0.0649	0.0000	0.0009	0.0274	0.0152	0.1180	0.0001	0.0013	0.4675	0.0303	0.0000	0.0000		0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0012
3081	AN-102 Actual LC Melter	WTP Actual LAW	Crawford et al. 2000a	0.0615	0.1010	0.0643	0.0650	0.0000	0.0007	0.0275	0.0152	0.1180	0.0001	0.0008	0.4678	0.0304	0.0000	0.0000		0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0009
3082	AZ-101 Actual	WTP Actual LAW	Hrma et al. 2004	0.0621	0.1004	0.0679	0.0529	0.0000	0.0018	0.0431	0.0299	0.0535	0.0000	0.0005	0.4870	0.0317	0.0000	0.0000		0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3083	LAWCrP1R	WTP CrP	Muller et al. 2006b	0.0610	0.1000	0.0276	0.0550		0.0013		0.0148	0.1935	0.0000	0.0144	0.4440	0.0300											0.0012
3084	LAWCrP2R	WTP CrP	Muller et al. 2006b	0.0610	0.1000	0.0210	0.0550		0.0027		0.0148	0.2100	0.0000	0.0133	0.4307	0.0300											0.0019
3085	LAWCrP3R	WTP CrP	Muller et al. 2006b	0.0610	0.1000	0.0276	0.0550		0.0013		0.0148	0.1935	0.0000	0.0238	0.4346	0.0300											0.0012
3086	LAWCrP4R	WTP CrP	Muller et al. 2006b	0.0610	0.1000	0.0210	0.0550		0.0027		0.0148	0.2099	0.0000	0.0238	0.4201	0.0300											0.0019
3087	LAWCrP5	WTP CrP	Muller et al. 2006b	0.0611	0.1001	0.0581	0.0551	0.0000	0.0009	0.0264	0.0149	0.1440	0.0001	0.0133	0.4351	0.0300	0.0000	0.0000		0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0014
3088	LAWCrP6	WTP CrP	Muller et al. 2006b	0.0610	0.1001	0.0694	0.0550	0.0000	0.0009	0.0417	0.0255	0.0801	0.0001	0.0251	0.4477	0.0300	0.0000	0.0000		0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0014
3089	LAWCrP7	WTP CrP	Muller et al. 2006b	0.0610	0.1001	0.0698	0.0550	0.0000	0.0009	0.0430	0.0293	0.0540	0.0001	0.0251	0.4674	0.0300	0.0000	0.0000		0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0014
3090	LAWCrP8CCC	WTP CrP	Muller et al. 2006b	0.0610	0.1000	0.0694	0.0550		0.0009	0.0417	0.0255	0.0800	0.0002	0.0251	0.4493	0.0300											0.0014
3091	LAWCrP9CCC	WTP CrP	Muller et al. 2006b	0.0610	0.1000	0.0698	0.0550		0.0009	0.0430	0.0293	0.0540	0.0002	0.0251	0.4690	0.0300											0.0014
3092	LAWCrP10CCC	WTP CrP	Muller et al. 2006b	0.0610	0.1000	0.0698	0.0550		0.0009	0.0430	0.0293	0.0540	0.0002	0.0133	0.4818	0.0300											0.0014
3093	LAWE3Cr2CCC	WTP CrP	Muller et al. 2006b	0.0610	0.1000	0.0202	0.0550		0.0499	0.0000	0.0148	0.1821	0.0001	0.0012	0.4163	0.0300											0.0020
3094	LAWE9HCr1CCC	WTP CrP	Muller et al. 2006b	0.0605	0.0992	0.0686	0.0545		0.0054	0.0408	0.0236	0.0893	0.0001	0.0012	0.4627	0.0297											0.0020
3095	LAWE9HCr2CCC	WTP CrP	Muller et al. 2006b	0.0605	0.0992	0.0686	0.0545		0.0054	0.0408	0.0236	0.0893	0.0001	0.0012	0.4642	0.0297											0.0020
3096	LAWE10HCr3CCC	WTP CrP	Muller et al. 2006b	0.0607	0.0995	0.0696	0.0548		0.0054	0.0426	0.0294	0.0572	0.0001	0.0012	0.4865	0.0299											0.0020
3097	HLW-ALG-01	WTP HLW Algorithm Crucible	Kot et al. 2005b	0.1109	0.1056	0.0033	0.0962		0.0012	0.0333	0.0010	0.1728	0.0000	0.0010	0.4529	0.0000	0.0005			0.0004		0.0000		0.0000	0.0005		0.0000
3098	HLW-ALG-02	WTP HLW Algorithm Crucible	Kot et al. 2005b	0.0800	0.1109	0.0035	0.0714		0.0013	0.0355	0.0010	0.1532	0.0052	0.0010	0.4467	0.0650	0.0005			0.0004		0.0000		0.0000	0.0005		0.0000
3099	HLW-ALG-03	WTP HLW Algorithm Crucible	Kot et al. 2005b	0.0193	0.0862	0.0034	0.1265		0.0013	0.0306	0.0010	0.1897	0.0100	0.0010	0.4437	0.0543	0.0005			0.0004		0.0000		0.0000	0.0005		0.0000
3100	HLW-ALG-04	WTP HLW Algorithm Crucible	Kot et al. 2005b	0.0193	0.1113	0.0022	0.1264		0.0008	0.0288	0.0007	0.1598	0.0100	0.0006	0.5188	0.0000	0.0003			0.0000		0.0000		0.0000	0.0003		0.0000
3101	HLW-ALG-05	WTP HLW Algorithm Crucible	Kot et al. 2005b	0.0193	0.0481	0.0052	0.1254		0.0020	0.0429	0.0015	0.0894	0.0078	0.0015	0.4620	0.0000	0.0007			0.0006		0.0000		0.0120	0.0008		0.0000
3102	HLW-ALG-06	WTP HLW Algorithm Crucible	Kot et al. 2005b	0.0967	0.0481	0.0058	0.1062		0.0022	0.0253	0.0016	0.1564	0.0048	0.0017	0.3728	0.0080	0.0008			0.0006		0.0000		0.0132	0.0009		0.0000
3103	HLW-ALG-07	WTP HLW Algorithm Crucible	Kot et al. 2005b	0.0819	0.1070	0.0039	0.0193		0.0015	0.0326	0.0011	0.1178	0.0000	0.0012	0.4411	0.0626	0.0005			0.0004		0.0000		0.0000	0.0006		0.0000
3104	HLW-ALG-08	WTP HLW Algorithm Crucible	Kot et al. 2005b	0.0193	0.0481	0.0059	0.0732		0.0022	0.0208	0.0017	0.1394	0.0089	0.0017	0.3670	0.0954	0.0008			0.0006		0.0000		0.0135	0.0009		0.0000
3105	HLW-ALG-09	WTP HLW Algorithm Crucible	Kot et al. 2005b	0.0548	0.0481	0.0056	0.1393		0.0035	0.0199	0.0049	0.1512	0.0019	0.0020	0.3887	0.0256	0.0005			0.0008		0.0000		0.0008	0.0012		0.0005
3106	HLW-ALG-10	WTP HLW Algorithm Crucible	Kot et al. 2005b	0.0193	0.0945	0.0033	0.1098		0.0012	0.0202	0.0010	0.1741	0.0100	0.0010	0.4711	0.0016	0.0005			0.0004		0.0000		0.0085	0.0005		0.0000
3107	HLW-ALG-11	WTP HLW Algorithm Crucible	Kot et al. 2005b	0.1189	0.1219	0.0057	0.0193		0.0021	0.0601	0.0016	0.0606	0.0000	0.0017	0.3508	0.0913	0.0008			0.0006		0.0000		0.0000	0.0009		0.0000
3108	HLW-ALG-12	WTP HLW Algorithm Crucible	Kot et al. 2005b	0.0594	0.0481	0.0059	0.1254		0.0022	0.0275	0.0017	0.1590	0.0081	0.0017	0.4035	0.0239	0.0008			0.0006		0.0000		0.0041	0.0009		0.0000
3109	HLW-ALG-13	WTP HLW Algorithm Crucible	Kot et al. 2005b	0.0617	0.0481	0.0088	0.0722		0.0034	0.0335	0.0025	0.0950	0.0006	0.0026	0.3506	0.0919	0.0012			0.0010		0.0003		0.0006	0.0013		0.0003
3110	HLW-ALG-14	WTP HLW Algorithm Crucible	Kot et al. 2005b	0.0354	0.0481	0.0051	0.1256		0.0019	0.0601	0.0015	0.0480	0.0076	0.0015	0.4760	0.0000	0.0007			0.0005		0.0000		0.0149	0.0008		0.0000
3111	HLW-ALG-15	WTP HLW Algorithm Crucible	Kot et al. 2005b	0.0973	0.1403	0.0042	0.0978		0.0016	0.0193	0.0012	0.1758	0.0064	0.0012	0.3745	0.0685	0.0006			0.0005		0.0000		0.0000	0.0006		0.0000
3112	HLW-ALG-16	WTP HLW Algorithm Crucible	Kot et al. 2005b	0.1033	0.1385	0.0036	0.0440		0.0014	0.0202	0.0010	0.1741	0.0075	0.0011	0.4377	0.0376	0.0005			0.0004		0.0000		0.0003	0.0006		0.0000
3113	HLW-ALG-17	WTP HLW Algorithm Crucible	Kot et al. 2005b	0.0193	0.1034	0.0033	0.1252		0.0012	0.0202	0.0010	0.1741	0.0100	0.0010	0.4587	0.0016	0.0005			0.0004		0.0000		0.0000	0.0005		0.0000
3114	HLW-ALG-18	WTP HLW Algorithm Crucible	Kot et al. 2005b	0.1136	0.1111	0.0034	0.1037		0.0013	0.0344	0.0010	0.1481	0.0000	0.0010	0.4599	0.0000	0.0005			0.0004		0.0000		0.0000	0.0005		0.0000
3115	HLW-ALG-19	WTP HLW Algorithm Crucible	Kot et al. 2005b	0.0193	0.0965	0.0034	0.1265		0.0013	0.0266	0.0010	0.1613	0.0100	0.0010	0.4656	0.0543	0.0005			0.0004		0.0000		0.0000	0.0005		0.0000
3116	HLW-ALG-20	WTP HLW Algorithm Crucible	Kot et al. 2005b	0.0193	0.0775	0.0034	0.1265		0.0013	0.0293	0.0010	0.1740	0.0100	0.0010	0.4693	0.0543	0.0005			0.0004		0.0000		0.0000	0.0005		0.0000

#	Glass ID	CoO-t	Co2O3-t	Cr2O3-t	Cs2O-t	CuO-t	Dy2O3-t	Eu2O3-t	F-t	Ga2O3-t	Gd2O3-t	HfO2-t	HgO-t	I-t	La2O3-t	MnO2-t	MnO-t	MoO-t	MoO2-t	MoO3-t	Nb2O5-t	Nd2O3-t	NpO2-t	PbO-t	PdO2-t	PdO-t	Pr2O3-t	Pr6O11-t	Rb2O-t	ReO-t
3035	HLW-E-ANa-20			0.0071					0.0023															0.0009						
3036	HLW-E-ANa-21			0.0071					0.0023															0.0009						
3037	HLW-E-ANa-22			0.0071					0.0023															0.0009						
3038	HLW-E-ANa-23			0.0071					0.0023															0.0009						
3039	HLW-E-ANa-24			0.0076					0.0024															0.0010						
3040	HLW-E-ANa-25			0.0076					0.0024															0.0010						
3041	HLW-E-ANa-26			0.0079					0.0025															0.0010						
3042	HLW-E-Bi-01			0.0042					0.0066															0.0020						
3043	HLW-E-Bi-02			0.0042					0.0066															0.0020						
3044	HLW-E-Bi-03			0.0042					0.0066															0.0020						
3045	HLW-E-Bi-04			0.0042					0.0066															0.0020						
3046	HLW-E-Bi-05			0.0047					0.0074															0.0023						
3047	HLW-E-Bi-06			0.0052					0.0082															0.0025						
3048	HLW-E-Bi-07			0.0057					0.0090															0.0028						
3049	HLW-E-Bi-08			0.0047					0.0074															0.0023						
3050	HLW-E-Bi-09			0.0047					0.0074															0.0023						
3051	HLW-E-Bi-10			0.0047					0.0074															0.0023						
3052	HLW-E-Bi-11			0.0031					0.0049															0.0015						
3053	HLW-E-Bi-12			0.0062					0.0098															0.0030						
3054	HLW-E-Bi-13			0.0057					0.0090															0.0028						
3055	HLW-E-Bi-14			0.0068					0.0107															0.0033						
3056	HLW-E-Cr-01			0.0133					0.0087															0.0071						
3057	HLW-E-Cr-02			0.0133					0.0087															0.0121						
3058	HLW-E-Cr-03			0.0133					0.0087															0.0221						
3059	HLW-E-Cr-04			0.0133					0.0087															0.0121						
3060	HLW-E-Cr-05			0.0133					0.0087															0.0121						
3061	HLW-E-Cr-06			0.0133					0.0087															0.0221						
3062	HLW-E-Cr-07			0.0133					0.0087															0.0321						
3063	HLW-E-Cr-08			0.0133					0.0087															0.0321						
3064	HLW-E-Cr-09			0.0133					0.0087															0.0321						
3065	HLW-E-Cr-10			0.0133					0.0087															0.0021						
3066	HLW-E-Cr-11			0.0133					0.0087															0.0021						
3067	HLW-E-Cr-12			0.0150					0.0097															0.0023						
3068	HLW-E-Cr-13			0.0166					0.0108															0.0026						
3069	HLW-E-Cr-14			0.0100					0.0065															0.0016						
3070	HLW-E-Cr-15			0.0150					0.0097															0.0023						
3071	HLW-E-Cr-16			0.0166					0.0108															0.0026						
3072	HLW-E-Cr-17			0.0141					0.0092															0.0022						
3073	HLW-E-Cr-18			0.0141					0.0092															0.0022						
3074	AW-101 Actual	0.0000	0.0000	0.0001	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3075	AN-107 Actual (LAWC15)	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0047	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3076	AZ-102 Actual	0.0000	0.0000	0.0006	0.0000	0.0000		0.0000	0.0005	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3077	AZ-102 Actual CCC	0.0000	0.0000	0.0006	0.0000	0.0000		0.0000	0.0005	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3078	AP-101 Actual	0.0000	0.0000	0.0003	0.0000	0.0000		0.0000	0.0027	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3079	AN-103 Actual	0.0000	0.0000	0.0001	0.0000	0.0000		0.0000	0.0002	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3080	AN-102 Actual	0.0000	0.0000	0.0002	0.0000	0.0000		0.0000	0.0006	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3081	AN-102 Actual LC Melter	0.0000	0.0000	0.0002	0.0000	0.0000		0.0000	0.0005	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3082	AZ-101 Actual	0.0000	0.0000	0.0003	0.0000	0.0000		0.0000	0.0008	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3083	LAWCrP1R			0.0033					0.0011															0.0000						
3084	LAWCrP2R			0.0059					0.0010															0.0000						
3085	LAWCrP3R			0.0033					0.0011															0.0000						
3086	LAWCrP4R			0.0059					0.0010															0.0000						
3087	LAWCrP5	0.0000	0.0000	0.0059	0.0000	0.0000		0.0000	0.0007	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3088	LAWCrP6	0.0000	0.0000	0.0063	0.0000	0.0000		0.0000	0.0007	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3089	LAWCrP7	0.0000	0.0000	0.0063	0.0000	0.0000		0.0000	0.0007	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3090	LAWCrP8CCC			0.0043					0.0007															0.0001						
3091	LAWCrP9CCC			0.0043					0.0007															0.0001						
3092	LAWCrP10CCC			0.0033					0.0007															0.0001						
3093	LAWE3Cr2CCC			0.0140					0.0008															0.0001						
3094	LAWE9HCr1CCC			0.0060					0.0008															0.0001						
3095	LAWE9HCr2CCC			0.0045					0.0008															0.0001						
3096	LAWE10HCr3CCC			0.0035					0.0008															0.0001						
3097	HLW-ALG-01			0.0050	0.0000	0.0000			0.0003						0.0010		0.0000					0.0008		0.0020		0.0000	0.0000		0.0000	
3098	HLW-ALG-02			0.0028	0.0000	0.0000			0.0003						0.0011		0.0000					0.0009		0.0021		0.0000	0.0000		0.0000	
3099	HLW-ALG-03			0.0050	0.0000	0.0000			0.0003						0.0010		0.0210					0.0009		0.0021		0.0000	0.0000		0.0000	
3100	HLW-ALG-04			0.0050	0.0000	0.0000			0.0000						0.0007		0.0000					0.0006		0.0014		0.0000	0.0000		0.0000	
3101	HLW-ALG-05			0.0041	0.0000	0.0000			0.0005						0.0016		0.0691					0.0013		0.0032		0.0000	0.0003		0.0000	
3102	HLW-ALG-06			0.0020	0.0003	0.0003			0.0006						0.0018		0.0401					0.0015		0.0036		0.0000	0.0003		0.0000	
3103	HLW-ALG-07			0.0000	0.0000	0.0000			0.0004						0.0012		0.0234					0.0010		0.0024		0.0000	0.0000		0.0000	
3104	HLW-ALG-08			0.0047	0.0003	0.0003			0.0006						0.0018		0.0356					0.0015		0.0036		0.0000	0.0003		0.0000	
3105	HLW-ALG-09			0.0021	0.0000	0.0000			0.0008						0.0039		0.0392					0.0030		0.0041		0.0000	0.0003		0.0000	
3106	HLW-ALG-10			0.0050	0.0000	0.0000			0.0003						0.0010		0.0701					0.0008		0.0020		0.0000	0.0000		0.0000	
3107	HLW-ALG-11			0.0000	0.0000	0.0000			0.0005						0.0017		0.0341					0.0015		0.0035		0.0000	0.0003		0.0000	
3108	HLW-ALG-12			0.0028	0.0003	0.0003			0.0006						0.0018		0.0203					0.0015		0.0036		0.0000	0.0003		0.0000	
3109	HLW-ALG-13			0.0000	0.0004	0.0004			0.0008						0.0027		0.0306					0.0023		0.0055		0.0000	0.0005		0.0000	
3110	HLW-ALG-14			0.0000	0.0000	0.0000			0.0005						0.0016		0.0671					0.0013		0.0031		0.0000	0.0003		0.0000	
3111	HLW-ALG-15			0.0034	0.0000	0.0000			0.0004						0.0013		0.0000					0.0011		0.0026		0.0000	0.0000		0.0000	
3112	HLW-ALG-16			0.0050	0.0000	0.0000			0.0003						0.0011		0.0000					0.0009		0.0022		0.0000	0.0000		0.0000	
3113	HLW-ALG-17			0.0050	0.0000	0.0000			0.0003						0.0010		0.0691					0.0008		0.0020		0.0000	0.0000		0.0000	
3114	HLW-ALG-18			0.0000	0.0000	0.0000			0.0003						0.0010		0.0000					0.0009		0.0021		0.0000	0.0000		0.0000	
3115	HLW-ALG-19			0.0050	0.0000	0.0000			0.0003						0.0010		0.0210					0.0009		0.0021		0.0000	0.0000		0.0000	
3116	HLW-ALG-20			0.0050	0.0000	0.0000			0.0003						0.0010		0.0210					0.0009		0.0021		0.0000	0.0000		0.0000	

