Electronic Supplementary Material (ESI) for Dalton Transactions

Versatile Solid-State Coordination Chemistry of Telluroether Complexes of Silver(I) and Copper(I)

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Supplementary Information

Table S1. Selected bond lengths (Å) and angles (°) of $[Ag(TePh_2)_3](O_3SCF_3)$ (**1**), $[Cu(TePh_2)_3](O_3SCF_3)$ (**2**), $[Cu(SePh_2)_2](O_3SCF_3)$ (**3**), and $[Cu(TeTh_2)_3](O_3SCF_3)$ (**4**).

Table S2. Selected bond lengths (Å) and angles (°) in $[Ag(TeTh_2)_2](O_3SCF_3)$ (**5**) and $[Ag(SePh_2)_2](O_3SCF_3)$ (**6**)

Table S3. Selected bond length (Å) and angles (°) in $[(Ag[Te(CH_2SiMe_3)_2]_4)Ag]_n(O_3SCF_3)_{5n}$ (**7**) and $[Ag\{Te(CH_2SiMe_3)_2\}]_n(O_3SCF_3)_n$ (**8**).

Table S1. Selected bond lengths (Å) and angles (°) of $[Ag(TePh_2)_3](O_3SCF_3)$ (**1**), $[Cu(TePh_2)_3](O_3SCF_3)$ (**2**), $[Cu(SePh_2)_2](O_3SCF_3)$ (**3**), and $[Cu(TeTh_2)_3](O_3SCF_3)$ (**4**).

	1										
Ag1-Te1	2.7433(8)	Te1-C111	2.132(7)	Te2-C221	2.117(7)	Te1-Ag1-Te2	122.65(2)	Te1-Ag1-O1	101.6(1)	Te2-Ag1-O1	83.4(1)
Ag1-Te2	2.7333(8)	Te1-C121	2.143(7)	Te3-C311	2.124(7)	Te1-Ag1-Te3	114.71(2)	Te2-Ag1-Te3	118.36(2)	Te3-Ag1-O1	106.3(1)
Ag1-Te3	2.7432(8)	Te2-C211	2.125(8)	Te3-C321	2.127(7)						
Ag1-O1	2.610(6)										
	2										
Cu1-Te1	2.5457(7)	Te1-C111	2.123(5)	Te2-C221	2.111(5)	Te1-Cu1-Te2	122.64(3)	Te1-Cu1-O1	101.1(1)	Te2-Cu1-O1	87.9(1)
Cu1-Te2	2.5575(7)	Te1-C121	2.120(5)	Te3-C311	2.134(5)	Te1-Cu1-Te3	114.87(3)	Te2-Cu1-Te3	115.55(3)	Te3-Cu1-O1	104.6(1)
Cu1-Te3	2.5613(7)	Te2-C211	2.123(5)	Te3-C321	2.124(5)						
Cu1-O1	2.229(3)										
	3										
Cu1-Se1	2.4095(7)	Se1-C111	1.920(4)	Se1-C221	1.925(4)	Se1-Cu1-Se2	121.84(3)	Se1-Cu1-O1	103.80(9)	Se2-Cu1-O1	86.86(9)
Cu1-Se2	2.4266(8)	Se1-C121	1.934(4)	Se1-C311	1.932(4)	Se1-Cu1-Se3	115.46(3)	Se2-Cu1-Se3	116.24(3)	Se3-Cu1-O1	105.02(9)
Cu1-Se3	2.4269(7)	Se1-C211	1.933(4)	Se1-C321	1.933(4)						
Cu1-O1	2.196(3)										
	4										
Cu1-Te1	2.5817(12)	Te1-C11	2.100(7)	Te2-C41	2.094(7)	Te1-Cu1-Te2	113.97(3)	Te1-Cu1-O1	90.86(16)	Te2-Cu1-O1	110.62(14)
Cu1-Te2	2.5544(10)	Te1-C21	2.109(7)	Te3-C51	2.114(8)	Te1-Cu1-Te3	122.01(4)	Te2-Cu1-Te3	112.41(4)	Te3-Cu1-O1	103.52(14)
Cu1-Te3	2.5582(9)	Te2-C31	2.081(7)	Te3-C61	2.092(7)						
Cu1-O1	2.180(5)										

Table S2. Selected bond lengths (Å) and angles (°) in $[Ag(TeTh_2)_2](O_3SCF_3)$ (**5**) and $[Ag(SePh_2)_2](O_3SCF_3)$ (**6**).

