Phase Diagram Updates

This section is intended to provide the most current phase diagram data. Guidelines for the inclusion of new information in this section are: (1) systems for which no phase diagrams are given in *Binary Alloy Phase Diagrams*, second edition; (2) complete diagrams that are substantially different from earlier versions published in *Binary Alloy Phase Diagrams*, second edition, the *Bulletin of Alloy Phase Diagrams*, or single-topic monographs; (3) partial diagrams that alter or clarify earlier versions in the above-mentioned publications; and (4) relevant new literature of interest.

Thermodynamic consistency of the new phase diagrams was checked based on phase rules, and the diagrams were modified if necessary. However, the diagrams and texts have not gone through the ordinary reviewing process, and the final evaluations may be carried out by relevant category editors of the Alloy Phase Diagram Program. For convenience, reaction tables and crystal structure data are added when new information is available.

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Editor, Phase Diagram Updates

Al-Ti (Aluminum-Titanium)

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Addendum

[92Hel] examined the equilibrium among (αTi), Ti_3Al, and TiAl to determine whether it was a eutectoidal ((αTi) $\leftrightarrow$ Ti_3Al + TiAl) [84Shu] or peritectoidal ((αTi) + TiAl $\leftrightarrow$ Ti_3Al) [80Mar] reaction. TEM and EPMA studies were employed. The result indicated a eutectoidal reaction in agreement with [84Shu]. The Al-Ti phase diagram calculated by [92Kat] (see [93Oka]) is in accord.

Cited References

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84Shu: R.D. Shull, A.J. McAlister, and R.C. Reno, *Titanium Sci. Tech.*, Vol. 3, Proceedings 5th International Conference on Titanium, G. Luetjering, U. Zwicker, and W. Bunk, Ed., Deutsche Gesellschaft fur Metallkunde, Oberursel, Germany, 1459-1466 (1984).

92Hel: A. Hellwig, G. Inden, and M. Palm, *Scr. Metall. Mater., 27*(2), 143-148 (1992).

92Kat: U.R. Kattner, J.C. Lin, and Y.A. Chang, *Metall. Trans. A, 23*(8), 2081-2090 (1992).

93Oka: H. Okamoto, *J. Phase Equilibria, 14*(1), 120-121 (1993).

As-Te (Arsenic-Tellurium)

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The As-Te phase diagram (under pressures high enough to suppress the vapor phase formation) in [Massalski2] (solid line in Fig. 1) was based on [68Eif] and [73Cor], who were in very good agreement.

More recent DTA data of [90Rou] corroborate the phase diagram (data points are shown in Fig. 1). [90Rou] considered that the eutectic between As_2Te_3 and As is "unusual" (probably because the eutectic temperature and the melting point of As_2Te_3 were drawn as the same). Hence, they proposed that the As_2Te_3 phase might have a substantial (~10 at.%) solubility range and form by a peritectic reaction from L and (As). However, this assumption must be confirmed because other (pnic-