#	Glass ID	ReO2-t	Re2O7-t	Rh2O3-t	RhO2-t	RuO2-t	Ru2O3-t	Sb2O3-t	Sb2O5-t	SeO2-t	Sm2O3-t	SnO-t	SnO2-t	SO3-t	SrO-t	Tc2O7-t	TeO2-t	ThO2-t	TiO2-t	Tl2O-t	Tl2O3-t	U3O8-t	UO2-t	UO3-t	V2O5-t	WO3-t	Y2O3-t	ZnO-t	Sum-t	Al2O3-a
3035	HLW-E-ANa-20													0.0022	0.0000				0.0017					0.0000			0.0018	1.0000	
3036	HLW-E-ANa-21													0.0022	0.0000				0.0217					0.0000			0.0018	1.0000	
3037	HLW-E-ANa-22													0.0022	0.0000				0.0017					0.0000			0.0018	1.0000	
3038	HLW-E-ANa-23													0.0022	0.0000				0.0017					0.0000			0.0018	1.0000	
3039	HLW-E-ANa-24													0.0023	0.0000				0.0019					0.0000			0.0019	1.0000	
3040	HLW-E-ANa-25													0.0023	0.0000				0.0019					0.0000			0.0019	1.0000	
3041	HLW-E-ANa-26													0.0024	0.0000				0.0019					0.0000			0.0020	1.0000	
3042	HLW-E-Bi-01													0.0038	0.0000				0.0012					0.0000			0.0013	1.0000	
3043	HLW-E-Bi-02													0.0038	0.0000				0.0012					0.0000			0.0113	1.0000	
3044	HLW-E-Bi-03													0.0038	0.0000				0.0012					0.0000			0.0113	1.0000	
3045	HLW-E-Bi-04													0.0038	0.0000				0.0012					0.0000			0.0063	1.0000	
3046	HLW-E-Bi-05													0.0043	0.0000				0.0014					0.0000			0.0014	1.0000	
3047	HLW-E-Bi-06													0.0048	0.0000				0.0016					0.0000			0.0016	1.0000	
3048	HLW-E-Bi-07													0.0052	0.0000				0.0017					0.0000			0.0018	1.0000	
3049	HLW-E-Bi-08													0.0043	0.0000				0.0014					0.0000			0.0014	1.0000	
3050	HLW-E-Bi-09													0.0043	0.0000				0.0014					0.0000			0.0014	1.0000	
3051	HLW-E-Bi-10													0.0043	0.0000				0.0014					0.0000			0.0014	1.0000	
3052	HLW-E-Bi-11													0.0029	0.0000				0.0009					0.0000			0.0110	1.0000	
3053	HLW-E-Bi-12													0.0057	0.0000				0.0019					0.0000			0.0019	1.0000	
3054	HLW-E-Bi-13													0.0052	0.0000				0.0017					0.0000			0.0018	1.0000	
3055	HLW-E-Bi-14													0.0062	0.0000				0.0020					0.0000			0.0021	1.0000	
3056	HLW-E-Cr-01													0.0066	0.0000				0.0000					0.0000			0.0011	1.0000	
3057	HLW-E-Cr-02													0.0066	0.0000				0.0000					0.0000			0.0011	1.0000	
3058	HLW-E-Cr-03													0.0066	0.0000				0.0000					0.0000			0.0011	1.0000	
3059	HLW-E-Cr-04													0.0066	0.0000				0.0000					0.0000			0.0011	1.0000	
3060	HLW-E-Cr-05													0.0066	0.0250				0.0000					0.0000			0.0011	1.0000	
3061	HLW-E-Cr-06													0.0066	0.0000				0.0000					0.0000			0.0011	1.0000	
3062	HLW-E-Cr-07													0.0066	0.0000				0.0000					0.0000			0.0011	1.0000	
3063	HLW-E-Cr-08													0.0066	0.0000				0.0000					0.0000			0.0011	1.0000	
3064	HLW-E-Cr-09													0.0066	0.0000				0.0000					0.0000			0.0011	1.0000	
3065	HLW-E-Cr-10													0.0066	0.0000				0.0000					0.0000			0.0011	1.0000	
3066	HLW-E-Cr-11													0.0066	0.0000				0.0000					0.0000			0.0011	1.0000	
3067	HLW-E-Cr-12													0.0074	0.0000				0.0000					0.0000			0.0012	1.0000	
3068	HLW-E-Cr-13													0.0082	0.0000				0.0001					0.0000			0.0014	1.0000	
3069	HLW-E-Cr-14													0.0049	0.0000				0.0000					0.0000			0.0008	1.0000	
3070	HLW-E-Cr-15													0.0074	0.0000				0.0000					0.0150			0.0012	1.0000	
3071	HLW-E-Cr-16													0.0082	0.0000				0.0001					0.0150			0.0014	1.0000	
3072	HLW-E-Cr-17													0.0070	0.0000				0.0000					0.0000			0.0012	1.0000	
3073	HLW-E-Cr-18													0.0070	0.0000				0.0000					0.0000			0.0012	1.0000	
3074	AW-101 Actual	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0021	0.0000	0.0000	0.0000	0.0000	0.0199		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0295	0.9974	0.0623
3075	AN-107 Actual (LAWC15)	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0013	0.0000	0.0000	0.0000	0.0000	0.0200		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0299	0.9999	0.0631
3076	AZ-102 Actual	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0086	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0487	1.0001	0.0584
3077	AZ-102 Actual CCC	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0086	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0487	1.0001	
3078	AP-101 Actual	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0031	0.0000	0.0000	0.0000	0.0000	0.0201		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0297	0.9997	0.0556
3079	AN-103 Actual	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0000	0.0000	0.0000	0.0000	0.0201		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0300	1.0000	0.0652
3080	AN-102 Actual	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0036	0.0000	0.0000	0.0000	0.0000	0.0113		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0303	0.9998	0.0635
3081	AN-102 Actual LC Melter	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0032	0.0000	0.0000	0.0000	0.0000	0.0113		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0304	0.9986	0.0554
3082	AZ-101 Actual	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0055	0.0000	0.0000	0.0000	0.0000	0.0140		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0485	0.9999	0.0593
3083	LAWCrP1R													0.0039					0.0140								0.0350	1.0002	0.0631
3084	LAWCrP2R													0.0034					0.0140								0.0350	0.9998	0.0630
3085	LAWCrP3R													0.0039					0.0140								0.0350	1.0001	0.0616
3086	LAWCrP4R													0.0034					0.0140								0.0350	0.9997	0.0630
3087	LAWCrP5	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0051	0.0000	0.0000	0.0000	0.0000	0.0140		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0350	1.0013	0.0622
3088	LAWCrP6	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0065	0.0000	0.0000	0.0000	0.0000	0.0140		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0350	1.0007	0.0627
3089	LAWCrP7	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0073	0.0000	0.0000	0.0000	0.0000	0.0140		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0350	1.0007	0.0627
3090	LAWCrP8CCC													0.0065					0.0140								0.0350	1.0000	0.0670
3091	LAWCrP9CCC													0.0073					0.0140								0.0350	1.0000	0.0623
3092	LAWCrP10CCC													0.0073					0.0140								0.0350	1.0000	0.0573
3093	LAWE3Cr2CCC													0.0035					0.0140								0.0350	1.0000	0.0632
3094	LAWE9HCr1CCC													0.0069					0.0139								0.0347	1.0000	0.0668
3095	LAWE9HCr2CCC													0.0069					0.0139								0.0347	1.0000	0.0594
3096	LAWE10HCr3CCC													0.0080					0.0139								0.0348	1.0000	0.0677
3097	HLW-ALG-01			0.0000		0.0003								0.0005	0.0000			0.0000	0.0000				0.0000		0.0000		0.0106	1.0000	0.1109
3098	HLW-ALG-02			0.0000		0.0003								0.0005	0.0000			0.0000	0.0000				0.0000		0.0000		0.0158	1.0000	0.0800
3099	HLW-ALG-03			0.0000		0.0003								0.0005	0.0000			0.0000	0.0004				0.0000		0.0000		0.0003	1.0000	0.0193
3100	HLW-ALG-04			0.0000		0.0000								0.0004	0.0000			0.0000	0.0004				0.0000		0.0000		0.0123	1.0000	0.0193
3101	HLW-ALG-05			0.0000		0.0005								0.0008	0.0989			0.0000	0.0003				0.0000		0.0000		0.0005	1.0000	0.0193
3102	HLW-ALG-06			0.0000		0.0005								0.0009	0.0801			0.0160	0.0003				0.0060		0.0003		0.0006	1.0000	0.0967
3103	HLW-ALG-07			0.0000		0.0003								0.0006	0.0411			0.0413	0.0000				0.0000		0.0000		0.0167	1.0000	0.0819
3104	HLW-ALG-08			0.0000		0.0005								0.0009	0.0627			0.0401	0.0005				0.0464		0.0003		0.0006	1.0000	0.0193
3105	HLW-ALG-09			0.0000		0.0000								0.0023	0.0748			0.0060	0.0000				0.0136		0.0000		0.0006	1.0000	0.0548
3106	HLW-ALG-10			0.0000		0.0003								0.0005	0.0000			0.0023	0.0004				0.0000		0.0000		0.0003	1.0000	0.0193
3107	HLW-ALG-11			0.0000		0.0005								0.0009	0.0599			0.0601	0.0000				0.0000		0.0003		0.0005	1.0000	0.1189
3108	HLW-ALG-12			0.0000		0.0005								0.0009	0.0609			0.0162	0.0003				0.0162		0.0003		0.0006	1.0000	0.0594
3109	HLW-ALG-13			0.0000		0.0008								0.0013	0.0613			0.0551	0.0004				0.0613		0.0004		0.0008	1.0000	0.0617
3110	HLW-ALG-14			0.0000		0.0004								0.0008	0.0962			0.0000	0.0005				0.0000		0.0000		0.0005	1.0000	0.0354
3111	HLW-ALG-15			0.0000		0.0004								0.0006	0.0000			0.0000	0.0000				0.0000		0.0000		0.0004	1.0000	0.0973
3112	HLW-ALG-16			0.0000		0.0003								0.0006	0.0000			0.0000	0.0000				0.0000		0.0000		0.0179	1.0000	0.1033
3113	HLW-ALG-17			0.0000		0.0003								0.0005	0.0000			0.0000	0.0004				0.0000		0.0000		0.0003	1.0000	0.0193
3114	HLW-ALG-18			0.0000		0.0003								0.0005	0.0000			0.0000	0.0000				0.0000		0.0000		0.0162	1.0000	0.1136
3115	HLW-ALG-19			0.0000		0.0003								0.0005	0.0000			0.0000	0.0004				0.0000		0.0000		0.0003	1.0000	0.0193
3116	HLW-ALG-20			0.0000		0.0003								0.0005	0.0000			0.0000	0.0004				0.0000		0.0000		0.0003	1.0000	0.0193

#	Glass ID	B2O3-a	CaO-a	Fe2O3-a	FeO-a	K2O-a	Li2O-a	MgO-a	Na2O-a	NiO-a	P2O5-a	SiO2-a	ZrO2-a	Ag2O-a	As2O3-a	As2O5-a	BaO-a	BeO-a	Bi2O3-a	Br-a	CdO-a	Ce2O3-a	CeO2-a	Cl-a	CoO-a	Co2O3-a	Cr2O3-a	Cs2O-a	CuO-a	F-a
3035	HLW-E-ANa-20																													
3036	HLW-E-ANa-21																													
3037	HLW-E-ANa-22																													
3038	HLW-E-ANa-23																													
3039	HLW-E-ANa-24																													
3040	HLW-E-ANa-25																													
3041	HLW-E-ANa-26																													
3042	HLW-E-Bi-01																													
3043	HLW-E-Bi-02																													
3044	HLW-E-Bi-03																													
3045	HLW-E-Bi-04																													
3046	HLW-E-Bi-05																													
3047	HLW-E-Bi-06																													
3048	HLW-E-Bi-07																													
3049	HLW-E-Bi-08																													
3050	HLW-E-Bi-09																													
3051	HLW-E-Bi-10																													
3052	HLW-E-Bi-11																													
3053	HLW-E-Bi-12																													
3054	HLW-E-Bi-13																													
3055	HLW-E-Bi-14																													
3056	HLW-E-Cr-01																													
3057	HLW-E-Cr-02																													
3058	HLW-E-Cr-03																													
3059	HLW-E-Cr-04																													
3060	HLW-E-Cr-05																													
3061	HLW-E-Cr-06																													
3062	HLW-E-Cr-07																													
3063	HLW-E-Cr-08																													
3064	HLW-E-Cr-09																													
3065	HLW-E-Cr-10																													
3066	HLW-E-Cr-11																													
3067	HLW-E-Cr-12																													
3068	HLW-E-Cr-13																													
3069	HLW-E-Cr-14																													
3070	HLW-E-Cr-15																													
3071	HLW-E-Cr-16																													
3072	HLW-E-Cr-17																													
3073	HLW-E-Cr-18																													
3074	AW-101 Actual	0.0943	0.0184	0.0506		0.0307		0.0156	0.2003		0.0015	0.4411	0.0320											0.0079			0.0004			
3075	AN-107 Actual (LAWC15)	0.0858	0.0180	0.0645		0.0013		0.0213	0.2015	0.0005	0.0002	0.4511	0.0342							0.0008				0.0008			0.0003			0.0047
3076	AZ-102 Actual	0.1245	0.0666	0.0229		0.0020	0.0477	0.0170	0.0455		0.0020	0.5386	0.0323											0.0020			0.0008			0.0020
3077	AZ-102 Actual CCC																													
3078	AP-101 Actual	0.0993	0.0200	0.0573		0.0283		0.0159	0.1862		0.0012	0.4472	0.0273											0.0017			0.0005			0.0027
3079	AN-103 Actual	0.0880	0.0216	0.0686		0.0071		0.0202	0.1930		0.0006	0.4328	0.0306														0.0005			
3080	AN-102 Actual	0.1059	0.0625	0.0705		0.0014	0.0273	0.0162	0.1221	0.0003	0.0012	0.4947	0.0326											0.0012			0.0010			0.0006
3081	AN-102 Actual LC Melter	0.0985	0.0578	0.0652		0.0001	0.0278	0.0146	0.1029	0.0004	0.0011	0.4850	0.0327											0.0009			0.0009			0.0005
3082	AZ-101 Actual	0.1004	0.0655	0.0526		0.0025	0.0434	0.0301	0.0558		0.0009	0.4890	0.0294														0.0008			0.0008
3083	LAWCrP1R	0.0990	0.0280	0.0531		0.0021	0.0003	0.0141	0.1816	0.0002	0.0155	0.4292	0.0278											0.0012			0.0040			0.0011
3084	LAWCrP2R	0.1000	0.0220	0.0550		0.0037	0.0002	0.0145	0.1907	0.0000	0.0144	0.4149	0.0276											0.0018			0.0069			0.0010
3085	LAWCrP3R	0.0965	0.0279	0.0531		0.0022	0.0003	0.0150	0.1771	0.0001	0.0250	0.4117	0.0283											0.0011			0.0038			0.0011
3086	LAWCrP4R	0.1010	0.0218	0.0541		0.0038	0.0002	0.0145	0.1934	0.0001	0.0252	0.4059	0.0284											0.0020			0.0067			0.0010
3087	LAWCrP5	0.1074	0.0614	0.0598		0.0014	0.0285	0.0137	0.1339	0.0002	0.0138	0.4216	0.0324											0.0013			0.0059			0.0007
3088	LAWCrP6	0.1004	0.0663	0.0557		0.0021	0.0391	0.0233	0.0770	0.0001	0.0277	0.4584	0.0307											0.0013			0.0056			0.0007
3089	LAWCrP7	0.0993	0.0663	0.0549		0.0020	0.0401	0.0271	0.0503	0.0001	0.0272	0.4737	0.0301											0.0012			0.0053			0.0007
3090	LAWCrP8CCC	0.1008	0.0666	0.0511		0.0018	0.0416	0.0240	0.0778	0.0002	0.0254	0.4513	0.0300											0.0012			0.0043			0.0007
3091	LAWCrP9CCC	0.1008	0.0668	0.0552		0.0018	0.0416	0.0257	0.0641	0.0002	0.0270	0.4611	0.0302											0.0012			0.0040			0.0007
3092	LAWCrP10CCC	0.1020	0.0669	0.0601		0.0018	0.0403	0.0276	0.0529	0.0002	0.0284	0.4692	0.0309											0.0012			0.0036			0.0007
3093	LAWE3Cr2CCC	0.1011	0.0204	0.0557		0.0489	0.0002	0.0138	0.1758	0.0002	0.0025	0.4149	0.0310											0.0017			0.0122			0.0008
3094	LAWE9HCr1CCC	0.1095	0.0661	0.0540		0.0071	0.0388	0.0221	0.0863	0.0002	0.0019	0.4573	0.0295											0.0019			0.0054			0.0008
3095	LAWE9HCr2CCC	0.1101	0.0661	0.0519		0.0058	0.0373	0.0220	0.0855	0.0002	0.0020	0.4589	0.0269											0.0018			0.0049			0.0008
3096	LAWE10HCr3CCC	0.1105	0.0667	0.0545		0.0070	0.0408	0.0276	0.0584	0.0001	0.0022	0.4695	0.0295											0.0016			0.0038			0.0008
3097	HLW-ALG-01	0.1056	0.0033	0.0962		0.0012	0.0333	0.0010	0.1728		0.0010	0.4529		0.0005			0.0004					0.0005					0.0050			0.0003
3098	HLW-ALG-02	0.1109	0.0035	0.0715		0.0013	0.0355	0.0010	0.1532	0.0052	0.0010	0.4467	0.0650	0.0005			0.0004					0.0005					0.0028			0.0003
3099	HLW-ALG-03	0.0862	0.0034	0.1265		0.0013	0.0306	0.0010	0.1897	0.0100	0.0010	0.4437	0.0543	0.0005			0.0004					0.0005					0.0050			0.0003
3100	HLW-ALG-04	0.1113	0.0022	0.1264		0.0008	0.0288	0.0007	0.1598	0.0100	0.0006	0.5188		0.0003								0.0003					0.0050			
3101	HLW-ALG-05	0.0481	0.0052	0.1254		0.0020	0.0429	0.0015	0.0894	0.0078	0.0015	0.4620		0.0007			0.0006				0.0120	0.0008					0.0042			0.0005
3102	HLW-ALG-06	0.0481	0.0058	0.1062		0.0022	0.0253	0.0016	0.1564	0.0048	0.0017	0.3728	0.0080	0.0008			0.0006				0.0132	0.0009					0.0020	0.0003	0.0003	0.0006
3103	HLW-ALG-07	0.1070	0.0039	0.0193		0.0015	0.0326	0.0011	0.1178		0.0012	0.4411	0.0626	0.0005			0.0004					0.0006								0.0004
3104	HLW-ALG-08	0.0481	0.0059	0.0732		0.0022	0.0208	0.0017	0.1394	0.0089	0.0017	0.3670	0.0954	0.0008			0.0006				0.0135	0.0009					0.0047	0.0003	0.0003	0.0006
3105	HLW-ALG-09	0.0481	0.0056	0.1393		0.0035	0.0199	0.0049	0.1512	0.0019	0.0020	0.3887	0.0257	0.0005			0.0008				0.0008	0.0012		0.0005			0.0021			0.0008
3106	HLW-ALG-10	0.0945	0.0033	0.1098		0.0013	0.0202	0.0010	0.1741	0.0100	0.0010	0.4711	0.0016	0.0005			0.0004				0.0085	0.0005					0.0050			0.0003
3107	HLW-ALG-11	0.1219	0.0057	0.0193		0.0021	0.0601	0.0016	0.0607		0.0017	0.3508	0.0913	0.0008			0.0006					0.0009								0.0005
3108	HLW-ALG-12	0.0481	0.0059	0.1254		0.0022	0.0275	0.0017	0.1590	0.0081	0.0017	0.4035	0.0239	0.0008			0.0006				0.0041	0.0009					0.0029	0.0003	0.0003	0.0006
3109	HLW-ALG-13	0.0481	0.0088	0.0722		0.0034	0.0335	0.0025	0.0950	0.0006	0.0026	0.3506	0.0919	0.0012			0.0010		0.0003		0.0006	0.0014		0.0003				0.0004	0.0004	0.0009
3110	HLW-ALG-14	0.0481	0.0051	0.1256		0.0019	0.0601	0.0015	0.0480	0.0076	0.0015	0.4761		0.0007			0.0005				0.0149	0.0008								0.0005
3111	HLW-ALG-15	0.1403	0.0042	0.0978		0.0016	0.0193	0.0012	0.1758	0.0064	0.0012	0.3745	0.0685	0.0006			0.0005					0.0007					0.0034			0.0004
3112	HLW-ALG-16	0.1385	0.0036	0.0440		0.0014	0.0202	0.0010	0.1741	0.0075	0.0011	0.4377	0.0376	0.0005			0.0004				0.0003	0.0006					0.0050			0.0004
3113	HLW-ALG-17	0.1034	0.0033	0.1252		0.0012	0.0202	0.0010	0.1741	0.0100	0.0010	0.4587	0.0016	0.0005			0.0004					0.0005					0.0050			0.0003
3114	HLW-ALG-18	0.1111	0.0034	0.1037		0.0013	0.0344	0.0010	0.1481		0.0010	0.4599		0.0005			0.0004					0.0005								0.0003
3115	HLW-ALG-19	0.0965	0.0034	0.1265		0.0013	0.0266	0.0010	0.1613	0.0100	0.0010	0.4656	0.0543	0.0005			0.0004					0.0005					0.0050			0.0003
3116	HLW-ALG-20	0.0775	0.0034	0.1265		0.0013	0.0293	0.0010	0.1740	0.0100	0.0010	0.4693	0.0543	0.0005			0.0004					0.0005					0.0050			0.0003

#	Glass ID	Ga2O3-a	Gd2O3-a	I-a	La2O3-a	MnO2-a	MnO-a	MoO-a	MoO3-a	Nb2O5-a	Nd2O3-a	NpO2-a	PbO-a	PdO2-a	PdO-a	Pr2O3-a	Pr6O11-a	PuO2-a	Rb2O-a	ReO-a	ReO2-a	Re2O7-a	Rh2O3-a	RhO2-a	RuO2-a	Sb2O3-a	Sb2O5-a	SeO2-a
3035	HLW-E-ANa-20																											
3036	HLW-E-ANa-21																											
3037	HLW-E-ANa-22																											
3038	HLW-E-ANa-23																											
3039	HLW-E-ANa-24																											
3040	HLW-E-ANa-25																											
3041	HLW-E-ANa-26																											
3042	HLW-E-Bi-01																											
3043	HLW-E-Bi-02																											
3044	HLW-E-Bi-03																											
3045	HLW-E-Bi-04																											
3046	HLW-E-Bi-05																											
3047	HLW-E-Bi-06																											
3048	HLW-E-Bi-07																											
3049	HLW-E-Bi-08																											
3050	HLW-E-Bi-09																											
3051	HLW-E-Bi-10																											
3052	HLW-E-Bi-11																											
3053	HLW-E-Bi-12																											
3054	HLW-E-Bi-13																											
3055	HLW-E-Bi-14																											
3056	HLW-E-Cr-01																											
3057	HLW-E-Cr-02																											
3058	HLW-E-Cr-03																											
3059	HLW-E-Cr-04																											
3060	HLW-E-Cr-05																											
3061	HLW-E-Cr-06																											
3062	HLW-E-Cr-07																											
3063	HLW-E-Cr-08																											
3064	HLW-E-Cr-09																											
3065	HLW-E-Cr-10																											
3066	HLW-E-Cr-11																											
3067	HLW-E-Cr-12																											
3068	HLW-E-Cr-13																											
3069	HLW-E-Cr-14																											
3070	HLW-E-Cr-15																											
3071	HLW-E-Cr-16																											
3072	HLW-E-Cr-17																											
3073	HLW-E-Cr-18																											
3074	AW-101 Actual																											
3075	AN-107 Actual (LAWC15)																											
3076	AZ-102 Actual																											
3077	AZ-102 Actual CCC																											
3078	AP-101 Actual																											
3079	AN-103 Actual																											
3080	AN-102 Actual												0.0008															
3081	AN-102 Actual LC Melter												0.0004															
3082	AZ-101 Actual																											
3083	LAWCrP1R												0.0001															
3084	LAWCrP2R												0.0001															
3085	LAWCrP3R												0.0000															
3086	LAWCrP4R												0.0000															
3087	LAWCrP5												0.0001															
3088	LAWCrP6												0.0001															
3089	LAWCrP7												0.0001															
3090	LAWCrP8CCC												0.0002															
3091	LAWCrP9CCC												0.0001															
3092	LAWCrP10CCC												0.0001															
3093	LAWE3Cr2CCC												0.0001															
3094	LAWE9HCr1CCC												0.0002															
3095	LAWE9HCr2CCC												0.0001															
3096	LAWE10HCr3CCC												0.0001															
3097	HLW-ALG-01				0.0010						0.0009		0.0020												0.0003			
3098	HLW-ALG-02				0.0011						0.0009		0.0021												0.0003			
3099	HLW-ALG-03				0.0010		0.0210				0.0009		0.0021												0.0003			
3100	HLW-ALG-04				0.0007						0.0006		0.0014															
3101	HLW-ALG-05				0.0016		0.0691				0.0013		0.0032			0.0003									0.0005			
3102	HLW-ALG-06				0.0018		0.0401				0.0015		0.0036			0.0003									0.0005			
3103	HLW-ALG-07				0.0012		0.0234				0.0010		0.0024												0.0003			
3104	HLW-ALG-08				0.0018		0.0356				0.0015		0.0036			0.0003									0.0005			
3105	HLW-ALG-09				0.0039		0.0392				0.0030		0.0041			0.0003												
3106	HLW-ALG-10				0.0010		0.0701				0.0009		0.0020												0.0003			
3107	HLW-ALG-11				0.0017		0.0341				0.0015		0.0035			0.0003									0.0005			
3108	HLW-ALG-12				0.0018		0.0203				0.0015		0.0036			0.0003									0.0005			
3109	HLW-ALG-13				0.0027		0.0306				0.0023		0.0055			0.0005									0.0008			
3110	HLW-ALG-14				0.0016		0.0672				0.0013		0.0031			0.0003									0.0004			
3111	HLW-ALG-15				0.0013						0.0011		0.0026												0.0004			
3112	HLW-ALG-16				0.0011						0.0009		0.0022												0.0003			
3113	HLW-ALG-17				0.0010		0.0691				0.0009		0.0020												0.0003			
3114	HLW-ALG-18				0.0010						0.0009		0.0021												0.0003			
3115	HLW-ALG-19				0.0010		0.0210				0.0009		0.0021												0.0003			
3116	HLW-ALG-20				0.0010		0.0210				0.0009		0.0021												0.0003			