5											
Ag1-Te1	2.7261(10)	Ag1-O2B	2.57(2)	Te1-C15	2.091(7)	Te1-Ag1-Te2	130.73(3)	Te1-Ag1-O2B	126.0(5)		
Ag1-Te2	2.7231(13)	Ag1[a]-O4	2.79(2)	Te2-C21	2.077(7)	Te1-Ag1-O2A	104.3(2)	Te2-Ag1-O2B	102.9(5)		
Ag1-O2A	2.310(8)	Ag1[a]-O5	2.83(2)	Te2-C25	2.101(6)	Te1-Ag1-O3A[a]	92.4(2)	Te2-Ag1-O3A[a]	98.0(2)		
Ag1[a]-O3A	2.516(8)	Te1-C11	2.095(6)								
6											
Ag1-Se1	2.6133(11)	Se1-C111	1.930(5)	Se1-C111	1.930(5)	Se1-Ag1-Se2	130.26(2)	Se1-Ag1-O1[a]	115.28(8)	Se2-Ag1-O1[a]	103.43(8)
Ag1-Se2	2.5887(11)	Se1-C121	1.926(4)	Se1-C121	1.926(4)	Se1-Ag1-O1	95.16(7)	Se1-Ag1-O2	125.92(7)	O1-Ag1-O1[a]	73.83(11)
Ag1-O1	2.515(3)	Se2-C211	1.933(4)	Se2-C211	1.933(4)						
Ag1-O1[a]	2.484(3)	Se2-C221	1.929(4)	Se2-C221	1.929(4)						

[a] Symmetry operation: $-x+1, -y+1, -z+1$.

Table S3. Selected bond length (Å) and angles (°) in $[(Ag[Te(CH_2SiMe_3)_2]_4)Ag]_n(O_3SCF_3)_{5n}$ (**7**) and $[Ag\{Te(CH_2SiMe_3)_2\}]_n(O_3SCF_3)_n$ (**8**).

