Nb-Ni (Niobium-Nickel)

H. Okamoto

Figure 1 shows the Ni-Nb phase diagram calculated by [96Bol].[Massalski2] showed the Ni-Nb phase diagram assessed by [86Nas]. However, [94Oka2] suggested that this diagram includes unlikely features, in particular along the (Ni) solvus. This problem was solved in the phase diagram calculated by [92Zen] (see [92Oka]). The phase diagram of [96Bol] (Fig. 1) also solved the same problem. The most remarkable difference between [92Zen] and [96Bol] is observed along the (Nb) liquidus (e.g., approximately 80 at.% Nb at 2000 °C according to [92Zen]). Experimental data agree better with [92Zen] in this region, but [96Bol] claimed that the phase equilibria in other regions were not determined properly by [92Zen]. In addition to the intermediate phases shown in Fig. 1, [86Nas] showed the existence of Ni_8Nb below 535 °C. Apparently, further experimental work is needed to settle the disagreements described above.

Another calculated phase diagram proposed by [93Liu] is not acceptable [94Oka1].

Cited References

86Nas: P. Nash and A. Nash, *Bull. Alloy Phase Diagrams, 7*(2), 124-130 (1986).

92Oka: H. Okamoto, *J. Phase Equilibria, 13*(4), 444-445 (1992).

92Zen: K. Zen and Z. Jin, *Scr. Metall. Mater., 26*(3), 417-422 (1992).

93Liu: B.X. Liu, H.Y. Bai, Z.J. Zhang, and Q.L. Qiu, *J. Alloy. Compd., 196*, 37-40 (1993).

94Oka1: H. Okamoto, *J. Phase Equilibria, 15*(2), 229 (1994).

94Oka2: H. Okamoto and T.B. Massalski, *J. Phase Equilibria, 15*(4), 500-521 (1994).

96Bol: A. Bolcavage and U.R. Kattner, *J. Phase Equilibria, 17*(2), 92-100 (1996).

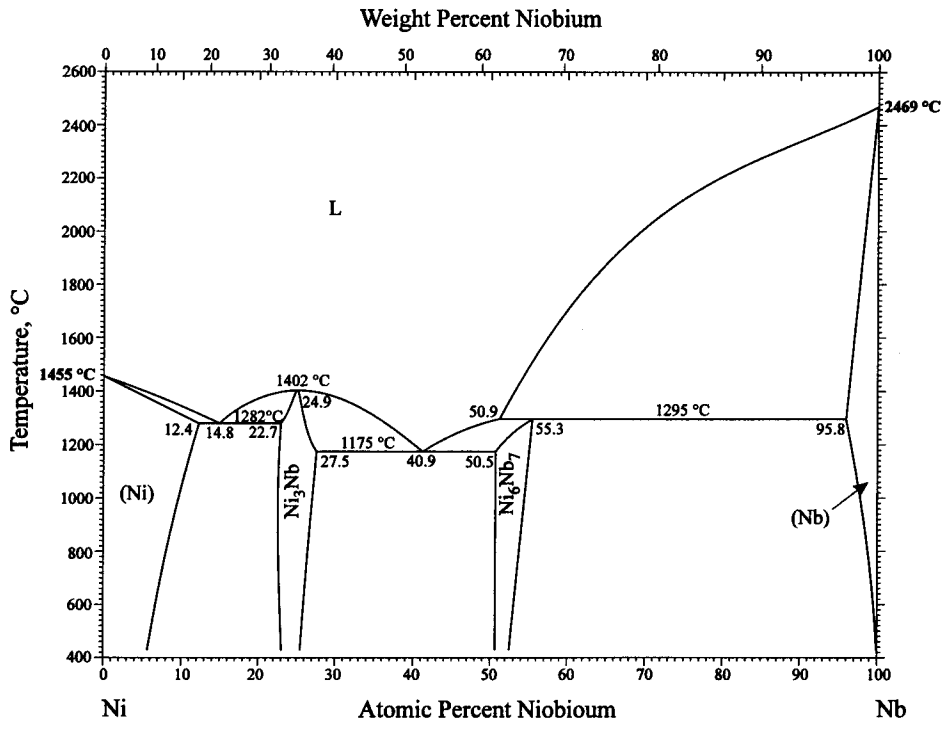

Fig. 1 The Ni-Nb phase diagram.