#	Glass ID	Sm2O3-a	SnO-a	SnO2-a	SO3-a	SrO-a	Tc2O7-a	TeO2-a	ThO2-a	TiO2-a	Tl2O-a	Tl2O3-a	U3O8-a	UO2-a	UO3-a	V2O5-a	WO3-a	Y2O3-a	ZnO-a	Sum-a	T_M (°C)	$T_{L,G}$ (°C)	$T_{L,U}$ (°C)	$T_{1\%}$ (°C)	Primary Phase	$C_{650°C}$	$C_{700°C}$	$C_{750°C}$
3035	HLW-E-ANa-20																			0.0000								
3036	HLW-E-ANa-21																			0.0000								
3037	HLW-E-ANa-22																			0.0000								
3038	HLW-E-ANa-23																			0.0000								
3039	HLW-E-ANa-24																			0.0000								
3040	HLW-E-ANa-25																			0.0000								
3041	HLW-E-ANa-26																			0.0000								
3042	HLW-E-Bi-01																			0.0000								
3043	HLW-E-Bi-02																			0.0000								
3044	HLW-E-Bi-03																			0.0000								
3045	HLW-E-Bi-04																			0.0000								
3046	HLW-E-Bi-05																			0.0000								
3047	HLW-E-Bi-06																			0.0000								
3048	HLW-E-Bi-07																			0.0000								
3049	HLW-E-Bi-08																			0.0000								
3050	HLW-E-Bi-09																			0.0000								
3051	HLW-E-Bi-10																			0.0000								
3052	HLW-E-Bi-11																			0.0000								
3053	HLW-E-Bi-12																			0.0000								
3054	HLW-E-Bi-13																			0.0000								
3055	HLW-E-Bi-14																			0.0000								
3056	HLW-E-Cr-01																			0.0000								
3057	HLW-E-Cr-02																			0.0000								
3058	HLW-E-Cr-03																			0.0000								
3059	HLW-E-Cr-04																			0.0000								
3060	HLW-E-Cr-05																			0.0000								
3061	HLW-E-Cr-06																			0.0000								
3062	HLW-E-Cr-07																			0.0000								
3063	HLW-E-Cr-08																			0.0000								
3064	HLW-E-Cr-09																			0.0000								
3065	HLW-E-Cr-10																			0.0000								
3066	HLW-E-Cr-11																			0.0000								
3067	HLW-E-Cr-12																			0.0000								
3068	HLW-E-Cr-13																			0.0000								
3069	HLW-E-Cr-14																			0.0000								
3070	HLW-E-Cr-15																			0.0000								
3071	HLW-E-Cr-16																			0.0000								
3072	HLW-E-Cr-17																			0.0000								
3073	HLW-E-Cr-18																			0.0000								
3074	AW-101 Actual				0.0021					0.0187									0.0283	1.0042								
3075	AN-107 Actual (LAWC15)				0.0013					0.0205									0.0293	0.9992								
3076	AZ-102 Actual				0.0085	0.0121				0.0017				0.0023					0.0526	1.0395								
3077	AZ-102 Actual CCC				0.0085															0.0085								
3078	AP-101 Actual				0.0031					0.0218									0.0292	0.9973								
3079	AN-103 Actual				0.0010					0.0198									0.0303	0.9793								
3080	AN-102 Actual				0.0036					0.0129									0.0315	1.0498								
3081	AN-102 Actual LC Melter				0.0036					0.0142									0.0341	0.9961								
3082	AZ-101 Actual				0.0055					0.0152									0.0483	0.9995								
3083	LAWCrP1R				0.0037					0.0148									0.0345	0.9732								
3084	LAWCrP2R				0.0036					0.0152									0.0354	0.9698								
3085	LAWCrP3R				0.0038					0.0148									0.0344	0.9576								
3086	LAWCrP4R				0.0037					0.0151									0.0349	0.9745								
3087	LAWCrP5				0.0038					0.0157									0.0365	1.0000								
3088	LAWCrP6				0.0058					0.0150									0.0346	1.0061								
3089	LAWCrP7				0.0066					0.0150									0.0344	0.9967								
3090	LAWCrP8CCC				0.0056					0.0146									0.0344	0.9982								
3091	LAWCrP9CCC				0.0062					0.0146									0.0342	0.9975								
3092	LAWCrP10CCC				0.0062					0.0146									0.0343	0.9979								
3093	LAWE3Cr2CCC				0.0030					0.0151									0.0329	0.9932								
3094	LAWE9HCr1CCC				0.0055					0.0152									0.0335	1.0018								
3095	LAWE9HCr2CCC				0.0052					0.0143									0.0336	0.9865								
3096	LAWE10HCr3CCC				0.0062					0.0150									0.0338	0.9956								
3097	HLW-ALG-01				0.0005														0.0106	1.0000						0.1	0.1	0.1
3098	HLW-ALG-02				0.0006														0.0158	1.0000							0.1	0.2
3099	HLW-ALG-03				0.0005					0.0004									0.0003	1.0000				759	Spinel			0.2
3100	HLW-ALG-04				0.0004					0.0004									0.0123	1.0000							0.5	0.1
3101	HLW-ALG-05				0.0008	0.0989				0.0003									0.0005	1.0000				949	Spinel		2.3	2.7
3102	HLW-ALG-06				0.0009	0.0802			0.0160	0.0003					0.0060		0.0003		0.0006	1.0000				955	Spinel		25.6	24.6
3103	HLW-ALG-07				0.0006	0.0411			0.0413										0.0168	1.0000							0.1	0.1
3104	HLW-ALG-08				0.0009	0.0627			0.0401	0.0005					0.0464		0.0003		0.0006	1.0000				1171	ZrO2			
3105	HLW-ALG-09				0.0023	0.0748			0.0060						0.0136				0.0006	1.0000				801	Spinel		1.1	1
3106	HLW-ALG-10				0.0005				0.0023	0.0004									0.0003	1.0000				775	Spinel		3.5	0.5
3107	HLW-ALG-11				0.0009	0.0599			0.0601								0.0003		0.0005	1.0000				1182	ZrO2 + ThO2	0.7		1.2
3108	HLW-ALG-12				0.0009	0.0609			0.0162	0.0003					0.0162		0.0003		0.0006	1.0000				880	Spinel			0.4
3109	HLW-ALG-13				0.0013	0.0613			0.0551	0.0004					0.0613		0.0004		0.0008	1.0000				1293	ZrO2 + ThO2			
3110	HLW-ALG-14				0.0008	0.0962				0.0005									0.0005	1.0000				992	Spinel			
3111	HLW-ALG-15				0.0007														0.0004	1.0000				797	Spinel		0.2	0.5
3112	HLW-ALG-16				0.0006														0.0179	1.0000						0.1	0.1	0.1
3113	HLW-ALG-17				0.0005					0.0004									0.0003	1.0000				820	Spinel + Na(Mn,Fe,Ni) Silicate		1.5	0.3
3114	HLW-ALG-18				0.0005														0.0162	1.0000				636	Spinel	0.8	0.1	0.1
3115	HLW-ALG-19				0.0005					0.0004									0.0003	1.0000				750	Spinel		0.3	0.1
3116	HLW-ALG-20				0.0005					0.0004									0.0003	1.0000				638	Spinel		0.4	0.6

#	Glass ID	$C_{800°C}$	$C_{850°C}$	$C_{900°C}$	$C_{950°C}$	$C_{1000°C}$	$C_{1050°C}$	$C_{1100°C}$	$C_{1150°C}$	$C_{1200°C}$	Quenched Visual/OM	Quenched XRD	CCC XRD	ρ (g/cm³)	Fulc Visc A	Fulc Visc B	Fulc Visc To	Arrh Visc E	Arrh Visc F	T1 (°C)	V1 (Pa·s)
3035	HLW-E-ANa-20										Minor									1150.0	OK
3036	HLW-E-ANa-21										Clear									1150.0	OK
3037	HLW-E-ANa-22										Clear									1150.0	6.000
3038	HLW-E-ANa-23										Clear									1150.0	OK
3039	HLW-E-ANa-24										Clear									1150.0	OK
3040	HLW-E-ANa-25										Clear									1150.0	5.500
3041	HLW-E-ANa-26										Clear									1150.0	High
3042	HLW-E-Bi-01				~0.1 vol%						crystal traces									1150.0	OK
3043	HLW-E-Bi-02				~0.1 vol%						crystal traces									1150.0	7.600
3044	HLW-E-Bi-03				~0.1 vol%						crystal traces									1150.0	OK
3045	HLW-E-Bi-04				~0.1 vol%						crystal traces									1150.0	OK
3046	HLW-E-Bi-05				~0.4vol%						crystal traces									1150.0	OK
3047	HLW-E-Bi-06				~1.8vol%						crystal traces									1150.0	OK
3048	HLW-E-Bi-07				~2.7vol%						Sp+P									1150.0	OK
3049	HLW-E-Bi-08				~0.5vol%						crystal traces									1150.0	OK
3050	HLW-E-Bi-09				~0.5vol%						crystal traces									1150.0	OK
3051	HLW-E-Bi-10				~0.4vol%						crystal traces									1150.0	OK
3052	HLW-E-Bi-11				~0.1 vol%						Clear									1150.0	OK
3053	HLW-E-Bi-12				~4.2vol%						SP+P									1150.0	OK
3054	HLW-E-Bi-13				~3.2vol%						xtals									1150.0	7.700
3055	HLW-E-Bi-14				~4.5vol%						xtals									1150.0	OK
3056	HLW-E-Cr-01				~0.5vol%						Cr/S salt									1150.0	OK
3057	HLW-E-Cr-02				~0.3vol%						Cr/S salt									1150.0	OK
3058	HLW-E-Cr-03				~0.3vol%						Cr/S salt									1150.0	OK
3059	HLW-E-Cr-04				~0.8vol%						crystal traces salt									1150.0	OK
3060	HLW-E-Cr-05				~0.9vol%						crystal traces salt									1150.0	OK
3061	HLW-E-Cr-06				~0.9vol%						crystal traces salt									1150.0	OK
3062	HLW-E-Cr-07				~0.5vol%						No salt									1150.0	OK
3063	HLW-E-Cr-08				~0.2 vol%						Cr/S salt									1150.0	OK
3064	HLW-E-Cr-09				0.7vol%						Cr/S salt									1150.0	OK
3065	HLW-E-Cr-10				~0.6vol%						No salt									1150.0	OK
3066	HLW-E-Cr-11										No salt									1150.0	OK
3067	HLW-E-Cr-12				~0.7vol%						crystal traces salt									1150.0	OK
3068	HLW-E-Cr-13				~1.2vol%						Cr/S salt									1150.0	OK
3069	HLW-E-Cr-14				~0.1 vol%						No salt									1150.0	OK
3070	HLW-E-Cr-15										Cr/S salt									1150.0	OK
3071	HLW-E-Cr-16										Cr/S salt									1150.0	OK
3072	HLW-E-Cr-17										Cr/S salt									1150.0	OK
3073	HLW-E-Cr-18										Cr/S salt									1150.0	OK
3074	AW-101 Actual																				
3075	AN-107 Actual (LAWC15)													2.68							
3076	AZ-102 Actual																				
3077	AZ-102 Actual CCC																				
3078	AP-101 Actual																				
3079	AN-103 Actual																				
3080	AN-102 Actual																				
3081	AN-102 Actual LC Melter																				
3082	AZ-101 Actual																				
3083	LAWCrP1R										Clear glass with no secondary phase									1263.0	2.507
3084	LAWCrP2R										Few Cr-rich spinels ~0.1 vol.%.									1249.0	2.059
3085	LAWCrP3R										Clear glass with no secondary phase									1248.0	2.493
3086	LAWCrP4R										Few Cr-rich spinels ~0.1 vol.%.									1259.0	1.839
3087	LAWCrP5										Few small (~1 µm) Cr-rich ZnFeTi spinels ~0.2 vol.%.									1252.0	1.423
3088	LAWCrP6										Few small Cr-rich ZnFeTi spinels ~0.2 vol.%. Small residue in the crucible of 52% silica-15% phosphate glassy nodule.										
3089	LAWCrP7										Few small Cr-rich ZnFeTi spinels ~0.2 vol.%.										
3090	LAWCrP8CCC										Few small Cr-rich ZnFeTi spinels <0.1 vol.%.										
3091	LAWCrP9CCC										Few small Cr-rich ZnFeTi spinels <0.1 vol.%.										
3092	LAWCrP10CCC										Few small Cr-rich ZnFeTi spinel <0.1 vol.% - Remaining glass shows ~0.3wt% Cr2O3.										
3093	LAWE3Cr2CCC																				
3094	LAWE9HCr1CCC																				
3095	LAWE9HCr2CCC																				
3096	LAWE10HCr3CCC																				
3097	HLW-ALG-01	0.1	0.2		0.1		0						< 0.1 vol% of Cr-rich spinel and 0.2 vol% of Na(Al, Fe) Silicate							959.0	16.781
3098	HLW-ALG-02	0.3	0.3		0.1		0.1													959.0	28.917
3099	HLW-ALG-03	0.7	0.5	0.1	0		0						< 0.1 vol% of spinel							960.0	10.834
3100	HLW-ALG-04	0.2	0.1		0															958.0	17.017
3101	HLW-ALG-05	1.9	2.5		1.2	0.5	0.3													958.0	9.728
3102	HLW-ALG-06	21	2.6	1.5	0.7	1														964.0	19.859
3103	HLW-ALG-07	0.1	0.1	0.1	0.1															959.0	63.926
3104	HLW-ALG-08			13.6	9.2	4.8	1.9	1.6	1.1	0.8			1.9 vol% crystals (70% spinel + 30% zirconia with trace amount of thoria)							970.0	27.363
3105	HLW-ALG-09	1.1		1	0.5	0.3														963.0	15.746
3106	HLW-ALG-10	0.8	0.6	0.2																971.0	9.580
3107	HLW-ALG-11	1.7	3.9	4.6	3.8	2.1	2.7	2.6		1.1			4.7 vol% crystals (80% zironia + 20% thoria)							973.0	21.231
3108	HLW-ALG-12	1.5	0.6	1.3	0.4	0.3	0.1													984.0	17.235
3109	HLW-ALG-13	11.3	9.5	5.6	3.9		3	2.9	3.4	2.9										966.0	64.057
3110	HLW-ALG-14	3.3	2.6	2.8	1.9	0.7	0.1						1.2 vol% of spinel							952.0	12.157
3111	HLW-ALG-15	1	0.7	0.5	0.8															955.0	29.300
3112	HLW-ALG-16	0.1	0.1																	956.0	36.630
3113	HLW-ALG-17	0.7	0.3	0.5																963.0	9.536
3114	HLW-ALG-18	0.1	0																	959.0	36.815
3115	HLW-ALG-19	0.4	0.7	0.5	0.4															959.0	24.487
3116	HLW-ALG-20	0.5	0.6	0.3	0.2															956.0	19.243

#	Glass ID	T2 (°C)	V2 (Pa·s)	T3 (°C)	V3 (Pa·s)	T4 (°C)	V4 (Pa·s)	T5 (°C)	V5 (Pa·s)	T6 (°C)	V6 (Pa·s)	T7 (°C)	V7 (Pa·s)	T8 (°C)	V8 (Pa·s)	T9 (°C)	V9 (Pa·s)	T10 (°C)	V10 (Pa·s)	TCLP Ag	TCLP As	TCLP Ba	TCLP Cd	TCLP Cr	TCLP Ni	TCLP Pb
3035	HLW-E-ANa-20																									
3036	HLW-E-ANa-21																									
3037	HLW-E-ANa-22																									
3038	HLW-E-ANa-23																									
3039	HLW-E-ANa-24																									
3040	HLW-E-ANa-25																									
3041	HLW-E-ANa-26																									
3042	HLW-E-Bi-01																									
3043	HLW-E-Bi-02																									
3044	HLW-E-Bi-03																									
3045	HLW-E-Bi-04																									
3046	HLW-E-Bi-05																									
3047	HLW-E-Bi-06																									
3048	HLW-E-Bi-07																									
3049	HLW-E-Bi-08																									
3050	HLW-E-Bi-09																									
3051	HLW-E-Bi-10																									
3052	HLW-E-Bi-11																									
3053	HLW-E-Bi-12																									
3054	HLW-E-Bi-13																									
3055	HLW-E-Bi-14																									
3056	HLW-E-Cr-01																									
3057	HLW-E-Cr-02																									
3058	HLW-E-Cr-03																									
3059	HLW-E-Cr-04																									
3060	HLW-E-Cr-05																									
3061	HLW-E-Cr-06																									
3062	HLW-E-Cr-07																									
3063	HLW-E-Cr-08																									
3064	HLW-E-Cr-09																									
3065	HLW-E-Cr-10																									
3066	HLW-E-Cr-11																									
3067	HLW-E-Cr-12																									
3068	HLW-E-Cr-13																									
3069	HLW-E-Cr-14																									
3070	HLW-E-Cr-15																									
3071	HLW-E-Cr-16																									
3072	HLW-E-Cr-17																									
3073	HLW-E-Cr-18																									
3074	AW-101 Actual																									
3075	AN-107 Actual (LAWC15)																									
3076	AZ-102 Actual																									
3077	AZ-102 Actual CCC																									
3078	AP-101 Actual																									
3079	AN-103 Actual																									
3080	AN-102 Actual																									
3081	AN-102 Actual LC Melter																									
3082	AZ-101 Actual																									
3083	LAWCrP1R	1163	5.571	1063	15.5	964.0	59.9																			
3084	LAWCrP2R	1149	4.539	1050	12.6	951.0	47.7																			
3085	LAWCrP3R	1151	5.549	1052	15.7	954.0	60.9																			
3086	LAWCrP4R	1157	4.180	1056	11.7	955.0	44.0																			
3087	LAWCrP5	1151	2.921	1051	7.4	951.0	26.2																			
3088	LAWCrP6																									
3089	LAWCrP7																									
3090	LAWCrP8CCC																									
3091	LAWCrP9CCC																									
3092	LAWCrP10CCC																									
3093	LAWE3Cr2CCC																							1.18	< 0.04	< 0.10
3094	LAWE9HCr1CCC																							0.02	< 0.04	< 0.10
3095	LAWE9HCr2CCC																							0.04	< 0.04	< 0.10
3096	LAWE10HCr3CCC																							0.02	< 0.04	< 0.10
3097	HLW-ALG-01	1057	6.084	1156	2.9	1253.0	1.5																			
3098	HLW-ALG-02	1059	8.847	1160	3.5	1259.0	1.7																			
3099	HLW-ALG-03	1061	3.631	1161	1.6	1261.0	0.8																			
3100	HLW-ALG-04	1060	5.935	1161	2.7	1262.0	1.5																			
3101	HLW-ALG-05	1058	3.306	1159	1.5	1258.0	0.8																			
3102	HLW-ALG-06	1067	6.252	1170	2.6	1273.0	1.3																			
3103	HLW-ALG-07	1058	17.210	1156	5.9	1255.0	2.7																			
3104	HLW-ALG-08	1065	6.477	1159	2.1	1254.0	0.9																			
3105	HLW-ALG-09	1057	4.656	1153	2.1	1249.0	1.0																			
3106	HLW-ALG-10	1070	3.623	1168	1.7	1267.0	0.9																			
3107	HLW-ALG-11	1073	5.933	1172	2.2	1272.0	1.1																			
3108	HLW-ALG-12	1071	5.212	1160	2.3	1249.0	1.2																			
3109	HLW-ALG-13	1059	15.679	1154	4.2	1249.0	1.8																			
3110	HLW-ALG-14	1055	4.099	1158	1.8	1261.0	0.9																			
3111	HLW-ALG-15	1054	8.645	1153	3.3	1251.0	1.5																			
3112	HLW-ALG-16	1053	11.076	1151	4.3	1248.0	2.0																			
3113	HLW-ALG-17	1063	3.568	1163	1.8	1264.0	1.0																			
3114	HLW-ALG-18	1060	13.116	1161	5.7	1263.0	2.9																			
3115	HLW-ALG-19	1061	7.346	1164	2.9	1265.0	1.4																			
3116	HLW-ALG-20	1058	5.948	1160	2.4	1262.0	1.2																			

Appendix B

Scatterplot Matrices

Appendix B: Scatterplot Matrices

B-1 Viscosity at 950°C

Figure B.1 shows the scatterplot matrix of the compositions used in fitting the $\ln[\eta_{950}]$ model. The scatterplot matrix, although difficult to see, does show relatively even coverage of each of the components across their validity regions. For the most part, the two-dimensional coverage is adequate, with the exceptions of:

- BaO with: CaO, F, La_2O_3, MgO, MnO, PbO, SrO, UO_3, ZnO, ZrO_2, and Others
- CaO with: MnO, PbO, and UO_3
- F with: MgO, MnO, PbO, UO_3, and ZnO
- K_2O with: La_2O_3, MnO, and UO_3
- La_2O_3 with: MnO, PbO, UO_3, and ZnO
- MgO with: MnO, SrO, and UO_3
- P_2O_5 with: PbO, SrO, and UO_3.

On the other hand, no strong component correlations are evident from the data shown in this plot.

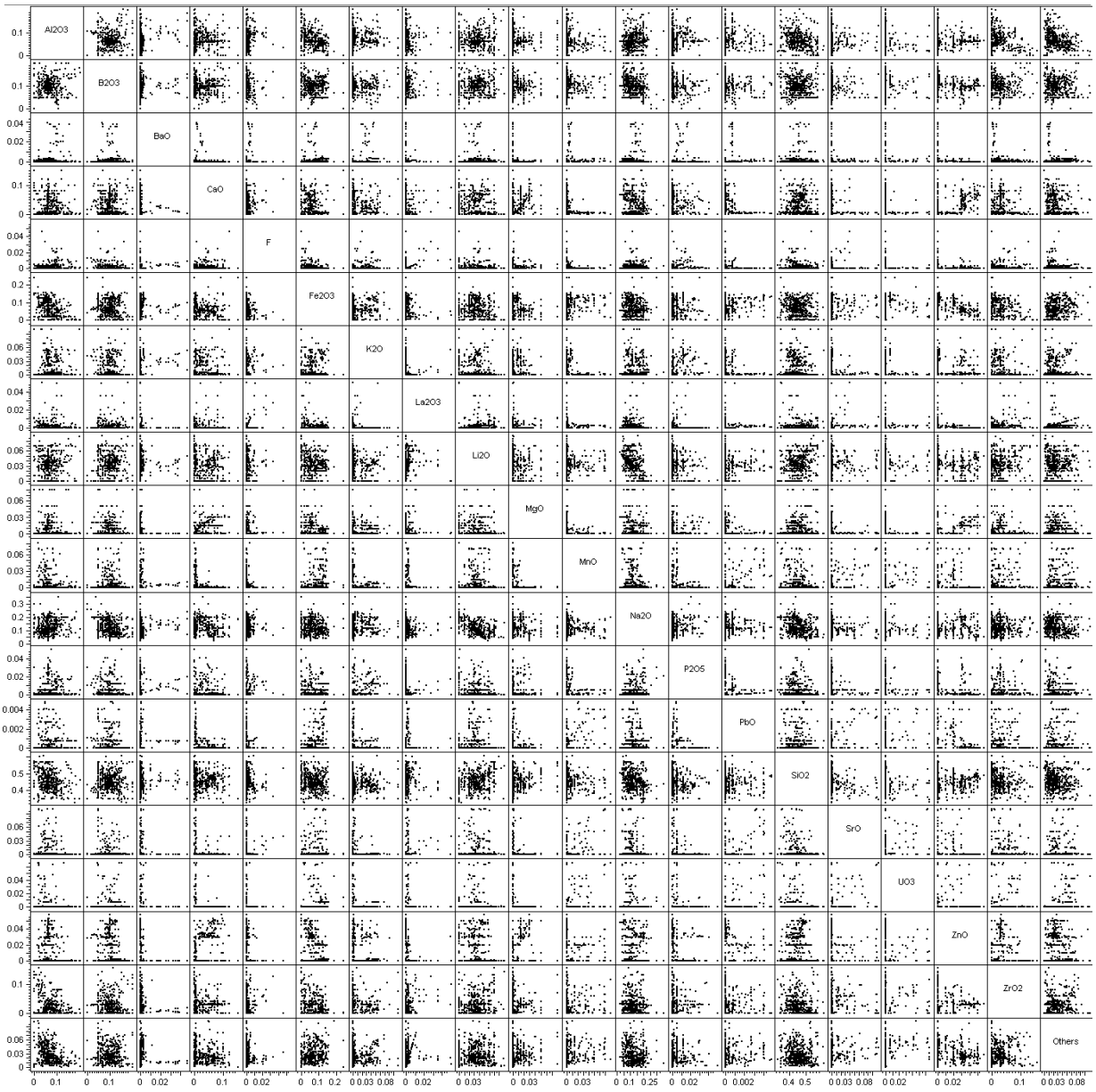

Figure B.1. Scatterplot Matrix of ln[η_{950}] Data Component Concentrations (in mass fractions)

B-2 Viscosity at 1150°C

Figure B.2 shows the scatterplot matrix of the compositions used in fitting the ln[η_{1150}] model. The scatterplot matrix, although difficult to see, does show relatively even coverage of each of the components across their validity region. For the most part, the two-dimensional coverage is adequate, with the exceptions of:

- BaO with: CaO, F, La_2O_3, MgO, MnO, and ZnO
- CaO with: MnO and SrO
- K_2O with: La_2O_3, SrO, and UO_3
- La_2O_3 with: MnO, PbO, and ZnO

- MgO with: MnO, SrO, and UO_3
- P_2O_5 with SrO.

On the other hand, no strong component correlations are evident from the data shown in this plot.

Figure B.2. Scatterplot Matrix of $\ln[\eta_{1150}]$ Data Component Concentrations (in mass fractions)

B-3 Viscosity at 1250°C

Figure B.3 shows the scatterplot matrix of the compositions used in fitting the $\ln[\eta_{1250}]$ model. The scatterplot matrix, although difficult to see, does show relatively even coverage of

each of the components across their validity region. For the most part, the two-dimensional coverage is adequate, with the exceptions of:

- BaO with: CaO, F, La_2O_3, MgO, MnO, PbO, SrO, UO_3, ZnO, ZrO_2, and Others
- CaO with: MnO, PbO, and UO_3
- F with: MgO, MnO, PbO, UO_3, and ZnO
- K_2O with: La_2O_3, MnO, and UO_3
- La_2O_3 with: MnO, PbO, UO_3, and ZnO
- MgO with: MnO, SrO, and UO_3
- P_2O_5 with: PbO, SrO, and UO_3.

On the other hand, no strong component correlations are evident from the data shown in this plot.