	7										
Ag1-Te1	2.652(1)	Ag1-O31	2.366(12)	Te1-C110	2.15(2)	Te1-Ag1-O11	141.3(2)	O11-Ag2-O32	92.5(4)	Te2-Ag4-O51	85.2(3)
Ag2-Te2	2.643(1)	Ag2-O11	2.611(11)	Te1-C120	2.12(2)	Te1-Ag1-O21	127.0(2)	O21-Ag2-O32	95.3(4)	Te4-Ag4-O43	115.7(4)
Ag3-Te1	2.761(1)	Ag2-O21	2.517(11)	Te2-C210	2.20(2)	Te1-Ag1-O31	115.9(3)	Te1-Ag3-Te3	109.80(5	Te4-Ag4-O51	131.1(3)
Ag3-Te3	2.7450(1)	Ag2-O32	2.285(11)	Te2-C220	2.15(2)	O11-Ag1-O21	78.0(3)	Te1-Ag3-O41^a	122.4(3)	O43-Ag4-O51	97.4(5)
Ag4-Te2	2.799(2)	Ag3-O41^a	2.315(11)	Te3-C310	2.16(1)	O11-Ag1-O31	89.5(4)	Te1-Ag3-O53^a	108.9(5)	Te3-Ag5-Te4	145.09(5)
Ag4-Te4	2.673(2)	Ag3-O53^a	2.458(16)	Te3-C320	2.13(2)	O21-Ag1-O31	90.4(4)	Te3-Ag3-O41^a	119.9(3)	Te3-Ag5-O12	104.7(2)
Ag5-Te3	2.684(1)	Ag4-O43	2.372(12)	Te4-C410	2.15(2)	Te2-Ag2-O11	106.3(2)	Te3-Ag3-O53^a	99.8(5)	Te4-Ag5-O12	98.1(3)
Ag5-Te4	2.693(1)	Ag4-O51	2.383(13)	Te4-C420	2.14(2)	Te2-Ag2-O21	115.3(3)	O41^a-Ag3-O5a^a	97.4(5)	Te4-Ag5-O22	115.2(3)
Ag1-O11	2.429(11)	Ag5-O12	2.502(10)			Te2-Ag2-O32	147.2(3)	Te2-Ag4-Te4	124.38(5)	O12-Ag5-O22	85.8(4)
Ag1-O21	2.494(11)	Ag5-O22	2.557(11)			O11-Ag2-O21	74.3(3)	Te2-Ag4-O43	93.7(5)		
	8										
Ag1-Te1	2.6858(12)	Ag4-Te3	2.7025(14)	Te1-C110	2.144(11)	Te1-Ag1-Te6^c	125.44(4)	Te2-Ag3-O42	110.6(2)	Te4-Ag5-O52	105.4(2)
Ag1-Te6^b	2.7498(13)	Ag4-Te4	2.7206(13)	Te1-C120	2.141(12)	Te1-Ag1-O13	133.8(2)	Te2-Ag3-O53	98.3(2)	Te5-Ag5-O43	122.0(2)
Ag1-O13	2.301(8)	Ag4-O61A^e	2.25(2)	Te2-C210	2.153(13)	Te6^c-Ag1-O13	100.8(2)	Te3-Ag3-O42	93.5(2)	Te5-Ag5-O52	108.4(2)
Ag2-Te1	2.7283(13)	Ag5-Te4	2.7691(14)	Te2-C220	2.148(14)	Te1-Ag2-Te2	139.82(4)	Te3-Ag3-O539	7.9(2)	O43-Ag5-O52	86.0(3)
Ag2-Te2	2.7225(13)	Ag5-Te5	2.7301(12)	Te3-C310	2.147(17)	Te1-Ag2-O21	99.9(2)	O42-Ag3-O53	85.2(3	Te5-Ag6-Te6	124.62(4)
Ag2-O21	2.526(8)	Ag5-O43	2.349(9)	Te4-C410	2.097(18)	Te1-Ag2-O32	108.4(2)	Te3-Ag4-Te4	123.74(4)	Te5-Ag6-O22^c	98.6(2)
Ag2-O32	2.386(8)	Ag5-O52	2.400(8)	Te4-C420	2.111(17)	Te2-Ag2-O2	197.5(2)	Te3-Ag4-O61A^e	129.3(5)	Te5-Ag6-O31^e	119.2(2)
Ag3-Te2	2.7070(14)	Ag6-Te5	2.7059(13)	Te5-C510	2.1717(9)	Te2-Ag2-O32	107.9(2)	Te4-Ag4-O61A^e	106.9(5)	Te6-Ag6-O22^e	126.7(2)
Ag3-Te3	2.7213(14)	Ag6-Te6	2.7173(13	Te5-C520	2.154(12)	O21-Ag2-O32	88.6(3)	Te4-Ag5-Te51	16.25(4)	Te6-Ag6-O31^d	95.4(2)
Ag3-O42	2.552(9)	Ag6-O22^d	2.444(10)	Te6-C610	2.142(12)	Te2-Ag3-Te3	151.88(5)	Te4-Ag5-O43	112.7(2)	O22^c-Ag6-O31^d	87.3(4)
Ag3-O53	2.452(8)	Ag6-O31^d	2.431(9)	Te6-C620	2.132(12)						

Symmetry operations: ^{a} $-x+2, -y+1, -z+1$. ^{b} $-x+1, -y+1, -z+1$. ^{c} $x, 1+y, z$. ^{d} $x, -1+y, z$. ^{e} Only the more abundant $(CF_3SO_3)^-$ ion from the disordered pair.