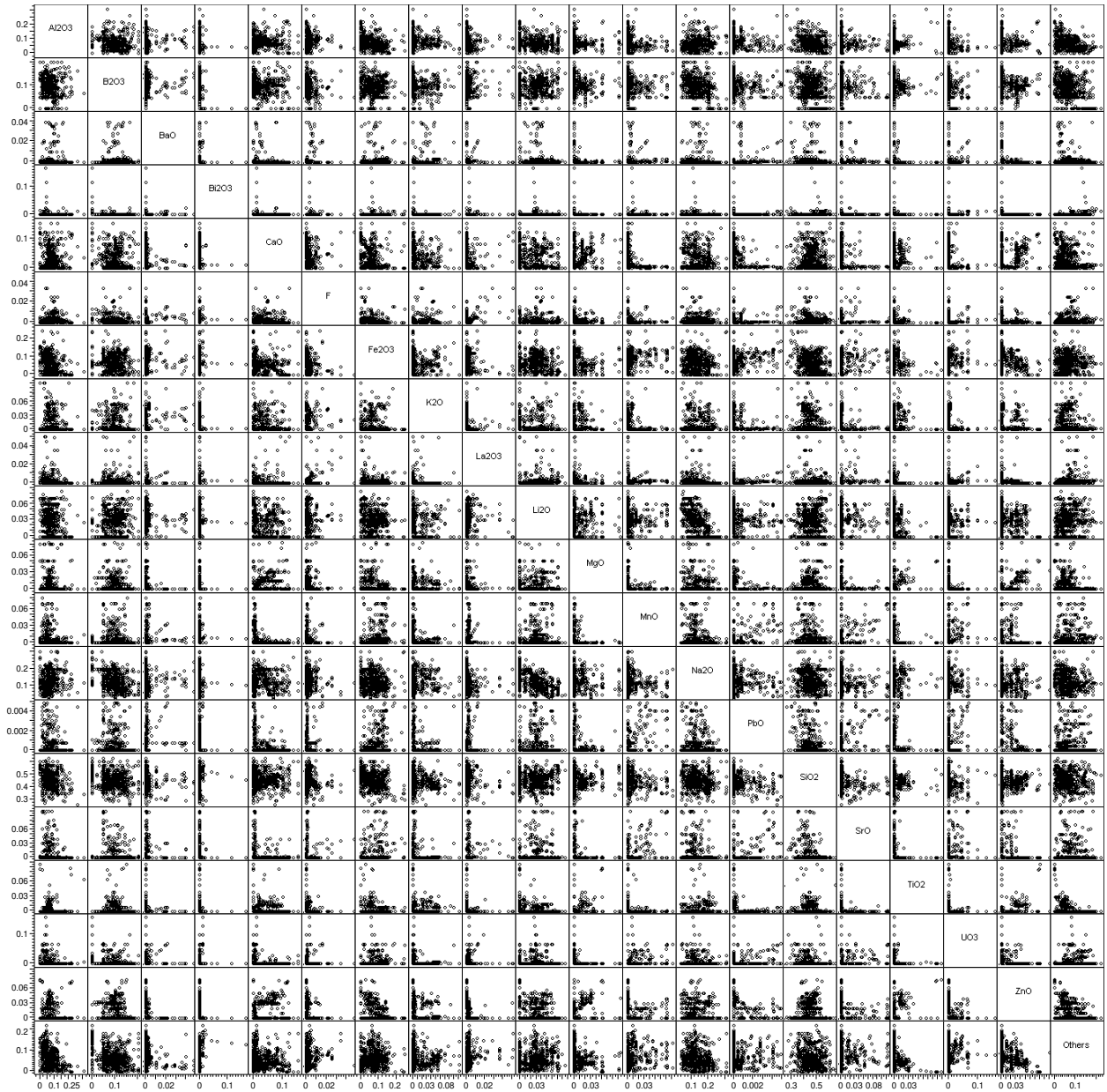

Figure B.3. Scatterplot Matrix of $\ln[\eta_{1250}]$ Data Component Concentrations (in mass fractions)

B-4 Electrical Conductivity at 1000°C

Figure B.4 shows the scatterplot matrix of the compositions used in fitting the $\ln[\varepsilon_{1000}]$ model. The scatterplot matrix shows relatively even coverage of each of the components across their validity region. For the most part, the two-dimensional coverage is adequate, with a few exceptions. No strong component correlations are evident from the data shown in this plot.

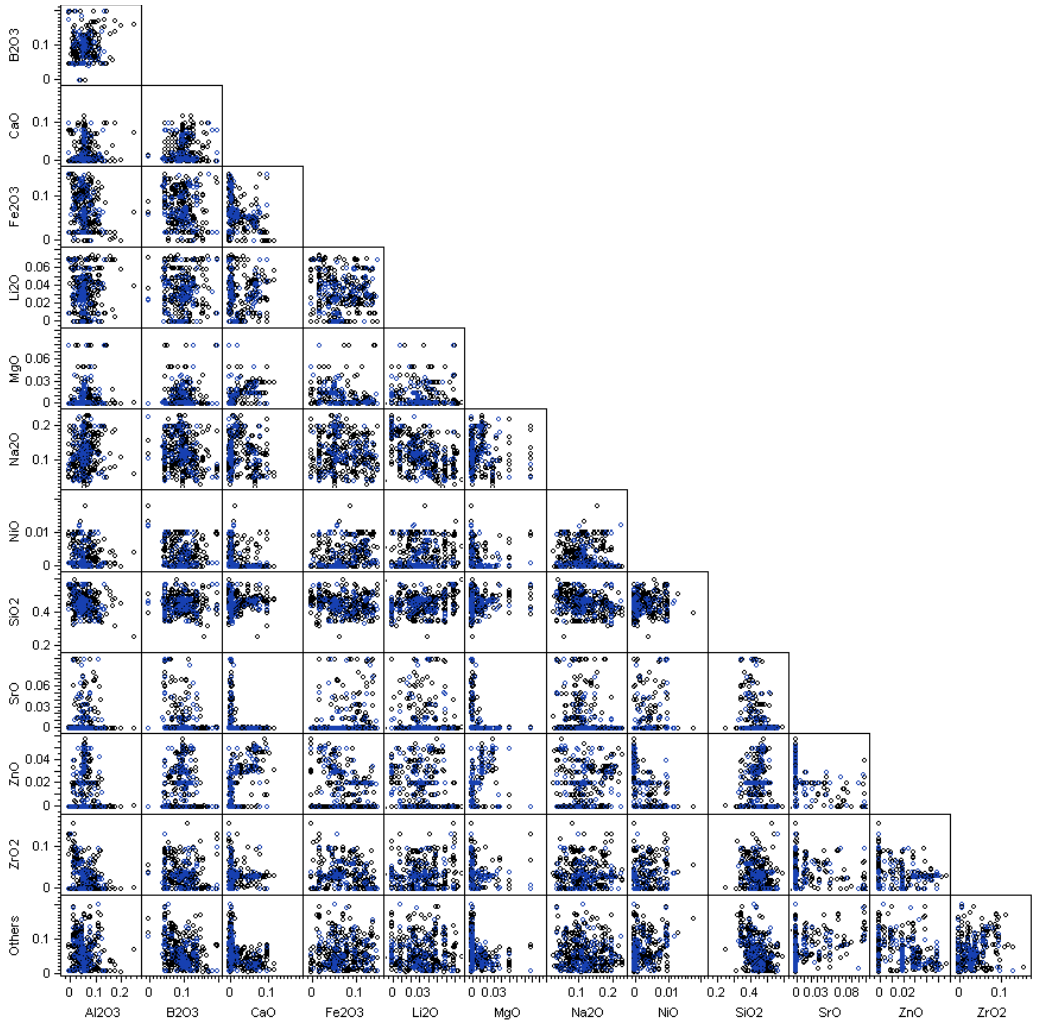

Figure B.4. Scatterplot Matrix of $\ln[\varepsilon_{1000}]$ Data Component Concentrations (in mass fractions)

B-5 Electrical Conductivity at 1100°C

Figure B.5 shows the scatterplot matrix of the compositions used in fitting the $\ln[\varepsilon_{1100}]$ model. The scatterplot matrix shows relatively even coverage of each of the components across their validity region. For the most part, the two-dimensional coverage is adequate, with a few exceptions. No strong component correlations are evident from the data shown in this plot.

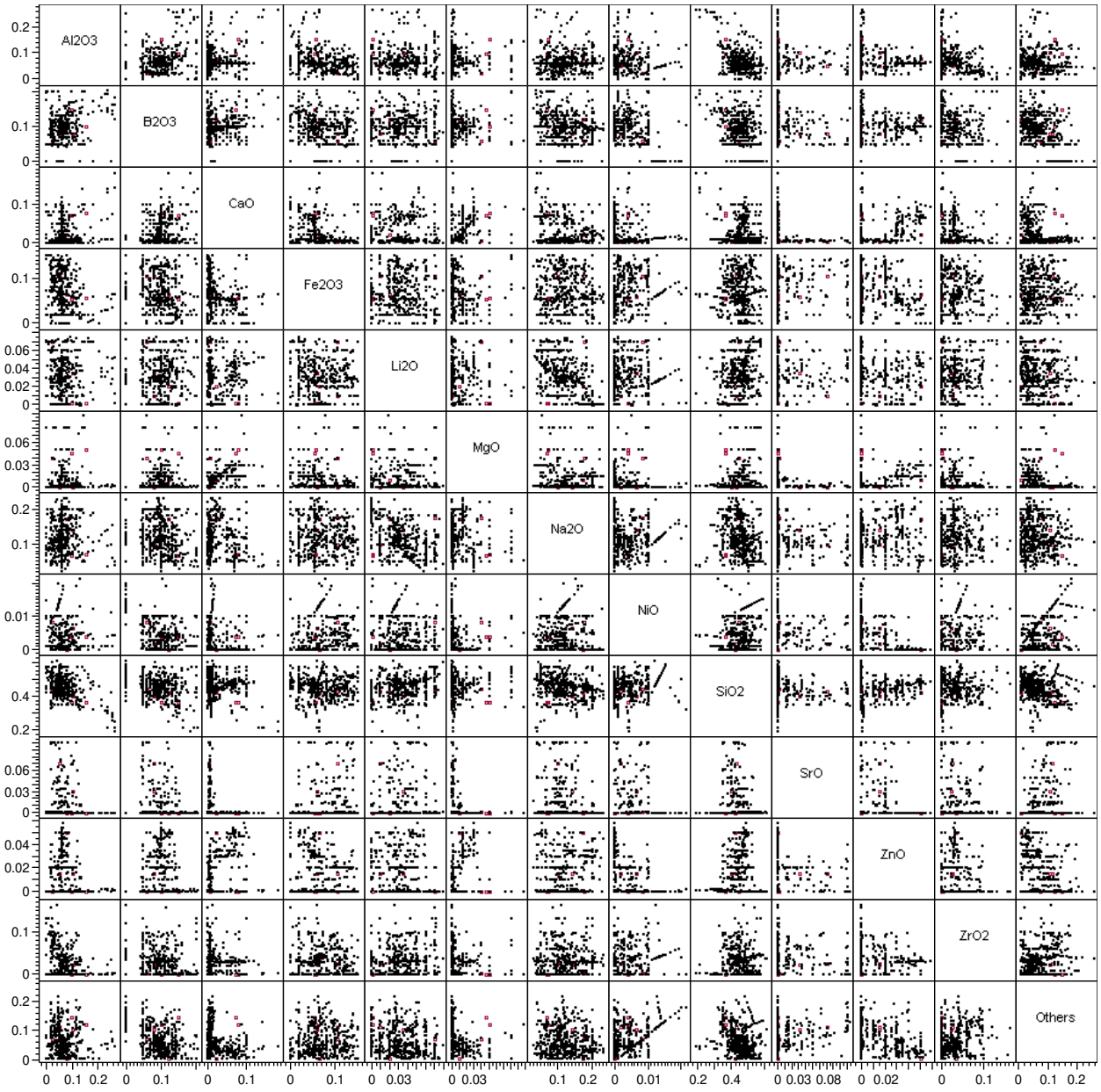

Figure B.5. Scatterplot Matrix of ln[ε_{1100}] Data Component Concentrations (in mass fractions)

B-6 Electrical Conductivity at 1150°C

Figure B.6 shows the scatterplot matrix of the compositions used in fitting the ln[ε_{1150}] model. The scatterplot matrix shows relatively even coverage of each of the components across their validity region. For the most part, the two-dimensional coverage is adequate, with a few exceptions. No strong component correlations are evident from the data shown in this plot.

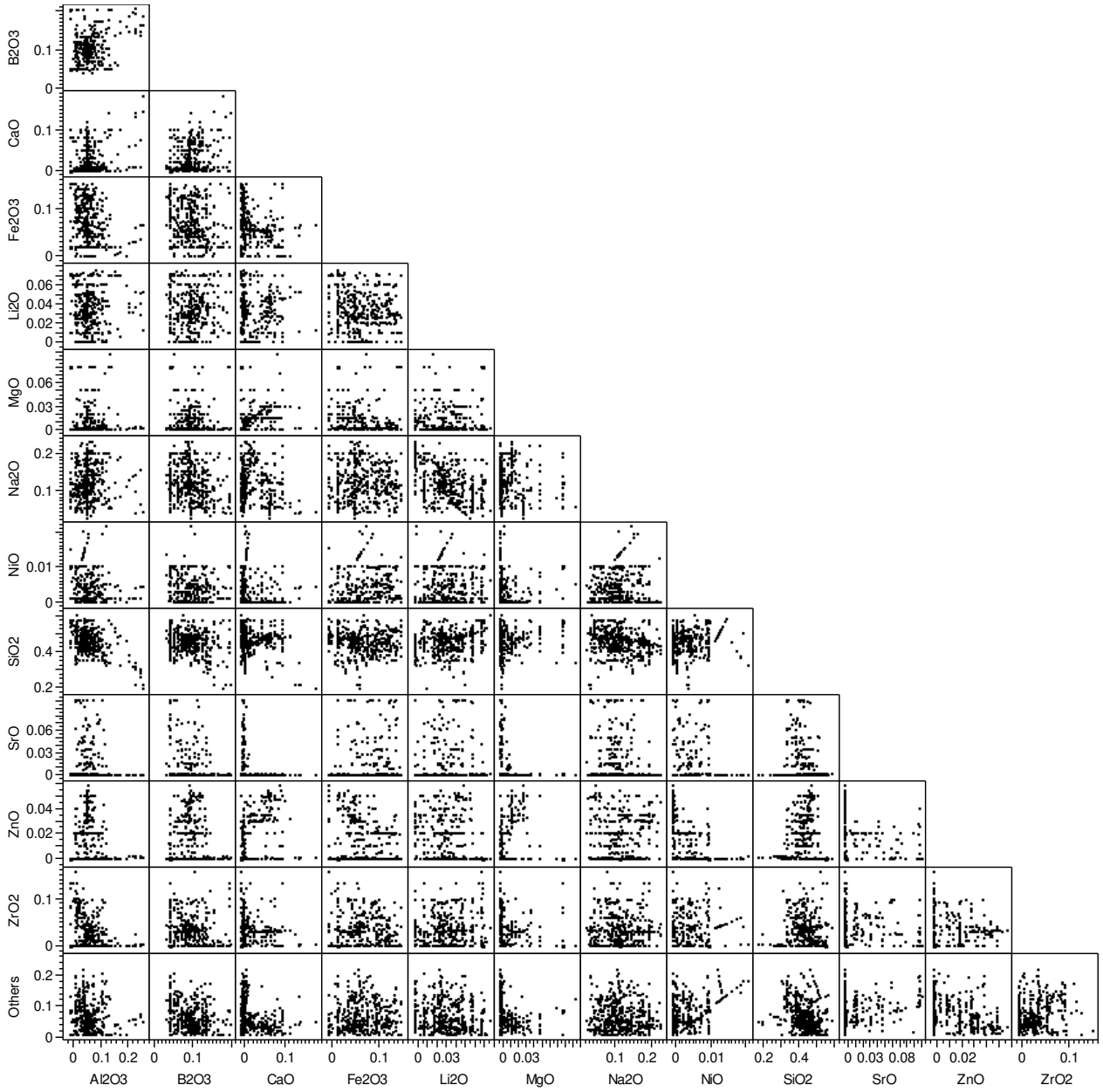

Figure B.6. Scatterplot Matrix of $\ln[\varepsilon_{1150}]$ Data Component Concentrations (in mass fractions)

B-7 Electrical Conductivity at 1200°C

Figure B.7 shows the scatterplot matrix of the compositions used in fitting the $\ln[\varepsilon_{1200}]$ model. The scatterplot matrix shows relatively even coverage of each of the components across their validity region. For the most part, the two-dimensional coverage is adequate, with a few exceptions. No strong component correlations are evident from the data shown in this plot.

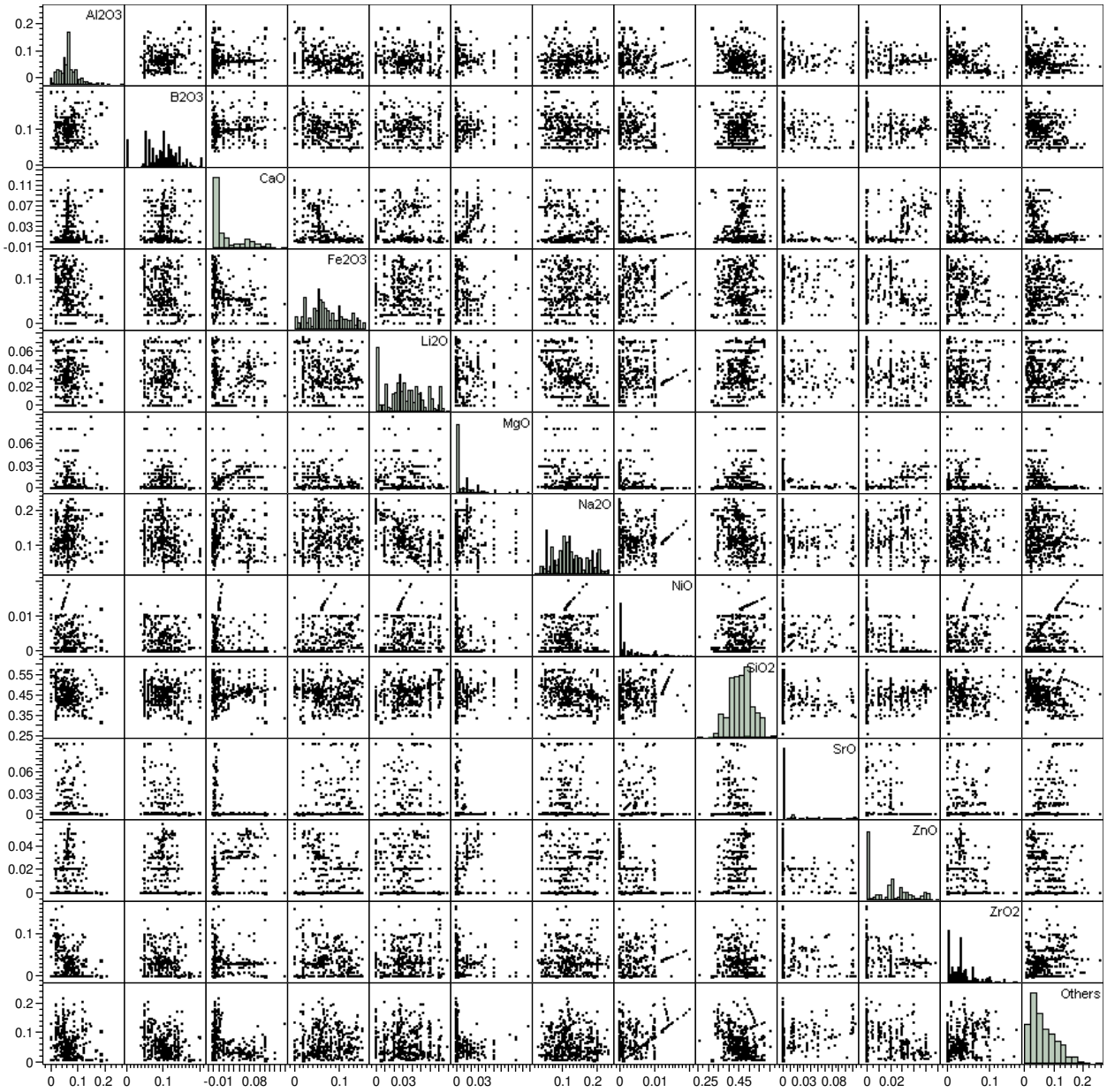

Figure B.7. Scatterplot Matrix of ln[ε_{1200}] Data Component Concentrations (in mass fractions)

B-8 Product Consistency Test Boron Response

Figure B.8 shows the scatterplot matrix of the compositions used in fitting ln[PCT_B] model. The scatterplot matrix, although difficult to see, does show relatively even coverage of each of the components across their validity region. For the most part, the two-dimensional coverage is adequate, with some exceptions. No strong component correlations are evident from the data shown in this plot.

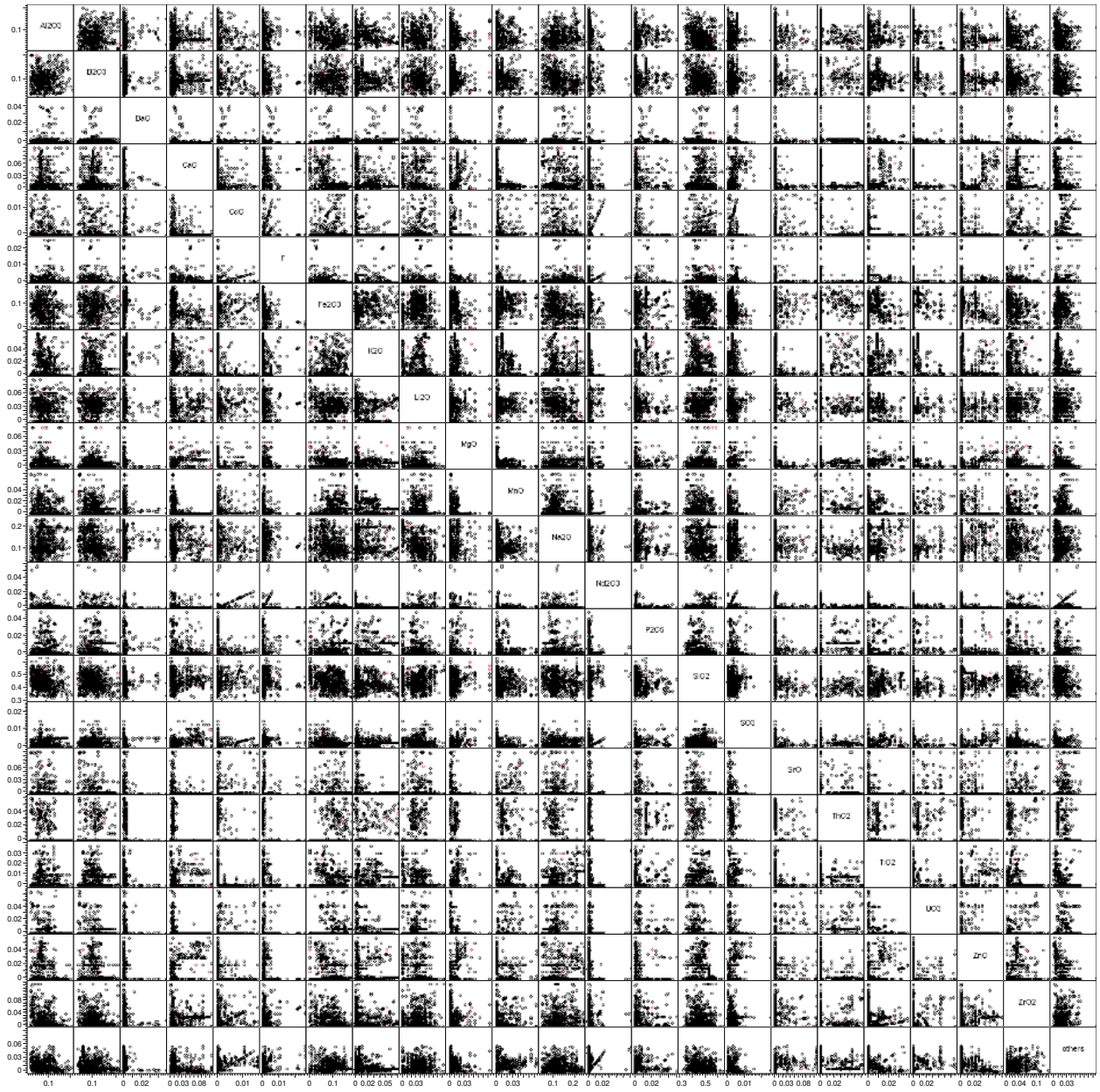

Figure B.8. Scatterplot Matrix of ln[PCT_B] Data Component Concentrations (in mass fractions)

B-9 Product Consistency Test Sodium Response

Figure B.9 shows the scatterplot matrix of the compositions used in fitting the ln[PCT_{Na}] model. The scatterplot matrix, although difficult to see, does show relatively even coverage of each of the components across their validity region. For the most part, the two-dimensional coverage is adequate, with a few exceptions. No strong component correlations are evident from the data shown in this plot.

Figure B.9. Scatterplot Matrix of ln[PCT_{Na}] Data Component Concentrations (in mass fractions)

B-10 Product Consistency Test Lithium Response

Figure B.10 shows the scatterplot matrix of the compositions used in fitting the ln[PCT_{Li}] model. The scatterplot matrix, although difficult to see, does show relatively even coverage of each of the components across their validity region. For the most part, the two-dimensional coverage is adequate, with a few exceptions. No strong component correlations are evident from the data shown in this plot.

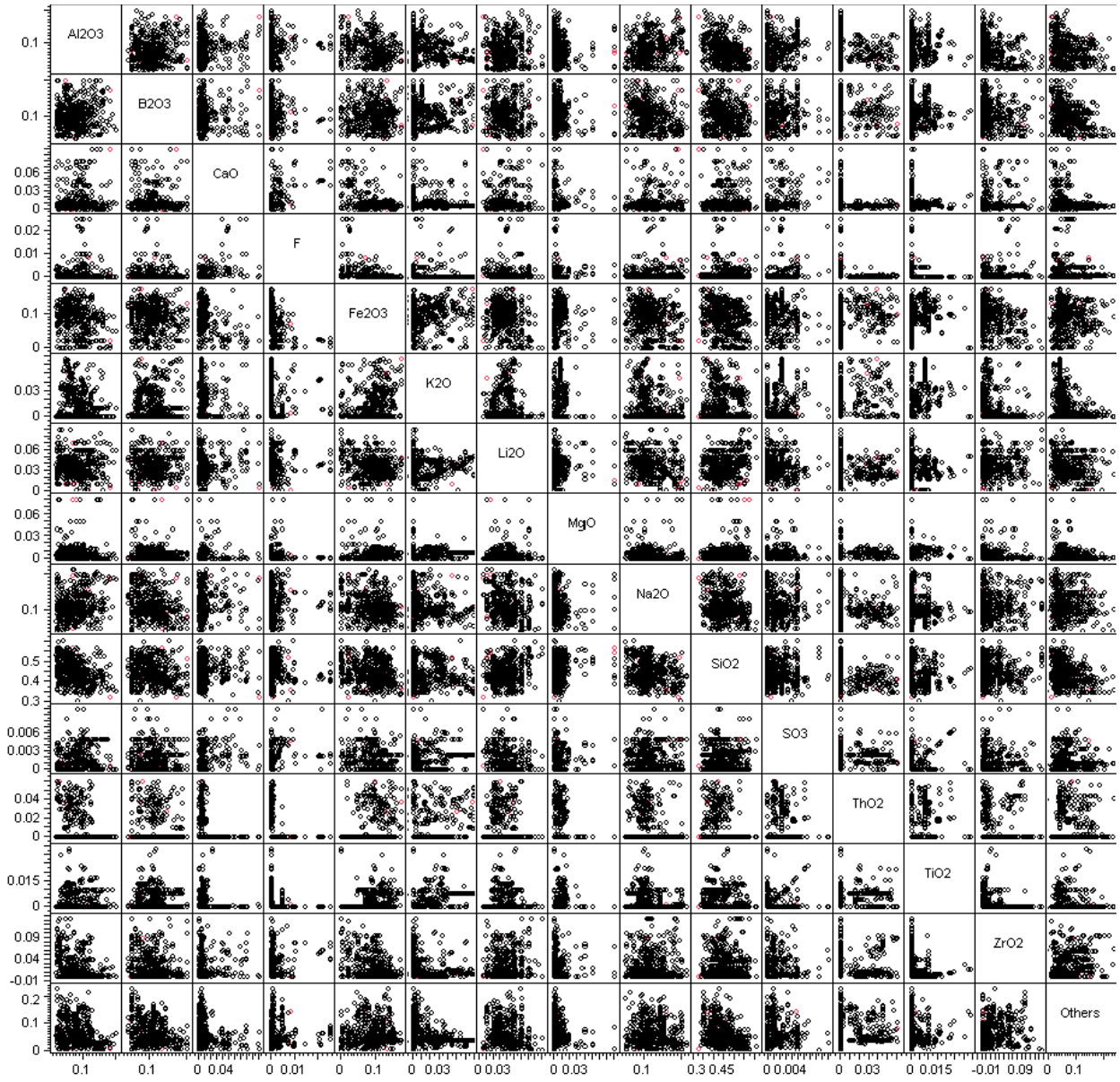

Figure B.10. Scatterplot Matrix of ln[PCT_{Li}] Data Component Concentrations (in mass fractions)

B-11 Toxicity Characteristic Leaching Procedure Response

Figure B.11 shows the scatterplot matrix of the compositions used in fitting the ln[N_{TCLP}] model. The scatterplot matrix, although difficult to see, does show relatively even coverage of each of the components across their validity region. For the most part, the two-dimensional coverage is adequate, with some exceptions. No strong component correlations are evident from the data shown in this plot.

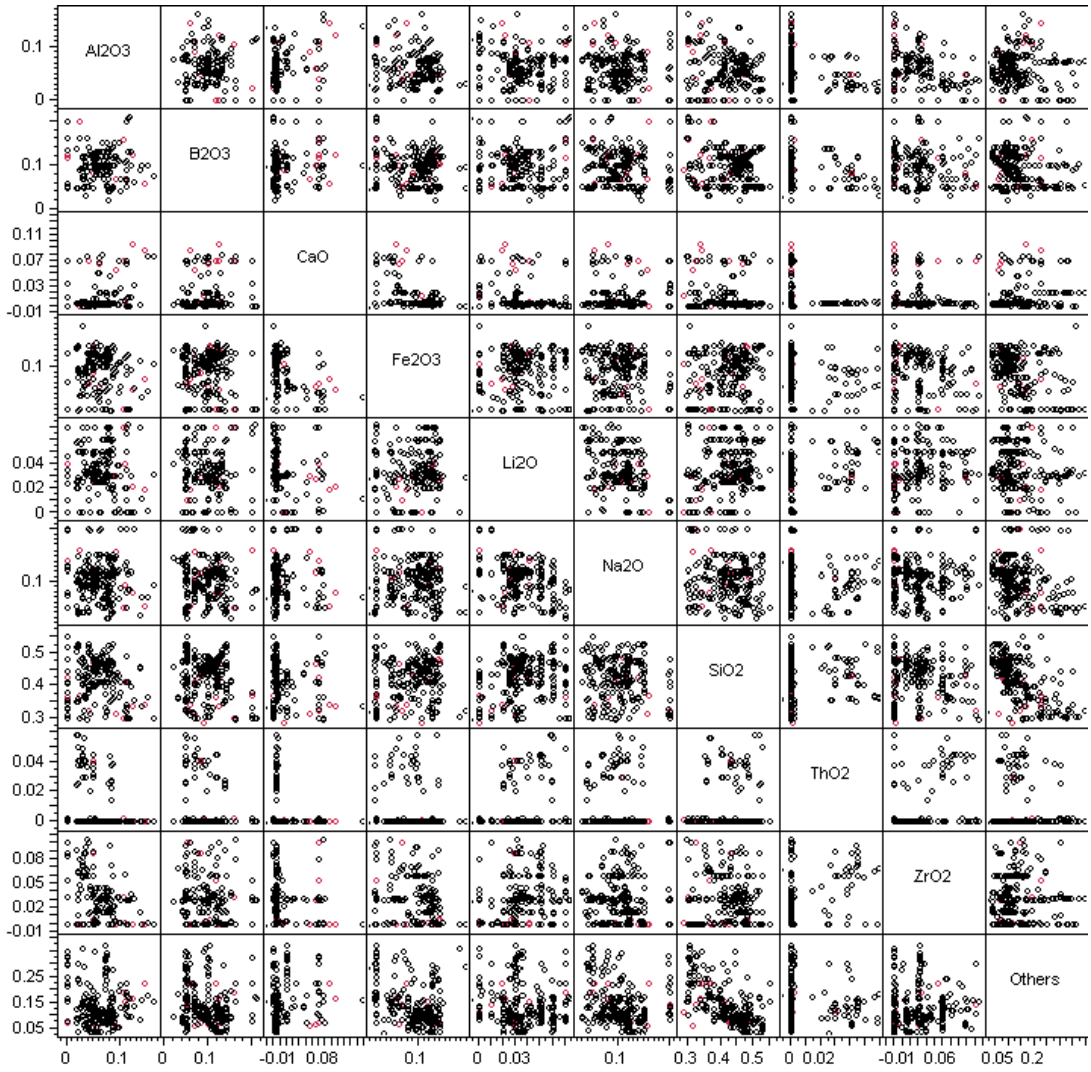

Figure B.11. Scatterplot Matrix of ln[N_{TCLP}] Data Component Concentrations (in mass fractions)

B-12 Spinel One Percent Crystal Temperature

Figure B.12 shows the scatterplot matrix of the compositions used in fitting the $T_{1\%,sp}$ model. The scatterplot matrix, although difficult to see, does show relatively even coverage of each of the components across their validity region with the exception of MgO. Removing the two high MgO glasses changed the fit very little (statistics and MgO coefficient), so they were retained. For the most part, the two-dimensional coverage is adequate, with some exceptions. No strong component correlations are evident from this plot.

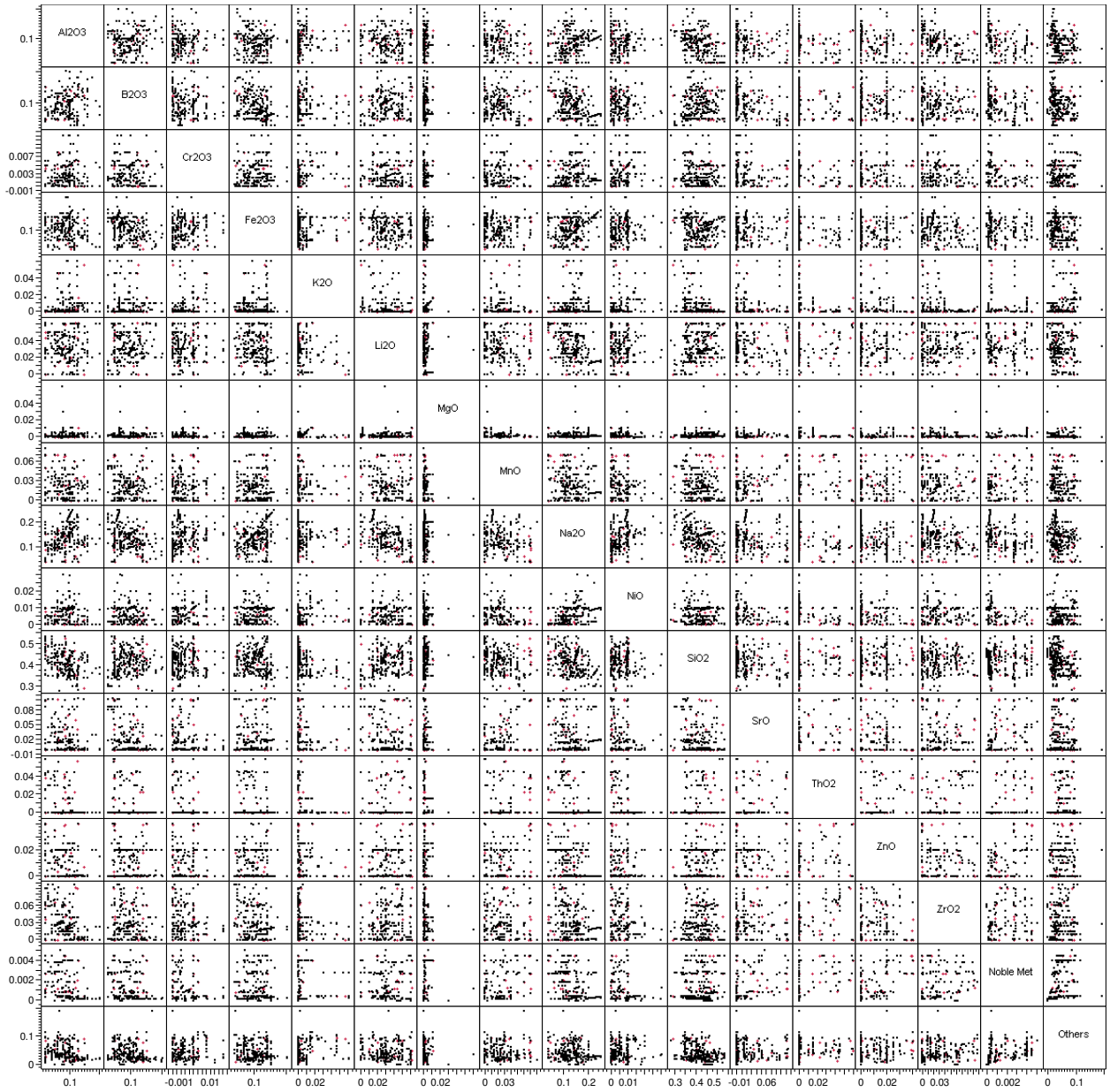

Figure B.12. Scatterplot Matrix of $T_{1\%}$ Data Component Concentrations (in mass fractions)

B-13 Zirconia Containing Phases Liquidus Temperature

Figure B.13 shows the scatterplot matrix of the compositions used in fitting the $T_{L,zs}$ model. The scatterplot matrix shows relatively even coverage of each of the components across their validity region with the exception of SrO. Removing the two high SrO glasses significantly improves validation statistics, but not the coefficient values, so they were retained to allow for prediction of high SrO glasses. For the most part, the two-dimensional coverage is adequate. No strong component correlations are evident from this plot.

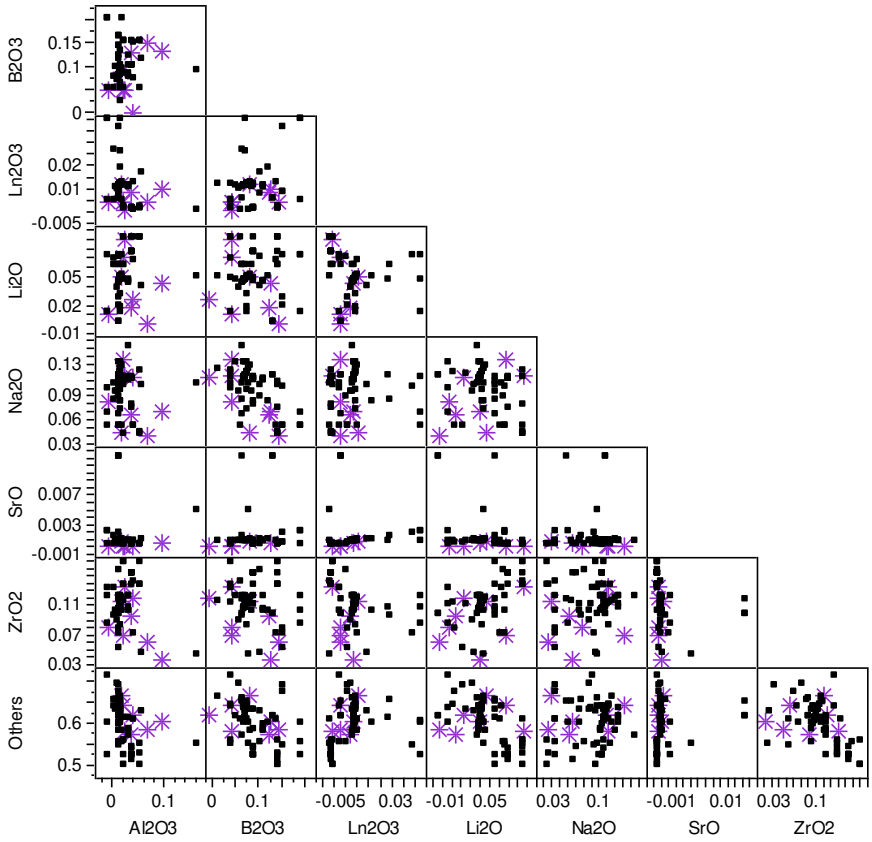

Figure B.13. Scatterplot Matrix of T_L Data Component Concentrations (in mass fractions)

B-14 Density and Specific Volume

Figure B.14 shows the scatterplot matrix of the compositions used in fitting the *v* model. The scatterplot matrix shows relatively even coverage of each of the components across their validity region with the exception of Bi_2O_3 and ThO_2. Removing the high Bi_2O_3 and ThO_2 glasses does not significantly affect the coefficient values, so they were retained to allow for a broader region of glasses. For the most part, the two-dimensional coverage is adequate. No strong component correlations are evident from this plot.

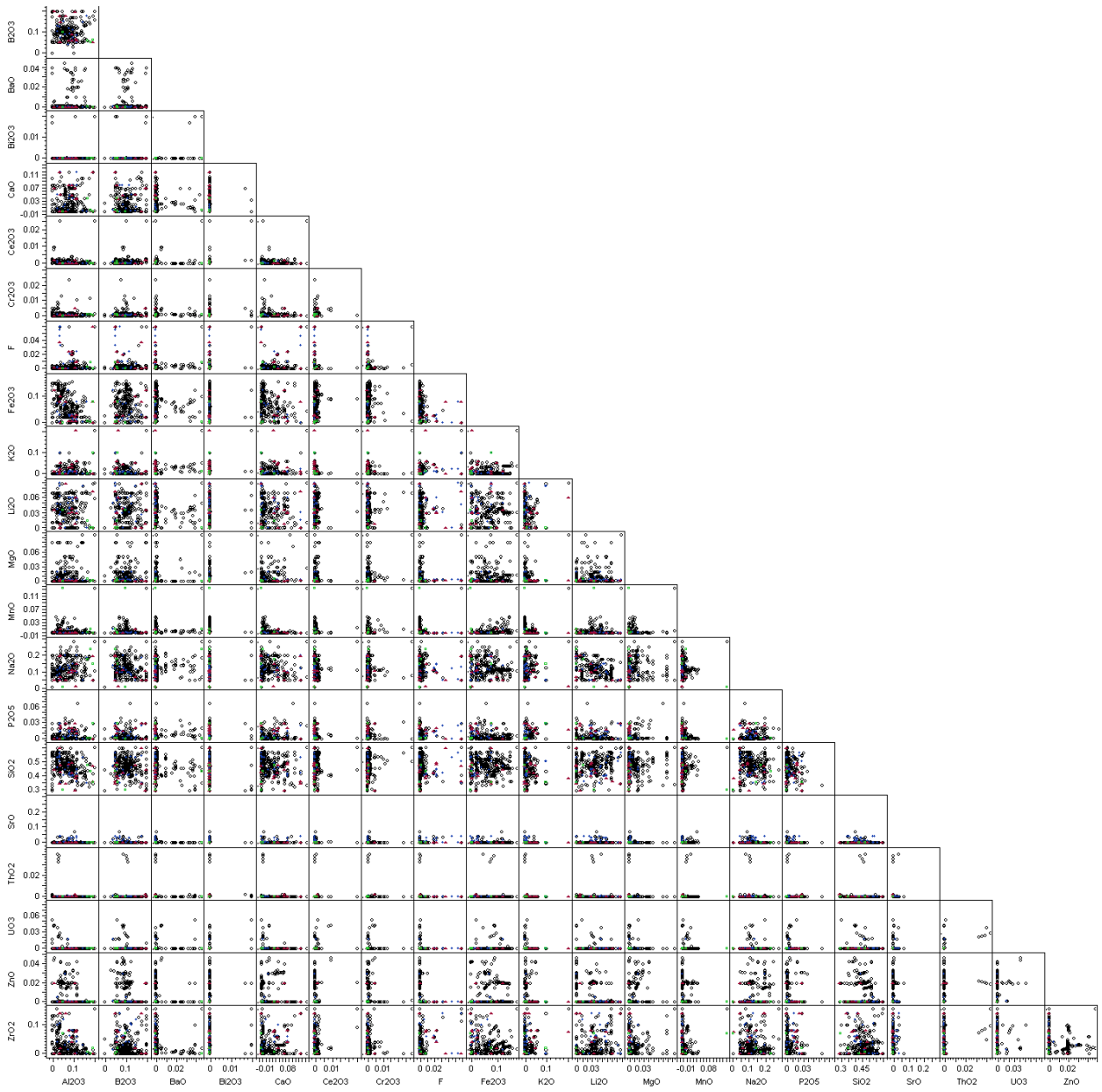

Figure B.14. Scatterplot Matrix of *ρ and v* Data Component Concentrations (in mass fractions)

Appendix C

Variance-Covariance Matrices

Appendix C: Variance-Covariance Matrices

C.1 Viscosity at 950°C

	SiO2	Na2O	B2O3	Al2O3	Fe2O3	CaO	Li2O	K2O	ZrO2	MgO	P2O5	SrO	ZnO	BaO	MnO	PbO	UO3	F	La2O3	Others	Na2O*B2O3	Na2O*Fe2O3	B2O3*B2O3	B2O3*Al2O3	Li2O*Li2O
SiO2	0.01509	-0.02656	0.06894	0.00731	0.01034	0.00302	0.03145	-0.00513	0.00594	0.00698	-0.00926	0.00256	0.00100	0.00366	0.00272	-0.07054	0.00157	0.00616	-0.01189	0.00141	0.140083	0.098399	0.188287	0.121755	0.02283
Na2O	-0.02656	0.18740	0.11411	-0.08379	-0.10086	-0.11411	0.95179	0.02867	-0.33206	-0.02409	0.01656	-1.59025	0.08802	0.19614	-0.03344	-0.01920	0.02371	-0.02005	0.50267	0.01391	-1.25845	-0.88141	-0.07464	0.655088	-1.14755
B2O3	0.06894	0.11411	0.95179	0.02867	-0.33206	-0.07747	-0.00575	0.00748	0.00668	0.02366	-0.01140	0.01061	-0.03501	-0.03344	0.02130	0.33949	0.02306	0.01452	-0.05048	0.84609	0.05503	0.02994	0.03344	-0.96152	2.98230
Al2O3	0.00731	-0.08379	-0.02867	0.33206	-0.22221	-0.02409	0.01656	-0.10464	0.02130	-0.33949	0.02306	0.01452	-0.05048	0.84609	0.05503	0.02994	0.03344	-0.00566	0.04660	-1.61758	-0.05543	-3.34751	-0.96152	3	1.36078
Fe2O3	0.01034	-0.10086	-0.11411	0.95179	0.02867	0.33206	-0.22221	-0.02409	0.01656	-0.10464	0.02130	-0.33949	0.02306	0.01452	-0.05048	0.84609	0.05503	0.02994	0.03344	-0.00566	0.04660	0.631269	0.462365	0.193961	-2.45111	9
CaO	0.00302	0.00414	0.03117	0.01565	0.00667	1	0.02888	9	8	5	1	0.00102	0.03713	1	3	4	4	0.07908	1	7	0.128735	-0.01385	0.044084	0.146526	5
Li2O	0.03145	3	0.22689	0.10842	0.10259	0.02888	2	1	-0.05493	0.00169	0.15223	9	3	0.16869	0.07852	1.06665	0.01469	0.06281	0.05765	0.00561	0.086335	0.369549	0.955965	0.446422	-18.6356
K2O	0.00513	6	0.02749	0.07922	-0.03499	0.03338	9	1	6	0.00951	4	0.10375	7	6	0.06539	5	5	9	0.09886	0.16717	0.00596	0.291493	0.241801	0.163896	0.220453	-0.71811
ZrO2	0.00594	7	0.02412	0.08461	6	5	8	-0.05493	0.00951	3	8	0.02108	-0.00313	0.02494	1	-0.00132	0.23715	-0.04192	0.06878	0.06498	1	0.107431	-0.00494	0.239433	0.213231	2
MgO	0.00698	0.02953	0.04303	5	7	5	0.00169	4	8	9	6	6	0.06872	4	0.03078	7	2	8	0.03236	0.380868	0.046867	-0.01242	0.030492	7	0.16198
P2O5	0.00926	5	0.07226	0.05837	0.00855	0.04243	1	0.15223	0.10375	0.02108	6	4	6	7	0.00355	1	5	0.00718	0.21805	9	0.00323	0.510097	0.273111	0.120675	-0.07825	2.51918
SrO	0.00256	6	0.01939	0.00634	0.01196	0.03143	0.00102	9	7	-0.00313	6	6	6	0.01002	7	-0.16426	0.52762	0.12026	0.08418	0.16536	7	0.189971	0.230135	-0.01263	-0.00823	-0.26821
ZnO	0.00100	7	0.01643	0.13371	0.01855	0.01217	0.03713	3	6	0.02494	0.06872	7	0.01002	9	9	1	0.63048	3	6	3	0.00706	0.249748	0.1591	0.558234	0.066589	1
BaO	0.00366	3	-0.03254	0.14939	0.04053	0.00915	1	0.16869	0.06539	1	4	0.00355	7	9	5	0.00013	1.36804	0.02263	0.08216	4	0.04308	0.205398	0.226744	0.567627	0.220465	1
MnO	0.00272	0.00391	6	9	0.04851	-0.00913	0.01509	3	0.07852	5	-0.00132	0.03078	1	-0.16426	1	0.00013	3	1.42975	0.03178	5	7	0.01408	-0.04817	0.00657	0.146814	0.228365	4
PbO	0.07054	0.14801	4	-0.09724	0.57207	4	1.06665	5	0.23715	8	5	0.52762	0.63048	1.36804	1.42975	6	0.48599	0.30353	9	9	0.926141	0.633522	-3.38055	-1.39727	3
UO3	0.00157	0.00482	0.01315	3	8	4	0.01469	9	-0.04192	7	0.00718	0.12026	3	0.02263	0.03178	0.48599	0.75694	4	9	0.13932	0.16205	-0.07142	0.019677	-0.1429	5
F	0.00616	0.01531	5	0.13797	7	0.07908	0.06281	0.09886	0.06878	2	0.21805	0.08418	6	0.08216	5	0.30353	4	4	0.96009	0.00075	0.123563	0.005565	-0.26435	0.814189	6
La2O3	0.01189	6	0.00792	0.10027	0.09413	4	1	0.05765	0.16717	0.06498	8	9	0.16536	3	4	7	9	9	0.96009	5	-0.13792	0.193254	0.00891	0.113446	0.736887	3
Others	0.00141	0.04332	0.05078	7	0.04285	7	0.00561	0.00596	1	0.03236	0.00323	7	0.00706	0.04308	0.01408	9	0.13932	0.00075	-0.13792	8	0.280994	0.260045	0.174524	-0.20346	-0.04572
Na2O*B2O3	0.14008	3	1.25845	1.61758	9	0.19184	5	5	3	1	8	7	1	8	8	0.04817	1	0.16205	3	4	4	13.44114	3.186121	1.980709	-3.95436	5.10779
Na2O*Fe2O3	0.09839	9	0.88141	0.05543	5	1.40726	0.01385	9	1	0.00494	7	1	5	0.15914	4	0.00657	2	0.07142	5	0.00891	5	3.186121	11.54671	-0.07017	-3.4035	-2.76703
B2O3*B2O3	0.18828	7	0.07464	3.34751	1	5	4	5	6	3	0.01242	5	0.01263	4	7	4	3.38055	7	0.26435	6	4	1.980709	-0.07017	15.4994	0.007175	-13.3408
B2O3*Al2O3	0.12175	0.65508	8	0.96152	2.45111	9	6	2	3	1	2	0.07825	0.00823	9	5	5	1.39727	-0.14292	9	7	0.20346	-3.95436	-3.4035	0.007175	22.90887	-10.7855
Li2O*Li2O	0.02283	9	-1.14755	2.98230	3	1.36078	9	6	1.10272	5	0.61724	18.6356	0.71811	2	7	6	0.26821	1	1	4	3	5	6	3	-0.04572	5.10779	-2.76703	-13.3408	-10.7855	4

C.2 Viscosity at 1150°C

	SiO2	Na2O	B2O3	Al2O3	CaO	Li2O	K2O	ZrO2	MgO	P2O5	SrO	ZnO	BaO	MnO	PbO	UO3	F	La2O3	Others	Na2O*B2O3	Na2O*Al2O3	B2O3*B2O3	Al2O3*CaO	Li2O*Li2O
SiO2	0.006390164	-0.017362925	-0.027812701	-0.005383075	-0.004502394	-0.017047	-0.003843729	-0.000663857	-0.001616138	-0.006914919	-0.002421074	-0.003734702	-0.000644303	-0.000170281	-0.050299625	-0.002988556	-0.007235588	-0.003446981	-0.000319288	-0.107399426	-0.053663769	-0.074126818	-0.061869638	-0.103099441
Na2O	-0.017362925	0.087274588	0.082678237	0.037154249	0.008062579	0.064082279	0.014367004	0.013656104	0.007678671	0.029842511	0.007970805	0.011384605	0.002983386	0.012957204	0.127085166	0.009167879	0.001982387	0.000248447	0.013077755	0.536299907	0.424248417	0.138898582	0.154385898	0.723872013
B2O3	-0.027812701	0.082678237	0.470650114	0.050543759	0.020925259	0.088334505	0.066371342	0.017250942	0.059042122	0.054294115	0.034277589	0.083786087	0.058366299	0.020505942	0.194932042	0.027259505	0.051263342	0.059651242	0.018570942	1.334602752	0.138076117	1.594937505	0.015321442	0.668114903
Al2O3	-0.005383075	0.037154249	0.050543759	0.153825095	0.026760161	0.012895079	0.000750002	0.007998045	0.005393994	0.023312741	0.008306357	0.005876401	0.003379762	0.012624164	0.119492707	0.000615556	0.031600344	0.010194803	0.003119957	0.108920547	0.090000886	0.074681386	0.607391326	0.414657608
CaO	-0.004502394	0.008062579	0.020925259	0.026760161	0.090698946	0.011644146	0.007080101	0.008637266	0.004376805	0.004704737	0.002968946	0.026031963	0.001680509	0.015800863	0.393078064	0.002031522	0.054399406	0.008348006	0.004673322	0.123172406	0.043116809	0.032165109	0.644598409	0.238071549
Li2O	-0.017047	0.064082279	0.088334505	0.012895079	0.011644146	0.760513298	0.019919704	0.033415705	0.009862805	0.008463069	0.011440448	0.011010569	0.085371606	0.057113006	0.023082942	0.031533106	0.030763742	0.003395004	0.030065326	0.000639604	0.129387114	0.392308516	0.038981894	9.403423416
K2O	-0.003843729	0.014367004	0.066371342	0.000750002	0.007080101	0.019919704	0.118845896	0.004693005	0.001802323	0.040390206	0.010776902	0.004864619	0.044662312	0.008143902	0.370584788	0.015389516	0.141054504	0.096138406	0.001631412	0.188465508	0.018442739	0.197905161	0.031493116	0.116436865
ZrO2	-0.000663857	0.013656104	0.017250942	0.007998045	0.008637266	0.033415705	0.004693005	0.052856026	0.007381726	0.000126203	0.006036702	0.013740161	0.028595201	0.003436801	0.017444484	0.015456073	0.046123967	0.037361263	0.005988033	0.055206203	0.039678484	0.046173777	0.055958203	0.188620058
MgO	-0.001616138	0.007678671	0.059042122	0.005393994	0.004376805	0.009862805	0.001802323	0.007381726	0.196130687	0.002558134	0.009790577	0.037044033	0.027342284	0.022741161	0.359395687	0.014998503	0.018893577	0.015556802	0.001712203	0.194837888	0.015236403	0.155567577	0.013398835	0.030592777
P2O5	-0.006914919	0.029842511	0.054294115	0.023312741	0.004704737	0.008463069	0.040390206	0.000126203	0.002558134	0.413053007	0.011102557	0.049513107	0.002224553	0.014626777	0.151271107	0.002493503	0.124381708	0.054915923	0.014962907	0.235214611	0.138726448	0.130744107	0.122640203	0.468019551
SrO	-0.002421074	0.007970805	0.034277589	0.008306357	0.002968946	0.011440448	0.010776902	0.013740161	0.009790577	0.011102557	0.108833907	0.000807519	0.010891019	0.071245403	0.131250283	0.007136107	0.031765202	0.021417007	0.002676007	0.142151703	0.035637791	0.101249954	0.090225161	0.036894344
ZnO	-0.003734702	0.011384605	0.083786087	0.005876401	0.004673322	0.011010569	0.004864619	0.013740161	0.037044033	0.049513107	0.000807519	0.160844599	0.056401369	0.013104369	0.367998923	0.007935256	0.053529253	0.064883124	0.002648007	0.125635203	0.046631251	0.369786252	0.171533669	0.128344139
BaO	-0.000644303	0.002983386	0.058366299	0.003379762	0.001680509	0.085371606	0.044662312	0.028595201	0.022741161	0.002224553	0.010891019	0.056401369	0.931198446	0.017092337	1.004903707	0.032148446	0.148870203	0.058755004	0.010438606	0.045817206	0.006808917	0.254631107	0.203295401	1.315097306
MnO	-0.000170281	0.012957204	0.020505942	0.012624164	0.015800863	0.057113006	0.008143902	0.003436801	0.359395687	0.014626777	0.071245403	0.013104369	0.017092337	0.220456603	0.418864307	0.026739503	0.060118703	0.018545803	0.001794404	0.049822703	0.130894203	0.100078803	0.038835503	0.837329004
PbO	-0.050299625	0.127085166	0.194932042	0.119492707	0.393078064	0.023082942	0.370584788	0.017444484	0.014998503	0.151271107	0.131250283	0.367998923	1.004903707	0.418864307	37.68222803	0.324389803	1.292506702	0.367087202	0.162331803	0.740728004	0.797208904	0.246769703	3.758468903	0.284566203
UO3	-0.002988556	0.009167879	0.027259505	0.000615556	0.002031522	0.031533106	0.015389516	0.015456073	0.014998503	0.002493503	0.007136107	0.007935256	0.032148446	0.026739503	0.324389803	0.234116804	0.001610004	0.023300904	0.010656804	0.126201004	0.027171004	0.073441304	0.065847604	0.304811304
F	-0.007235588	0.001982387	0.051263342	0.031600344	0.054399406	0.030763742	0.141054504	0.046123967	0.015556802	0.124381708	0.031765202	0.053529253	0.148870203	0.060118703	1.292506702	0.001610004	2.428994004	0.892456104	0.026841404	0.025244604	0.019534704	0.000847104	0.065720404	0.792224804
La2O3	-0.003446981	0.000248447	0.059651242	0.010194803	0.008348006	0.003395004	0.096138406	0.037361263	0.001712203	0.054915923	0.021417007	0.064883124	0.058755004	0.018545803	0.367087202	0.023300904	0.892456104	1.505341603	0.013000204	0.102789304	0.047903804	0.132725304	0.215757004	0.221003704
Others	-0.000319288	0.013077755	0.018570942	0.003119957	0.004673322	0.030065326	0.001631412	0.005988033	0.001794404	0.014962907	0.002676007	0.002648007	0.010438606	0.001794404	0.162331803	0.010656804	0.026841404	0.013000204	0.014877704	0.085203704	0.069954804	0.054865004	0.008657604	0.434055304
Na2O*B2O3	-0.107399426	0.536299907	1.334602752	0.108920547	0.123172406	0.000639604	0.188465508	0.055206203	0.194837888	0.235214611	0.142151703	0.125635203	0.045817206	0.049822703	0.740728004	0.126201004	0.025244604	0.102789304	0.085203704	7.323362104	0.029576604	2.540123804	0.664220804	2.626764604
Na2O*Al2O3	-0.053663769	0.424248417	0.138076117	0.090000886	0.043116809	0.129387114	0.018442739	0.039678484	0.015236403	0.138726448	0.035637791	0.046631251	0.006808917	0.130894203	0.797208904	0.027171004	0.019534704	0.047903804	0.069954804	0.029576604	6.890956304	0.010608504	2.546945804	4.196743304
B2O3*B2O3	-0.074126818	0.138898582	1.594937505	0.074681386	0.032165109	0.392308516	0.197905161	0.046173777	0.155567577	0.130744107	0.101249954	0.369786252	0.254631107	0.100078803	0.246769703	0.073441304	0.000847104	0.132725304	0.054865004	2.540123804	0.010608504	7.123613304	0.059050204	3.884462304
Al2O3*CaO	-0.061869638	0.154385898	0.015321442	0.607391326	0.644598409	0.038981894	0.031493116	0.055958203	0.013398835	0.122640203	0.090225161	0.171533669	0.203295401	0.038835503	3.758468903	0.065847604	0.065720404	0.215757004	0.008657604	0.664220804	2.546945804	0.059050204	8.585127604	1.663145604
Li2O*Li2O	-0.103099441	0.723872013	0.668114903	0.414657608	0.238071549	9.403423416	0.116436865	0.188620058	0.030592777	0.468019551	0.036894344	0.128344139	1.315097306	0.837329004	0.284566203	0.304811304	0.792224804	0.221003704	0.434055304	2.626764604	4.196743304	3.884462304	1.663145604	146.6680601

C.3 Viscosity at 1250°C

	0SiO2	Na2O	B2O3	Al2O3	Fe2O3	CaO	Li2O	K2O	MgO	SrO	ZnO	BaO	TiO2	MnO	PbO	UO3	Bi2O3	F	La2O3	Others	Na2O*B2O3	Na2O*Al2O3	B2O3*B2O3	Li2O*Li2O
SiO2	0.0059811 56	0.0165196 3	0.0278305 23	0.0050502 12	0.0006563	0.0014062 81	0.0136971 49	0.0049433 97	0.0004189 32	0.0030609 68	0.0043726 2	0.0026835 01	0.0001093 18	0.0005504 74	0.0692823 38	-3.67572E-05	0.0106019 67	0.0004593 17	0.0049947 1	0.0002912 83	0.1036947 75	0.0548470 83	0.0748655 88	0.0773562 06
Na2O	0.0165196 3	0.0835381 82	0.0782207 24	0.0400013 11	0.0134553 81	0.0095895 4	0.0494043 17	0.0168766 95	0.0065924 55	0.0050327 51	0.0146387 38	0.0063098 07	0.0077323 44	0.0089549 59	0.0960788 68	0.0054667 5	0.0178448 92	0.0107348 02	0.0032246 33	0.0147233 36	0.4873357 3	0.4580881 51	0.1365096 42	0.5393123 3
B2O3	0.0278305 23	0.0782207 24	0.5110614 92	0.0554760 76	0.0234522 99	0.0147463 52	0.0986829 67	0.0614804 51	0.0684520 74	0.0403076 46	0.0943562 17	0.0800898 3	0.0269497 01	0.0084616 64	0.5793830 89	0.0017661 24	0.1612306 58	0.0294491 62	0.0635471 34	0.0104384 79	1.3813161 8	0.1722696 52	1.8039865 57	0.6277143 18
Al2O3	0.0050502 12	0.0400013 11	0.0554760 76	0.1425193 43	0.0018075 65	0.0177755 6	0.0018823 06	0.0046284 81	0.0064604 55	0.0051319 66	0.0052753 11	0.0152249 92	0.0187771 89	0.0152234 29	0.0230922 91	0.0092229 5	0.0358804 94	0.0134954 13	0.0159918 76	0.0030808 78	0.1424968 02	0.9350056 77	0.1066577	0.4238042 72
Fe2O3	0.0006563	0.0134553 81	0.0234522 99	0.0018075 65	0.0234362 72	0.0021608 18	0.0290465 77	0.0022909 92	0.0007270 38	0.0005984 98	0.0054328 23	0.0032418 89	0.0006916 35	0.0055069 72	0.2972662 98	0.0015776 95	0.0101927 17	0.0350585 65	0.0024261 35	0.0029992 28	0.0898754 3	0.0611696 02	0.0738604 22	0.4443976 36
CaO	0.0014062 81	0.0095895 4	0.0147463 52	0.0177755 6	0.0021608 18	0.0426538 83	0.0015995 34	0.0044199 21	0.0004414 99	0.0029399 52	0.0154566 31	0.0127862 63	0.0018371 09	0.0167052 98	0.1514097 23	0.0055330 59	0.0086499 3	0.0514996 28	0.0031349 59	0.0027439 85	0.1174096	0.1113851 03	0.0247967 12	0.2988538 51
Li2O	0.0136971 49	0.0494043 17	0.0986829 67	0.0018823 06	0.0290465 77	0.0015995 34	0.7887662 09	0.0216446 95	0.0162999 34	0.0080051 04	0.0245751 52	0.1085092 83	0.0536629 2	0.0417198 75	0.1788054 97	0.0061002 38	0.0686871 99	0.0828870 02	0.0277355 95	0.0277844 55	0.0009640 11	0.0568731 92	0.4568720 89	10.205010 85
K2O	0.0049433 97	0.0168766 95	0.0614804 51	0.0046284 81	0.0022909 92	0.0044199 21	0.0216446 95	0.1312720 04	0.0207816 77	0.0136966 27	0.0075981 62	0.0500664 91	0.0173928 93	0.0125019 57	0.2094180 98	0.0080426 6	0.0036809 7	0.2012894 9	0.1264028 22	0.0046065 71	0.1686344 9	0.0433228 65	0.1829556 06	0.2428757 17
MgO	0.0004189 32	0.0065924 55	0.0684520 74	0.0064604 55	0.0007270 38	0.0004414 99	0.0162999 34	0.0207816 77	0.1912815 48	0.0133058 67	0.0256585 27	0.0299354 45	0.0295602 02	0.0245236 69	0.3084176 02	0.0110069 7	0.0024894 62	0.0399685 16	0.0319057 93	0.0012520 06	0.1931692 57	0.0051511 45	0.2210934 66	0.1017691 69
SrO	0.0030609 68	0.0050327 51	0.0403076 46	0.0051319 66	0.0005984 98	0.0029399 52	0.0080051 04	0.0136966 27	0.0133058 67	0.1731872 5	0.0024073 76	0.0262474 3	0.0022527 83	0.0807691 3	0.2791116 73	0.0185539 12	0.0097529 51	0.0342545 23	0.0599822 67	0.0034817 5	0.1219284 91	0.0087398 34	0.1478162 6	0.0561299 58
ZnO	0.0043726 2	0.0146387 38	0.0943562 17	0.0052753 11	0.0054328 23	0.0154566 31	0.0245751 52	0.0075981 62	0.0256585 27	0.0024073 76	0.1707778 78	0.0755419 5	0.0822272 49	0.0032024 06	0.2301656 73	0.0037001 91	0.0150282 32	0.0549207 46	0.0643292 72	0.0013425 16	0.1788704 28	0.0207609 77	0.3757078 06	0.5359963 25
BaO	0.0026835 01	0.0063098 07	0.0800898 3	0.0152249 92	0.0032418 89	0.0127862 63	0.1085092 83	0.0500664 91	0.0299354 45	0.0262474 3	0.0755419 5	0.9347216 09	0.0163868 92	0.0106130 44	0.8257971 27	0.0228422 32	0.0627508 59	0.1127367 87	0.0795908 45	0.0227178 56	0.0950259 48	0.0360550 66	0.3180845 91	1.7956958 51
TiO2	0.0001093 18	0.0077323 44	0.0269497 01	0.0187771 89	0.0006916 35	0.0018371 09	0.0536629 2	0.0173928 93	0.0295602 02	0.0022527 83	0.0822272 49	0.0163868 92	0.4302432 16	0.0123471 23	0.4504680 44	0.0149920 46	0.0360605 67	0.0920354 64	0.0302522 06	0.0120916 25	0.1075211 92	0.1593428 99	0.1978468 25	0.4789942 69
MnO	0.0005504 74	0.0089549 59	0.0084616 64	0.0152234 29	0.0055069 72	0.0167052 98	0.0417198 75	0.0125019 57	0.0245236 69	0.0807691 3	0.0032024 06	0.0106130 44	0.0123471 23	0.2582747 07	0.8259267 64	0.0145422 62	0.0005818 73	0.0518340 37	0.0368861 35	0.0021061 2	0.0034356 86	0.1578049 66	0.0546769 29	0.6241793 09
PbO	0.0692823 38	0.0960788 68	0.5793830 89	0.0230922 91	0.2972662 98	0.1514097 23	0.1788054 97	0.2094180 98	0.3084176 02	0.2791116 73	0.2301656 73	0.8257971 27	0.4504680 44	0.8259267 64	53.751073 23	0.3633682 95	0.1225225 03	0.8097076 88	0.1831430 72	0.0230759 67	1.0496709 77	0.1677598 16	2.3663301 04	2.6779860 61
UO3	-3.67572E-05	0.0054667 5	0.0017661 24	0.0092229 5	0.0015776 95	0.0055330 59	0.0061002 38	0.0080426 6	0.0110069 7	0.0185539 12	0.0037001 91	0.0228422 32	0.0149920 46	0.0145422 62	0.3633682 95	0.1904755 03	0.0111245 16	0.0343768 56	0.0158309 57	0.0170817 7	0.0674808 69	0.0759528 53	0.0319794 02	0.1775066 3
Bi2O3	0.0106019 67	0.0178448 92	0.1612306 58	0.0358804 94	0.0101927 17	0.0086499 3	0.0686871 99	0.0036809 7	0.0024894 62	0.0097529 51	0.0150282 32	0.0627508 59	0.0360605 67	0.0005818 73	0.1225225 03	0.0111245 16	0.6248060 88	0.0307190 57	0.0073209 45	0.0277769 67	0.2824971 68	0.1665646 47	0.5798979 75	1.2003312 79
F	0.0004593 17	0.0107348 02	0.0294491 62	0.0134954 13	0.0350585 65	0.0514996 28	0.0828870 02	0.2012894 9	0.0399685 16	0.0342545 23	0.0549207 46	0.1127367 87	0.0920354 64	0.0518340 37	0.8097076 88	0.0343768 56	0.0307190 57	2.582816	1.0027325 06	0.0228252 14	0.0765701 71	0.0794826 18	0.3534963 25	1.5573911 66
La2O3	0.0049947 1	0.0032246 33	0.0635471 34	0.0159918 76	0.0024261 35	0.0031349 59	0.0277355 95	0.1264028 22	0.0319057 93	0.0599822 67	0.0643292 83	0.0795908 45	0.0302522 06	0.0368861 35	0.1831430 72	0.0158309 57	0.0073209 45	1.0027325 06	1.6839396 25	0.0237527 38	0.0625108 47	0.0138498 2	0.1236469 52	0.1514741 83
Others	0.0002912 83	0.0147233 36	0.0104384 79	0.0030808 78	0.0029992 28	0.0027439 85	0.0277844 55	0.0046065 71	0.0012520 06	0.0034817 5	0.0013425 16	0.0227178 56	0.0120916 25	0.0021061 2	0.0230759 67	0.0170817 7	0.0277769 67	0.0228252 14	0.0237527 38	0.0269481 15	0.0782318 53	0.0731126 52	0.0101738 25	0.2746517 6
Na2O*B2O3	0.1036947 75	0.4873357 3	1.3813161 8	0.1424968 02	0.0898754 3	0.1174096	0.0009640 11	0.1686344 9	0.1931692 57	0.1219284 91	0.1788704 28	0.0950259 48	0.1075211 92	0.0034356 86	1.0496709 77	0.0674808 69	0.2824971 68	0.0765701 71	0.0625108 47	0.0782318 53	1.7902767 88	0.1836024 38	2.8303069 79	2.5110354 92
Na2O*Al2O3	0.0548470 83	0.4580881 51	0.1722696 52	0.9350056 77	0.0611696 02	0.1113851 03	0.0568731 92	0.0433228 65	0.0051511 45	0.0087398 34	0.0207609 77	0.0360550 66	0.1593428 99	0.1578049 66	0.1677598 16	0.0759528 53	0.1665646 47	0.0794826 18	0.0138498 2	0.0731126 52	0.1836024 38	7.5299326 06	0.1743127 06	3.1091757 33
B2O3*B2O3	0.0748655 88	0.1365096 42	1.8039865 57	0.1066577	0.0738604 22	0.0247967 12	0.4568720 89	0.1829556 06	0.2210934 66	0.1478162 6	0.3757078 06	0.3180845 91	0.1978468 25	0.0546769 29	2.3663301 04	0.0319794 02	0.5798979 75	0.3534963 25	0.1236469 52	0.0101738 25	2.8303069 79	0.1743127 06	8.2266343 24	3.9416706 83
Li2O*Li2O	0.0773562 06	0.5393123 3	0.6277143 18	0.4238042 72	0.4443976 36	0.2988538 51	10.205010 85	0.2428757 17	0.1017691 69	0.0561299 58	0.5359963 25	1.7956958 51	0.4789942 69	0.6241793 09	2.6779860 61	0.1775066 3	1.2003312 79	1.5573911 66	0.1514741 83	0.2746517 6	2.5110354 92	3.1091757 33	3.9416706 83	163.27813 03

C.4 Electrical Conductivity at 1000°C

	Al2O3	B2O3	CaO	Fe2O3	Li2O	MgO	Na2O	NiO	SiO2	SrO	ZnO	ZrO2	Others	Na x Li
Al2O3	0.063840405	-0.014816908	-0.003984338	0.012863283	-0.076222138	0.014060859	-0.026203528	0.062570004	0.001383404	-0.017403708	-0.00226075	0.024877602	-0.003059366	0.310824589
B2O3	-0.014816908	0.048093158	0.0014392	-0.002006134	-0.010345483	-0.001054602	-0.000531283	-0.018571438	-0.009392823	0.004452437	0.004469108	-0.011307796	0.009018448	0.244696587
CaO	-0.003984338	0.0014392	0.098933429	0.013216797	0.000815493	-0.005127055	0.007969805	0.06116984	-0.008813503	0.011684535	-0.065619396	0.002711397	0.00886636	0.030971446
Fe2O3	0.012863283	-0.002006134	0.013216797	0.050115614	-0.017864504	0.030505543	-0.009337631	-0.101135164	-0.006763237	-0.018159256	-0.015679338	0.01424065	0.001087882	0.105442049
Li2O	-0.076222138	-0.010345483	0.000815493	-0.017864504	1.03531116	-0.031746463	0.223634378	0.027314042	-0.06115983	-0.007361267	-0.031986168	-0.060805106	-0.020885511	-6.576827199
MgO	0.014060859	-0.001054602	-0.005127055	0.030505543	-0.031746463	0.270110552	-0.008395917	-0.007238135	-0.013788542	0.009231098	-0.017037347	0.01630549	0.016575222	0.360899876
Na2O	-0.026203528	-0.000531283	0.007969805	-0.009337631	0.223634378	-0.008395917	0.070631346	0.017170465	-0.017036598	0.010188954	-0.014926494	-0.020565355	-0.007695928	-1.383109812
NiO	0.062570004	-0.018571438	0.06116984	-0.101135164	0.027314042	-0.007238135	0.017170465	7.63330829	-0.027350883	-0.020679696	0.492830024	-0.015903831	-0.174835694	-2.283445706
SiO2	0.001383404	-0.009392823	-0.008813503	-0.006763237	-0.06115983	-0.013788542	-0.017036598	-0.027350883	0.011722568	0.001283913	-0.005714676	0.001578036	-0.004072103	0.25048017
SrO	-0.017403708	0.004452437	0.011684535	-0.018159256	-0.007361267	0.009231098	0.010188954	-0.020679696	0.001283913	0.149362969	0.004864085	-0.011293708	-0.03292636	0.173822432
ZnO	-0.00226075	0.004469108	-0.065619396	-0.015679338	-0.031986168	-0.017037347	-0.014926494	0.492830024	-0.005714676	0.004864085	0.315458509	-0.018946721	-0.012458301	0.646786119
ZrO2	0.024877602	-0.011307796	0.002711397	0.01424065	-0.060805106	0.01630549	-0.020565355	-0.015903831	0.001578036	-0.011293708	-0.018946721	0.093869621	-0.016761618	0.175038879
Others	-0.003059366	0.009018448	0.00886636	0.001087882	-0.020885511	0.016575222	-0.007695928	-0.174835694	-0.004072103	-0.03292636	-0.012458301	-0.016761618	0.052569081	0.267313176
Na x Li	0.310824589	0.244696587	0.030971446	0.105442049	-6.576827199	0.360899876	-1.383109812	-2.283445706	0.25048017	0.173822432	0.646786119	0.175038879	0.267313176	55.58502616

C.5 Electrical Conductivity at 1100°C

	Al2O3	B2O3	CaO	Fe2O3	Li2O	MgO	Na2O	NiO	SiO2	SrO	ZnO	ZrO2	Others	Na x Li
Al2O3	0.057667586	-0.011902272	-0.006154117	0.01083492	-0.065174969	0.011084302	-0.022819372	0.035230041	0.00091908	-0.013136852	0.000897855	0.0221005	-0.004473809	0.274341231
B2O3	-0.011902272	0.04000285	0.002546097	-0.001345376	-0.018529899	-0.000758682	-0.003064684	0.034134902	-0.007148095	-0.000941705	0.001502946	-0.007603909	0.009217904	0.235106857
CaO	-0.006154117	0.002546097	0.086025257	0.011441372	0.008859866	-0.004881599	0.009314008	0.044067861	-0.008429751	0.013585581	-0.054464217	0.000763082	0.00585899	-0.000353413
Fe2O3	0.01083492	-0.001345376	0.011441372	0.044284875	-0.012355454	0.02376499	-0.007437931	-0.082907585	-0.006344052	-0.01657808	-0.01170677	0.011468381	0.001111398	0.080052224
Li2O	-0.065174969	-0.018529899	0.008859866	-0.012355454	0.930813213	-0.021701078	0.199038125	0.081287837	-0.052983441	-0.016094259	-0.047678739	-0.046107534	-0.016819255	-6.049096548
MgO	0.011084302	-0.000758682	-0.004881599	0.02376499	-0.021701078	0.238159547	-0.005402227	0.022972769	-0.012603048	0.009108846	-0.011226855	0.012293254	0.01496421	0.292549437
Na2O	-0.022819372	-0.003064684	0.009314008	-0.007437931	0.199038125	-0.005402227	0.063202355	0.030975679	-0.014719959	0.006841218	-0.018669081	-0.016362238	-0.006458031	-1.267939588
NiO	0.035230041	0.034134902	0.044067861	-0.082907585	0.081287837	0.022972769	0.030975679	6.092254718	-0.03660978	0.057735464	0.444006688	-0.016016009	-0.189005292	-2.044796006
SiO2	0.00091908	-0.007148095	-0.008429751	-0.006344052	-0.052983441	-0.012603048	-0.014719959	-0.03660978	0.010097706	0.002386894	-0.003779179	-2.9442E-05	-0.003629456	0.229413263
SrO	-0.013136852	-0.000941705	0.013585581	-0.01657808	-0.016094259	0.009108846	0.006841218	0.057735464	0.002386894	0.131503575	0.002226539	-0.009523811	-0.027238626	0.171017238
ZnO	0.000897855	0.001502946	-0.054464217	-0.01170677	-0.047678739	-0.011226855	-0.018669081	0.444006688	-0.003779179	0.002226539	0.28147995	-0.011565227	-0.010446257	0.661782155
ZrO2	0.0221005	-0.007603909	0.000763082	0.011468381	-0.046107534	0.012293254	-0.016362238	-0.016016009	-2.9442E-05	-0.009523811	-0.011565227	0.081972033	-0.014131203	0.138147475
Others	-0.004473809	0.009217904	0.00585899	0.001111398	-0.016819255	0.01496421	-0.006458031	-0.189005292	-0.003629456	-0.027238626	-0.010446257	-0.014131203	0.045713168	0.239465785
Na x Li	0.274341231	0.235106857	-0.000353413	0.080052224	-6.049096548	0.292549437	-1.267939588	-2.044796006	0.229413263	0.171017238	0.661782155	0.138147475	0.239465785	51.50820402

C.6 Electrical Conductivity at 1150°C

	Al2O3	B2O3	CaO	Fe2O3	Li2O	MgO	Na2O	NiO	SiO2	SrO	ZnO	ZrO2	Others	Na x Li
Al2O3	0.037529339	-0.014538019	-0.013753221	0.005512233	-0.053671792	0.005421377	-0.018677867	0.007926671	0.004183445	-0.005255981	0.011409973	0.017756924	-0.007390729	0.203081292
B2O3	-0.014538019	0.034931815	-0.000141546	-0.002852716	-0.022188624	-0.000863047	-0.003759436	0.0471703	-0.004978271	-0.000598384	0.003405756	-0.005792242	0.007663845	0.234948979
CaO	-0.013753221	-0.000141546	0.070311715	0.005754819	0.004259908	-0.009825585	0.0096342	0.008742835	-0.005014139	0.015880278	-0.043149915	-0.001813946	0.003831889	0.055829557
Fe2O3	0.005512233	-0.002852716	0.005754819	0.039258569	-0.011544729	0.015445234	-0.006387325	-0.075367257	-0.004399802	-0.015676935	-0.00555435	0.008435966	0.000706175	0.076803504
Li2O	-0.053671792	-0.022188624	0.004259908	-0.011544729	0.868387054	-0.007860838	0.184226255	0.073454999	-0.04843871	-0.024382519	-0.055395643	-0.042109288	-0.010440608	-5.688288549
MgO	0.005421377	-0.000863047	-0.009825585	0.015445234	-0.007860838	0.204003108	-0.001251387	0.043934371	-0.010794766	0.010519777	-0.001024928	0.008185678	0.011249661	0.213429839
Na2O	-0.018677867	-0.003759436	0.0096342	-0.006387325	0.184226255	-0.001251387	0.059113009	0.029060792	-0.013895029	0.003952095	-0.022516327	-0.014688466	-0.004462139	-1.187619942
NiO	0.007926671	0.0471703	0.008742835	-0.075367257	0.073454999	0.043934371	0.029060792	5.199882036	-0.033679982	0.091629932	0.4370174	-0.017258401	-0.192143077	-1.438777309
SiO2	0.004183445	-0.004978271	-0.005014139	-0.004399802	-0.04843871	-0.010794766	-0.013895029	-0.033679982	0.00826283	0.001890088	-0.005825745	0.00019005	-0.003185216	0.210165313
SrO	-0.005255981	-0.000598384	0.015880278	-0.015676935	-0.024382519	0.010519777	0.003952095	0.091629932	0.001890088	0.124087692	-0.002652093	-0.009009109	-0.023272298	0.198627874
ZnO	0.011409973	0.003405756	-0.043149915	-0.00555435	-0.055395643	-0.001024928	-0.022516327	0.4370174	-0.005825745	-0.002652093	0.264852877	-0.007480735	-0.006635173	0.687526057
ZrO2	0.017756924	-0.005792242	-0.001813946	0.008435966	-0.042109288	0.008185678	-0.014688466	-0.017258401	0.00019005	-0.009009109	-0.007480735	0.07534482	-0.012012007	0.132144937
Others	-0.007390729	0.007663845	0.003831889	0.000706175	-0.010440608	0.011249661	-0.004462139	-0.192143077	-0.003185216	-0.023272298	-0.006635173	-0.012012007	0.040877071	0.200518599
Na x Li	0.203081292	0.234948979	0.055829557	0.076803504	-5.688288549	0.213429839	-1.187619942	-1.438777309	0.210165313	0.198627874	0.687526057	0.132144937	0.200518599	48.69830299

C.7 Electrical Conductivity at 1200°C

	Al2O3	B2O3	CaO	Fe2O3	Li2O	MgO	Na2O	NiO	SiO2	SrO	ZnO	ZrO2	Others	Na x Li
Al2O3	0.048313941	-0.008658852	-0.008488968	0.007780878	-0.053171996	0.006107298	-0.018628434	0.013458006	0.000675666	-0.009168168	0.005147291	0.017328243	-0.004779446	0.238314317
B2O3	-0.008658852	0.032903571	0.00203488	-0.00170395	-0.022113385	-0.001438719	-0.004716118	0.063013105	-0.005056948	-0.003901822	-0.001026565	-0.004426891	0.008058063	0.20656585
CaO	-0.008488968	0.00203488	0.079047202	0.010313212	0.01259861	-0.012627767	0.009806272	0.037954339	-0.00724577	0.012866779	-0.049993504	0.000355326	0.00371331	-0.027564352
Fe2O3	0.007780878	-0.00170395	0.010313212	0.038195293	-0.00687752	0.013234146	-0.005458067	-0.060476956	-0.005245589	-0.015323877	-0.009252374	0.00863518	0.000554952	0.044664659
Li2O	-0.053171996	-0.022113385	0.01259861	-0.00687752	0.849788831	-0.003342646	0.178703923	0.128544052	-0.047687309	-0.022968809	-0.060275422	-0.036074753	-0.014312755	-5.603411058
MgO	0.006107298	-0.001438719	-0.012627767	0.013234146	-0.003342646	0.194092238	-0.000852801	0.05338736	-0.009890545	0.009379678	-1.96989E-05	0.007991141	0.00969983	0.161340853
Na2O	-0.018628434	-0.004716118	0.009806272	-0.005458067	0.178703923	-0.000852801	0.056274608	0.043723271	-0.013027801	0.003870589	-0.021247403	-0.012721313	-0.005597006	-1.164667819
NiO	0.013458006	0.063013105	0.037954339	-0.060476956	0.128544052	0.05338736	0.043723271	5.189433196	-0.046558216	0.079891696	0.409803658	-0.026121158	-0.175882622	-1.876101259
SiO2	0.000675666	-0.005056948	-0.00724577	-0.005245589	-0.047687309	-0.009890545	-0.013027801	-0.046558216	0.008493245	0.003247711	-0.002610215	-0.000688795	-0.002859202	0.221273171
SrO	-0.009168168	-0.003901822	0.012866779	-0.015323877	-0.022968809	0.009379678	0.003870589	0.079891696	0.003247711	0.117186827	0.000614711	-0.006665347	-0.023838543	0.175080369
ZnO	0.005147291	-0.001026565	-0.049993504	-0.009252374	-0.060275422	-1.96989E-05	0.021247403	0.409803658	-0.002610215	0.000614711	0.255870856	-0.007168483	-0.008170774	0.68284315
ZrO2	0.017328243	-0.004426891	0.000355326	0.00863518	-0.036074753	0.007991141	-0.012721313	-0.026121158	-0.000688795	-0.006665347	-0.007168483	0.068150864	-0.011484496	0.123353114
Others	-0.004779446	0.008058063	0.00371331	0.000554952	-0.014312755	0.00969983	-0.005597006	-0.175882622	-0.002859202	-0.023838543	-0.008170774	-0.011484496	0.039570427	0.208849719
Na x Li	0.238314317	0.20656585	-0.027564352	0.044664659	-5.603411058	0.161340853	-1.164667819	-1.876101259	0.221273171	0.175080369	0.68284315	0.123353114	0.208849719	47.59124249

C.8 Product Consistency Test Normalized Boron Response

	Al2O3	B2O3	BaO	CaO	CdO	F	Fe2O3	K2O	Li2O	MgO	MnO	Na2O	Nd2O3	P2O5	SiO2	SO3	SrO	ThO2	TiO2	UO3	ZnO	ZrO2	others	Al^2	Al*Th	Mn^2	Al^3
Al2O3	19.79918879	0.451049529	0.211573726	0.749094484	0.366190424	0.420048615	0.406810401	1.046693607	0.678503311	0.606703593	2.220979093	0.542370314	0.790486337	1.158705495	0.459142386	0.771750925	0.835765369	0.163851272	1.309656605	0.063789036	1.954538347	0.135619915	0.231530571	229.6821098	8.072496227	29.97945682	759.8271185
B2O3	0.451049529	0.163243268	0.017920885	0.035210625	0.052015072	0.159053043	0.017485419	0.008400467	0.003349267	0.007428265	0.040720967	0.022142295	0.050823297	0.002833174	0.009023304	0.264172519	0.018624782	0.071560051	0.002217002	0.079791776	0.000371831	0.036629392	0.016469159	4.608994095	0.639685302	0.008327773	15.16455318
BaO	0.211573726	0.017920885	7.711959992	0.201766351	1.441629839	1.311577686	0.038233937	0.534146662	0.163528158	0.434386165	0.663780176	0.083252033	1.189170002	0.382702144	0.029482438	3.128488496	0.028008049	0.040204873	0.395915948	0.226301519	0.125046772	0.146875219	0.636670835	0.084418819	4.346878524	11.33310075	6.467335313
CaO	0.749094484	0.035210625	0.201766351	0.544001392	0.394661524	0.894641831	0.032820472	0.035054866	0.027251009	0.005465379	0.361432497	0.056219958	0.036888849	0.133325664	0.006315082	1.524878577	0.030104137	0.066265885	0.057090026	0.000963166	0.180825813	0.017416947	0.086971286	8.083040728	0.076579129	4.832652556	25.70965103
CdO	0.366190424	0.052015072	1.441629839	0.394661524	23.62340455	0.641924464	0.238289306	0.521616466	0.113862788	0.217980622	1.765028346	0.048147799	0.320600742	0.577381495	0.045392007	3.251427383	1.058403084	0.980868568	2.105532084	0.135642936	0.174450266	0.013368472	1.612240795	6.670626236	4.758990758	26.51600373	24.27307526
F	0.420048615	0.159053043	1.311577686	0.894641831	0.641924464	25.21726277	0.342673674	0.900557984	0.222379358	0.164264825	1.623149921	0.032950636	2.155110666	0.791684088	0.007648387	0.017437844	0.036041384	0.403634943	1.610116768	0.474954194	0.961285725	0.493840235	3.174342776	6.500734959	18.05493569	18.64158148	47.16242395
Fe2O3	0.406810401	0.017485419	0.038233937	0.032820472	0.238289306	0.342673674	0.165450263	0.036790064	0.048203979	0.015481796	0.304332333	0.009031256	0.235861202	0.043101466	0.001516249	0.106295853	0.010855316	0.033663152	0.021432178	0.009318465	0.006976738	0.070909103	0.105163307	5.048589423	0.293470345	4.436170012	16.14736358
K2O	1.046693607	0.008400467	0.534146662	0.035054866	0.521616466	0.900557984	0.036790064	0.845702397	0.014541863	0.071471674	0.055730986	0.015104472	0.315674614	0.089724083	0.022483015	0.173811521	0.076357182	0.158353015	0.367263258	0.096917239	0.270777042	0.039917108	0.119658047	12.54919944	0.014124022	2.242316661	41.08777063
Li2O	0.678503311	0.003349267	0.163528158	0.027251009	0.113862788	0.222379358	0.048203979	0.014541863	0.829564674	0.050736986	0.022291472	0.189539614	0.233789083	0.124404472	0.050588075	0.147326521	0.091776182	0.177883015	0.326102258	0.135806239	0.118787042	0.171088108	0.167245047	7.411413944	3.246829022	-1.840236661	26.90267828
MgO	0.606703593	0.007428265	0.434386165	0.005465379	0.217980622	0.164264825	0.015481796	0.071471674	0.050736986	1.746420463	0.336956296	0.032801325	0.270117884	0.122423154	0.018138059	1.113507579	0.131979462	0.245979143	0.404831138	0.003816075	0.098728999	0.066014888	0.043574055	7.417365221	3.248704258	2.941748256	23.51634013
MnO	2.220979093	0.040720967	0.663780176	0.361432497	1.765028346	1.623149921	0.304332333	0.055730986	0.022291472	0.336956296	8.568972621	0.255534381	0.961392061	0.389421209	0.033070075	1.836185019	0.071207783	0.093622762	0.376809974	0.354199068	0.345481261	0.048470744	0.672145961	23.94538471	1.471107219	144.7168685	78.46816725
Na2O	0.542370314	0.022142295	0.083252033	0.056219958	0.048147799	0.032950636	0.009031256	0.015104472	0.189539614	0.032801325	0.255534381	0.144780098	0.071460066	0.043746974	0.023063661	0.244324224	0.048817903	0.059422903	0.059965007	0.004794005	0.016205117	0.060956093	0.052498323	5.312600992	1.822057717	4.371489037	17.09597998
Nd2O3	0.790486337	0.050823297	1.189170002	0.036888849	0.320600742	2.155110666	0.235861202	0.315674614	0.233789083	0.270117884	0.961392061	0.071460066	5.332610867	0.049556581	0.016021009	1.266654963	0.285943747	0.028227299	1.252628718	0.238462088	0.336542412	0.139338854	2.125670254	12.17172081	1.056681787	10.16981622	44.46178362
P2O5	1.158705495	0.002833174	0.382702144	0.133325664	0.577381565	0.791684088	0.043101466	0.089724083	0.124404472	0.122423154	0.389421209	0.043746974	0.049556581	3.314544032	0.023809451	2.043270324	0.098577057	0.085985112	0.076065553	0.132343066	0.350821049	0.049366604	0.195904014	11.17550721	7.141937913	3.528213021	31.10806113
SiO2	0.459142386	0.009023304	0.029482438	0.006315082	0.045392007	0.007648387	0.001516249	0.022483015	0.050588075	0.018138059	0.033070075	0.023063661	0.016021009	0.023809451	0.034825313	0.108233376	0.023042166	0.023334009	0.023831459	0.002600269	0.056749688	0.003135603	0.000265848	5.064434103	0.555319868	0.597237082	15.81229173
SO3	0.771750925	0.264172519	3.128488496	1.524878577	3.251427383	0.017437844	0.106295853	0.173811521	0.147326268	1.113507579	1.836185019	0.244324834	1.266654328	2.043270324	0.108233376	38.66226268	0.144987372	0.408447989	0.428973067	0.022539434	1.913567066	0.160229565	0.023151229	11.70967073	0.839526006	25.10077281	40.31458243
SrO	0.835765369	0.018624782	0.028008049	0.030104137	1.058403084	0.036041384	0.010855316	0.076357152	0.091776182	0.131979462	0.071207783	0.048817903	0.285943747	0.098577057	0.023042166	0.144987372	0.931454773	0.038207277	0.050297119	0.286195867	0.030394807	0.062464067	0.285252788	8.734692842	0.866865658	3.493966635	27.19329473
ThO2	0.163851272	0.071560051	0.040204873	0.066265885	0.980868568	0.403634943	0.033663152	0.158353015	0.177883488	0.245979143	0.093622762	0.059422903	0.028227299	0.085985112	0.023334009	0.408447989	0.038207277	5.395772405	0.065097118	1.561841716	0.011090342	0.083279003	0.300160978	5.953831972	61.56949191	5.367572848	34.00245549
TiO2	1.309656605	0.002217002	0.395915948	0.057090026	2.105532084	1.610116768	0.021432178	0.367263258	0.326102658	0.404831138	0.376809974	0.059965007	1.252628718	0.076065553	0.023831459	0.428973067	0.050297119	0.065097118	3.883967258	0.182930002	0.634455476	0.117217252	0.218665811	14.01567614	1.269269243	3.726851368	42.56437392
UO3	0.063789036	0.079791776	0.226301519	0.000963166	0.135642936	0.474954194	0.009318465	0.096917239	0.135806239	0.003816075	0.354199068	0.004794005	0.238462088	0.132343066	0.002600269	0.022539434	0.286195867	1.561841716	0.182930002	2.754732059	0.125920046	0.118903076	0.466819069	0.462559814	9.467161778	4.902516537	2.760801554
ZnO	1.954538347	0.000371831	0.125046772	0.180825813	0.174450266	0.961285725	0.006976738	0.270777042	0.118787488	0.098728999	0.345481261	0.016205117	0.336542412	0.350821049	0.056749688	1.913567066	0.030394807	0.011090342	0.634455476	0.125920046	1.618083348	0.150095259	0.050223882	22.46156126	2.677328085	7.131907921	70.90808251
ZrO2	0.135619915	0.036629392	0.146875219	0.017416947	0.013368472	0.493840235	0.070909103	0.039917108	0.171088313	0.066014888	0.048470744	0.060956093	0.139338854	0.049366604	0.003135603	0.160229565	0.062464067	0.083279003	0.117217252	0.118903076	0.150095259	0.388769757	0.063724543	2.824040526	0.200056873	0.142062593	9.765242916
others	0.231530571	0.016469159	0.636670835	0.086971286	1.612240795	3.174342776	0.105163307	0.119658047	0.167245347	0.043574055	0.672145961	0.052498323	2.125670854	0.195904014	0.000265848	0.023151229	0.285252788	0.300160978	0.218665811	0.466819069	0.050223882	0.063724543	2.645982159	3.128185526	4.360682779	6.877942592	12.35659029
Al^2	229.6821098	4.608994095	0.084418819	8.083040728	6.670626236	6.500734959	5.048589423	12.54919944	7.411413944	7.417365221	23.94538471	5.312600992	12.17172081	11.17550721	5.064434103	11.70967073	8.734692842	5.953831778	14.01567614	0.462559814	22.46156126	2.824040526	3.128185526	2798.164779	43.68500544	316.0279065	9589.419735
Al*Th	8.072496227	0.639685302	4.346878524	0.076579129	4.758990758	18.05493569	0.293470345	0.014124022	3.246829022	3.248704258	1.471107219	1.822057717	1.056681787	7.141937913	0.555319868	0.839526006	0.866865658	61.56949191	1.269269243	9.467161778	2.677328085	0.200056873	4.360682779	43.68500544	962.5981852	73.35300498	405.9759081
Mn^2	29.97945682	-	11.33310075	-	-	-	4.436170012	2.242316661	-1.840236828	-	-	-	-	-	0.597237082	-	-	5.367572848	-	4.902516537	-	-	6.877942592	-	-	2931.161779	1031.096

C.8 Product Consistency Test Normalized Boron Response

	682	0.008327773	075	4.832652556	26.51600373	18.64158148	012	661		2.941748256	144.7168685	4.37148937	10.16981622	3.528213021	82	25.10077281	3.493966635	848	3.726851368	537	7.131907921	0.142062743	592	316.0279065	73.35300498	323	004
Al^3	759.8271185	15.16455318	6.467335313	25.70965103	24.27307526	47.16242395	16.14736358	41.08777063	26.90267828	23.51634013	78.46816725	17.09597998	44.46178362	31.10806113	15.81229173	40.31458243	27.19329473	34.00245549	42.56437392	2.760801554	70.90808251	9.765242016	12.35659029	9589.419735	405.9759081	1031.096004	33878.41229				

C.9 Product Consistency Test Normalized Sodium Response

	Al2O3	B2O3	CaO	Fe2O3	K2O	Li2O	MgO	MnO	Na2O	Nd2O3	P2O5	SiO2	SrO	ThO2	TiO2	UO3	ZnO	ZrO2	F	SO3	Other	Al^2	B^2	Al*Th	Al^3
Al2O3	13.94170027	1.365730065	0.438970735	0.239032617	0.742760548	0.521307441	0.414301282	0.469719228	0.337393504	0.445001989	0.597085964	0.267632174	0.572768488	0.010658925	0.674818173	0.087617273	1.198269403	0.003546806	0.075080489	0.648262989	0.138879413	161.5402785	5.001571304	3.609299505	534.7137505
B2O3	1.365730065	3.170952106	0.019460269	0.179116793	0.061226651	0.061959908	0.036050043	0.034676292	0.052863784	0.070470669	0.261296294	0.165364382	0.067422113	0.088301584	0.470743282	0.101022774	0.400202824	0.208147806	0.368709265	0.655325103	0.301625418	14.02307474	14.59864518	4.438360299	45.48321799
CaO	0.439707035	0.019460269	0.366307862	0.029164619	0.030351353	0.029044953	0.002305662	0.079491962	0.034794853	0.034679556	0.080284202	0.001543521	0.018851122	0.057516222	0.005405837	0.001315902	0.129005677	0.008996962	0.666151342	1.021891577	0.105232102	4.782920447	0.192955203	0.100824344	15.26675348
Fe2O3	0.239032617	0.179116793	0.029164619	0.118122068	0.020137912	0.034184207	0.010927103	0.057522837	0.001933303	0.179266809	0.016172009	0.008236983	0.003362702	0.025036203	0.038668833	0.015795203	0.031512206	0.055616503	0.278603148	0.156770326	-0.058764403	3.133091228	0.789119615	0.009405907	10.20472148
K2O	0.742760548	0.061226651	0.030351353	0.020137912	0.547212107	0.007823203	0.075136703	0.041369102	0.014054503	0.245198703	0.091726103	0.019712303	0.082016703	0.134999902	0.242274303	0.070718702	0.208285503	0.037876402	0.545026602	0.211934002	0.042236302	8.792066102	0.266245302	0.622740002	28.58650302
Li2O	0.521307441	0.061959908	0.029044953	0.034184207	0.007823203	0.587154802	0.029632803	0.051339202	0.130970702	0.168221402	0.088253202	0.036795902	0.065907602	0.134724002	0.220193902	0.099315402	0.080948402	0.121870002	0.153473502	0.090638802	0.119239902	5.606024602	0.282673002	2.317045302	19.96437502
MgO	0.414301282	0.036050043	0.002305662	0.010927103	0.075136703	0.029632803	1.132955202	0.132134202	0.018970102	0.152027702	0.073108002	0.015747802	0.068046702	0.188926602	0.253085202	0.001382802	0.071111802	0.036113202	0.089947702	0.696801502	0.063309602	5.173873902	0.122310902	2.535643202	16.61554502
MnO	0.469719228	0.034676292	0.079491962	0.057522837	0.041369102	0.051339202	0.132134202	0.978247802	0.030090602	0.277069602	0.139268602	0.000476102	0.161659602	0.111419702	0.089687702	0.089817502	0.003914402	0.025847402	0.416997402	0.534028302	0.121907402	5.280007102	0.296026102	1.522839502	17.47075702
Na2O	0.337393504	0.052863784	0.034794853	0.001933303	0.014054503	0.130970702	0.018970102	0.030090602	0.099066202	0.039819402	0.034901602	0.011495602	0.029073102	0.043489002	0.029324002	0.001918202	0.014529302	0.038920702	0.020234402	0.148116502	0.028444002	3.247451302	0.331666902	1.383347702	10.35544502
Nd2O3	0.445001989	0.070470669	0.034679556	0.179266809	0.245198703	0.168221402	0.152027702	0.027706902	0.039819402	3.574909102	0.030516802	0.009031802	0.199623902	0.028489602	0.966188202	0.149534002	0.197331302	0.091613802	1.158471502	1.106118802	1.189162702	7.502215002	0.141668302	1.610735402	28.17494502
P2O5	0.597085964	0.261296294	0.080284202	0.016172009	0.091726103	0.088253202	0.073108002	0.139268602	0.034901602	0.030516802	1.969149102	0.027555202		0.047631002	0.029448402	0.085360902	0.291446002	0.036538502	0.463901902	1.312383002	0.067662002	5.627607102	1.259101002	4.329463702	15.07061402
SiO2	0.267632174	0.165364382	0.001543521	0.008236983	0.019712303	0.036795902	0.015747802	0.000476102	0.011495602	0.009031802	0.027555202	0.032221902	0.012116002	0.021963102	0.043152902	0.001474202	0.061070902	0.010738902	0.034914602	0.041533002	0.014686902	3.002160102	0.762041302	0.642039202	9.357200302
SrO	0.572768488	0.067422113	0.018851122	0.003362702	0.082016703	0.134724002	0.068046702	0.161659602	0.029073102	0.199623902		0.012116002	0.620874202	0.003620602	0.060131002	0.192889902	0.034950402	0.050998402	0.025906202	0.084996202	0.231205302	6.116577102	0.252660602	0.186050902	19.30218602
ThO2	0.010658925	0.088301584	0.057516222	0.025036203	0.134999902	0.134724002	0.188926602	0.111419702	0.043489002	0.028489602	0.047631002	0.021963102	0.003620602	3.740127102	0.000690002	1.095847402	0.018527502	0.055720502	0.348094002	0.311644202	0.220525602	5.181850502	0.689743802	43.06327302	26.79589402
TiO2	0.674818173	0.470743282	0.005405837	0.038668833	0.242274303	0.220193902	0.253085202	0.089687702	0.029324002	0.966188202	0.029448402	0.043152902	0.060131002	0.000690002	2.591010602	0.097770202	1.909595702	0.085216202	0.089577802	0.292066502	0.114631702	0.273793302	0.121330402	0.217848102	6.516760202	0.452048902
UO3	0.087617273	0.101022774	0.001315902	0.015795203	0.070718702	0.099315402	0.001382802	0.089817502	0.001918202	0.149534002	0.085360902	0.001474202	0.192889902	0.001086502	0.097770202	1.909595702	0.085216202	0.089577802	0.292066502	0.114631702	0.273793302	0.121330402	0.217848102	6.516760202	0.452048902
ZnO	1.198269403	0.400202824	0.129005677	0.031512206	0.208285503	0.080948402	0.071111802	0.003914402	0.014529302	0.197331302	0.291446002	0.061070902	0.034950402	0.058650902	0.149534002	0.085216202	1.173016402	0.082689202	0.694692702	1.317432302	0.108389602	13.95552902	1.915276702	2.308015402	43.87550202
ZrO2	0.003546806	0.208147806	0.008996962	0.055616503	0.037876402	0.121870002	0.036113202	0.025847402	0.038920702	0.091613802	0.036538502	0.010738902	0.050998402	0.055720502	0.348094002	0.089577802	0.082689202	0.277408802	0.338494402	0.206449902	0.000376502	1.018677502	0.868091102	0.014593202	3.975355002
F	0.075080489	0.368709265	0.666151342	0.278603148	0.545026602	0.153473502	0.089947702	0.416997402	0.020234402	1.158471502	0.463901902	0.034914602	0.025906202	0.348094002	0.292066502	0.114631702	0.697692702	0.338494402	17.03495202	0.514658302	1.532206802	7.110459802	2.297913802	12.20532902	41.89518002
SO3	0.648262989	0.655325103	1.021891577	0.156770326	0.211934002	0.090638802	0.696801502	0.534028302	0.148116502	1.106118802	1.312383002	0.041533002	0.084996202	0.311644202	0.114631702	0.273793302	1.317432302	0.206449902	0.514658302	25.87967702	0.616265702	9.517971902	2.292997302	2.748011302	33.74930802
Other	0.138879413	0.301625418	0.105232102	-0.058764403	0.042236302	0.119239902	0.063309602	0.121907402	0.028444002	1.189162702	0.067662002	0.014686902	0.231205302	0.220525602	0.273793302	0.121330402	0.108389602	0.000376502	1.532206802	0.616265702	1.230979702	1.885661902	1.421745702	1.346600502	7.935488902
Al^2	161.5402785	14.02307474	4.782920447	3.133091228	8.792066102	5.606024602	5.173873902	5.280007102	3.247451302	7.502215002	5.627607102	3.002160102	6.116577102	5.181850502	6.516760202	0.121330402	13.95552902	1.018677502	7.110459802	9.517971902	1.885661902	63	51.65913302	51.85347302	6738.409102				

C.9 Product Consistency Test Normalized Sodium Response

	04																					06	1	86		69	58	23
B^2	5.0015713 4	14.598645 18	0.1929552 87	0.7891196 97	0.2662453 18	0.2826730 25	0.1223109 96	0.2960261 38	0.3316669 14	0.1416683 35	1.2591010 3	0.7620413 29	0.2526606 55	0.6897438 5	2.2218693 97	0.2178481 38	1.9152767 59	0.8680911 63	2.2979138 28	2.2929973 53	1.4217457 04	51.659133 7	69.728150 25	23.676425 82	167.24349 48
Al*Th	3.6092995 33	4.4383602 92	0.1008243 42	0.0094059 41	0.6227400 38	2.3170453 7	2.5356432 05	1.5228395 45	1.3833477 83	1.6107354 22	4.3294637 91	0.6420392 11	0.1860509 68	43.063273 01	0.2370381 97	6.5167602 92	2.3080154 58	0.0145932 79	12.205329 74	2.7480113 96	1.3466005 01	51.853473 58	23.676425 82	675.02875 23	352.12492 36
Al^3	534.71375 5	45.483217 99	15.266753 48	10.204721 34	28.586503 12	19.964375 93	16.615545 4	17.470757 91	10.355445 08	28.174945 46	15.070614 93	9.3572003 61	19.302186 43	26.795894 94	20.841751 63	0.4520489 57	43.875502 01	3.9753550 18	41.895180 58	33.749308 29	7.9354889 12	6738.4091 23	167.24349 48	352.12492 36	23803.057 71

C.10 Product Consistency Test Normalized Lithium Response

	Al2O3	B2O3	CaO	F	Fe2O3	K2O	Li2O	MgO	Na2O	SiO2	SO3	ThO2	TiO2	ZrO2	Others	Al2O3^2	Al2O3^3	Al*Th	B2O3^2	B*Na
Al2O3	16.52926973	-1.545384204	-0.610031381	0.927419971	-0.337983498	-1.114259507	-0.484725577	-0.16223294	-0.360717032	-0.314305902	4.112911975	-0.299209617	-0.400256056	-0.051931087	-0.544400505	-194.7404169	647.4804645	1.332595892	5.251907131	0.937437706
B2O3	-1.545384204	6.343420389	-0.226823979	-1.238430378	-0.423657707	-0.207020135	0.0610148	-0.351284543	1.137597715	-0.458785122	-2.732316657	-0.040762989	-1.584357515	-0.51918204	-0.288722681	14.07548411	-48.71450792	-6.787155721	-22.16599762	-14.90805121
CaO	-0.610031381	-0.226823979	1.093173231	-2.017698972	0.104442424	0.092629792	-0.007582304	0.135966085	-0.160190427	0.008144728	-0.579817021	0.025600518	-0.126345143	0.065745716	0.097759174	6.005216079	-15.78337849	1.134325108	0.27071816	1.97580709
F	0.927419971	-1.238430378	-2.017698972	21.94750699	0.388482634	-0.967959308	0.19126049	-0.217508275	-0.068384186	0.078229039	-5.910512411	0.335758451	2.739314688	-0.389213521	-0.26055813	-18.74567618	80.8180439	6.776669962	5.929958402	1.05738973
Fe2O3	-0.337983498	-0.423657707	0.104442424	0.388482634	0.182453126	-0.039627417	0.054134486	0.013237113	-0.131267631	0.020074115	0.337055912	0.011362882	0.259149739	0.108415554	0.009360998	4.317361397	-13.27789657	-0.263363043	1.282304249	1.409196739
K2O	-1.114259507	-0.207020135	0.092629792	-0.967959308	-0.039627417	0.868410325	-0.002472436	0.07511454	-0.070681184	0.041938397	-1.260222037	-0.259154726	-0.653921977	0.05785394	0.180880747	12.48666103	-38.06021867	1.413667667	0.486103824	1.199527273
Li2O	-0.484725577	0.0610148	-0.007582304	0.19126049	0.054134486	-0.002472436	0.968193894	0.007841305	-0.049014567	-0.079167945	0.886043385	-0.047525296	-0.054252195	-0.094596325	0.028951365	5.604620023	-20.58893155	2.191252208	-0.867478091	1.384532854
MgO	-0.16223294	-0.351284543	0.135966085	-0.217508275	0.013237113	0.07511454	0.007841305	1.985885734	-0.301611031	0.000388393	0.532119987	0.248233666	-0.146718482	0.116856509	0.137584714	2.701022832	-8.029545199	-3.692914855	-0.006909654	3.595413034
Na2O	-0.360717032	1.137597715	-0.160190427	-0.068384186	-0.131267631	-0.070681184	-0.049014567	-0.301611031	0.923842673	-0.123954599	-0.936633994	-0.237386208	-0.065222231	-0.1885064	-0.125045995	2.187352236	-8.488729843	2.094900153	-1.151248205	-8.889915105
SiO2	-0.314305902	-0.458785122	0.008144728	0.078229039	0.020074115	0.041938397	-0.079167945	0.000388393	-0.123954599	0.069024634	-0.037109898	0.020934606	0.098854144	0.034345399	0.03237968	3.926053506	-12.37516892	0.52265313	1.474347493	1.33906177
SO3	4.112911975	-2.732316657	-0.579817021	-5.910512411	0.337055912	-1.260222037	0.886043385	0.532119987	-0.936633994	-0.037109898	70.54873124	-0.900200217	1.903204288	0.702569663	-0.084044223	-52.7995788	180.8837	1.403773545	6.049338655	8.272128562
ThO2	-0.299209617	-0.040762989	0.025600518	0.335758451	0.011362882	-0.259154726	-0.047525296	0.248233666	-0.237386208	0.020934606	-0.900200217	4.006399071	0.413875817	-0.092924957	-0.088638339	10.68036606	-48.45207429	-49.86142014	-0.909524403	1.954531382
TiO2	-0.400256056	-1.584357515	-0.126345143	2.739314688	0.259149739	-0.653921977	-0.054252195	-0.146718482	-0.065222231	0.098854144	1.903204288	0.413875817	6.476715102	0.413179484	-0.205509051	6.595514674	-24.31011104	-6.30351309	5.884217285	1.869352578
ZrO2	-0.051931087	-0.51918204	0.065745716	-0.389213521	0.108415554	0.05785394	-0.094596325	0.116856509	-0.1885064	0.034345399	0.702569663	-0.092924957	0.413179484	0.376527944	-0.008314075	1.98980875	-6.756095159	0.159664823	1.481731268	1.663112821
Others	-0.544400505	-0.288722681	0.097759174	-0.26055813	0.009360998	0.180880747	0.028951365	0.137584714	-0.125045995	0.03237968	-0.084044223	-0.088638339	-0.205509051	-0.008314075	0.173790101	6.016317725	-17.7098069	0.901196391	0.778056579	1.483559781
Al2O3^2	-194.7404169	14.07548411	6.005216079	-18.74567618	4.317361397	12.48666103	5.604620023	2.701022832	2.187352236	3.926053506	-52.7995788	10.68036606	6.595514674	1.98980875	6.016317725	2417.106334	-8331.991402	-142.7436615	-51.42885077	0.917027155
Al2O3^3	647.4804645	-48.71450792	-15.78337849	80.8180439	-13.27789657	-38.06021867	-20.58893155	-8.029545199	-8.488729843	-12.37516892	180.8837	-48.45207429	-24.31011104	-6.756095159	-17.7098069	-8331.991402	29625.42363	723.2265267	172.7528199	19.66122049
Al*Th	1.332595892	-6.787155721	1.134325108	6.776669962	-0.263363043	1.413667667	2.191252208	-3.692914855	2.094900153	0.52265313	1.403773545	-49.86142014	-6.30351309	0.159664823	0.901196391	-142.7436615	723.2265267	805.9253079	35.22270886	-1.095004455
B2O3^2	5.251907131	-22.16599762	0.27071816	5.929958402	1.282304249	0.486103824	-0.867478091	-0.006909654	-1.151248205	1.474347493	6.049338655	-0.909524403	5.884217285	1.481731268	0.778056579	-51.42885077	172.7528199	35.22270886	93.63637827	22.08143072
B*Na	0.937437706	-14.90805121	1.97580709	1.05738973	1.409196739	1.199527273	1.384532854	3.595413034	-8.889915105	1.33906177	8.272128562	1.954531382	1.869352578	1.663112821	1.483559781	0.917027155	19.66122049	-1.095004455	22.08143072	103.7015881

C.11 Toxicity Characteristic Leaching Procedure Response

	Al2O3	B2O3	CaO	Fe2O3	Li2O	Na2O	SiO2	ThO2	ZrO2	Others
Al2O3	1.042843388	-0.101700415	-0.133314732	0.029642566	-0.597683355	-0.271942061	-0.020906321	0.168189368	0.284568086	-0.614675728
B2O3	-0.101700415	0.481678862	-0.15319744	-0.137164869	0.1545264	0.048039652	-0.052050133	0.135894338	-0.149822776	-0.415167246
CaO	-0.133314732	-0.15319744	3.322292293	0.185206441	-0.121354167	-0.081204232	-0.017073241	-0.361574746	0.072570032	1.82204859
Fe2O3	0.029642566	-0.137164869	0.185206441	0.660777028	-0.270820463	-0.104928376	-0.093516047	0.308784107	0.162342896	-0.304099467
Li2O	-0.597683355	0.1545264	-0.121354167	-0.270820463	3.585674248	0.838832423	-0.280085632	-0.340258452	-0.6470695	-0.265116378
Na2O	-0.271942061	0.048039652	-0.081204232	-0.104928376	0.838832423	0.620850908	-0.115904298	-0.077143084	-0.327142481	-0.087832236
SiO2	-0.020906321	-0.052050133	-0.017073241	-0.093516047	-0.280085632	-0.115904298	0.110643497	-0.132076613	0.021460489	-0.008371581
ThO2	0.168189368	0.135894338	-0.361574746	0.308784107	-0.340258452	-0.077143084	-0.132076613	5.028373315	-0.653831521	0.124932575
ZrO2	0.284568086	-0.149822776	0.072570032	0.162342896	-0.6470695	-0.327142481	0.021460489	-0.653831521	1.370624484	-0.264642659
Others	-0.614675728	-0.415167246	1.82204859	-0.304099467	-0.265116378	-0.087832236	-0.008371581	0.124932575	-0.264642659	13.81402636

C.12 One Percent Spinel Temperature

	Al2O3	B2O3	Cr2O3	Fe2O3	K2O	Li2O	MgO	MnO	Na2O	NiO	SiO2	SrO	ThO2	ZnO	ZrO2	Noble Met	Others
Al2O3	13290.42122	-4126.493666	18212.5933	1738.371065	-5753.048488	-7994.566562	-11071.00704	-1540.241104	-5489.413632	9884.352417	-531.471788	-4153.362149	1416.671416	9774.105867	6547.868988	47297.94393	-409.7653043
B2O3	-4126.493666	10366.41036	-8768.445174	552.7900067	984.9850927	2254.649387	8801.143963	-1498.08	2005.787498	2998.634128	-2196.781755	2723.390265	3125.627845	-8144.090559	-1998.596843	17168.76885	-600.4075176
Cr2O3	18212.5933	-8768.445174	2276154.822	-6051.63925	-75156.41461	-34091.69145	-26177.55184	-20678.77891	-15815.71968	-104655.5989	-4521.950538	-8896.290432	-3907.166839	46809.99135	10909.14471	1057322.203	-50679.46785
Fe2O3	1738.371065	552.7900067	-6051.63925	13671.11606	-1031.093806	-4272.812164	1178.650048	1224.664798	-5029.103971	5418.315587	-2260.867656	-3520.700688	5715.885807	4942.211408	4196.641782	-42964.78075	582.1802427
K2O	-5753.048488	984.9850927	-75156.41461	-1031.093806	111320.1195	1852.415489	-5993.607505	-4570.597552	1468.514044	-7798.162388	1052.667954	-1931.554433	8741.183782	-9389.373034	4878.308802	90414.0328	-15510.27625
Li2O	-7994.566562	2254.649387	-34091.69145	-4272.812164	1852.415489	65925.81229	14178.56887	767.9937078	10389.14802	-15470.38179	-5088.222729	9352.023009	-6726.163281	-11732.97776	-12241.14705	7833.459728	211.9075161
MgO	-11071.00704	8801.143963	-26177.55184	1178.650048	-5993.607505	14178.56887	645135.0447	16799.16308	4392.039798	-16494.46881	-6564.434054	10065.77887	21391.67681	23739.62346	-8061.787194	-403488.6716	5836.929422
MnO	-1540.241104	-1498.08	-20678.77891	1224.664798	-4570.597552	767.9937078	16799.16308	42879.12789	-735.027109	3451.7059	-598.5034035	-9611.25151	7332.147894	4075.554703	-438.4993169	-154534.741	-1742.758713
Na2O	-5489.413632	2005.787498	-15815.71968	-5029.103971	1468.514044	10389.14802	4392.039798	-735.027109	8951.346149	-20625.88112	-1059.278791	3121.088042	131.1960127	-605.3207563	-4548.482002	-4414.667199	-952.4738756
NiO	9884.352417	2998.634128	-104655.5989	5418.315587	-7798.162388	-15470.38179	-16494.46881	3451.7059	-20625.88112	560799.7425	-4197.090824	6031.88495	28871.16124	14388.44416	-10230.8843	242191.569	-11581.2102
SiO2	-531.471788	-2196.781755	-4521.950538	-2260.867656	1052.667954	-5088.222729	-6564.434054	-598.5034035	-1059.278791	-4197.090824	2308.304881	-339.085989	-1880.339521	-2484.261903	-982.5264266	-14285.22374	-16.30749253
SrO	-4153.362149	2723.390265	-8896.290432	-3520.700688	-1931.554433	9352.023009	10065.77887	-9611.25151	3121.088042	6031.88495	-339.085989	21626.47233	-4005.002791	-1219.356794	-5103.692423	-82084.68156	-617.5711875
ThO2	1416.671416	3125.627845	-3907.166839	5715.885807	8741.183782	-6726.163281	21391.67681	7332.147894	131.1960127	28871.16124	-1880.339521	-4005.002791	80961.84805	1116.044993	-9736.737878	-134618.1048	-10404.27416
ZnO	9774.105867	-8144.090559	46809.99135	4942.211408	-9389.373034	-11732.97776	23739.62346	4075.554703	-605.3207563	14388.44416	-2484.261903	-1219.356794	1116.044993	180996.0169	5621.677775	-634010.7796	-7419.826689
ZrO2	6547.868988	-1998.596843	10909.14471	4196.641782	4878.308802	-12241.14705	-8061.787194	-438.4993169	-4548.482002	-10230.8843	-982.5264266	-5103.692423	-9736.737878	5621.677775	27225.23485	3157.574738	-757.5582223
Noble Met	47297.94393	17168.76885	1057322.203	-42964.78075	90414.0328	7833.459728	-403488.6716	-154534.741	-4414.667199	242191.569	-14285.22374	-82084.68156	-134618.1048	-634010.7796	3157.574738	10547250.86	-103632.5325
Others	-409.7653043	-600.4075176	-50679.46785	582.1802427	-15510.27625	211.9075161	5836.929422	-1742.758713	-952.4738756	-11581.2102	-16.30749253	-617.5711875	-10404.27416	-7419.826689	-757.5582223	-103632.5325	21035.04635

C.13 Zircon Liquidus Temperature

	Al2O3	B2O3	Ln2O3	Li2O	Na2O	SrO	ZrO2	Others
Al2O3	36866.26138	-5799.888564	44567.34341	-26798.29741	-13555.8839	-36355.71736	17890.9687	-363.7241761
B2O3	-5799.888564	9277.83125	-19508.58441	2450.367392	7865.096334	-23166.55394	-6514.830864	-1173.851483
Ln2O3	44567.34341	-19508.58441	224350.8801	-29383.63569	-26904.43604	60874.75505	42864.82322	-3878.190823
Li2O	-26798.29741	2450.367392	-29383.63569	58010.59476	16883.04038	102908.803	-32737.16866	-369.6373168
Na2O	-13555.8839	7865.096334	-26904.43604	16883.04038	26584.49275	6667.999084	-16736.7845	-2897.093652
SrO	-36355.71736	-23166.55394	60874.75505	102908.803	6667.999084	2095713.065	-9353.337303	-7281.735614
ZrO2	17890.9687	-6514.830864	42864.82322	-32737.16866	-16736.7845	-9353.337303	33140.18983	-1150.325916
Others	-363.7241761	-1173.851483	-3878.190823	-369.6373168	-2897.093652	-7281.735614	-1150.325916	1042.873435

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