Mo-Ni (Molybdenum-Nickel)

H. Okamoto

When the (Ni)/(Ni) + Ni_3Mo boundary of the Ni-Mo phase diagram assessed by [91Sin] (see [Massalski2]) is extrapolated into the metastable range, an abrupt change of slope is needed to avoid violating the phase rule. However, the abrupt change of slope is thermodynamically unlikely [91Oka]. The Ni-Mo phase diagram (Fig. 1) calculated by [90Fri] is significantly different from that of [91Sin] regarding the slope of the (Ni)/(Ni) + Ni_4Mo boundary. The modification of the slope of this small segment in the Ni-Mo phase diagram alleviates the thermodynamically unlikely situation. Other portions of the diagram of [90Fri] are very similar to that of [91Sin].

The Ni-Mo phase diagram calculated by [78Kau] and [84Kan], in which Ni_4Mo congruently transforms to (Ni), may be an alternative solution to the present problem. However, experimental data appear to be in favor of [90Fri].

Cited References

78Kau: L. Kaufman and H. Nesor, *Calphad, 2*(1), 81-108 (1978).

84Kan: S.J. Kang, Y.D. Song, W.A. Kaysser, and H. Hofman, *Z. Metallkd., 75*(1), 86-91 (1984).

90Fri: K. Frisk, *Calphad, 14*(3), 311-320 (1990).

91Oka: H. Okamoto and T.B. Massalski, *J. Phase Equilibria, 12*(2), 148-168 (1991).

91Sin: M.F. Singleton and P. Nash, *Phase Diagrams of Binary Nickel Alloys*, P. Nash, Ed., ASM International, Materials Park, OH, 207-212, (1991).

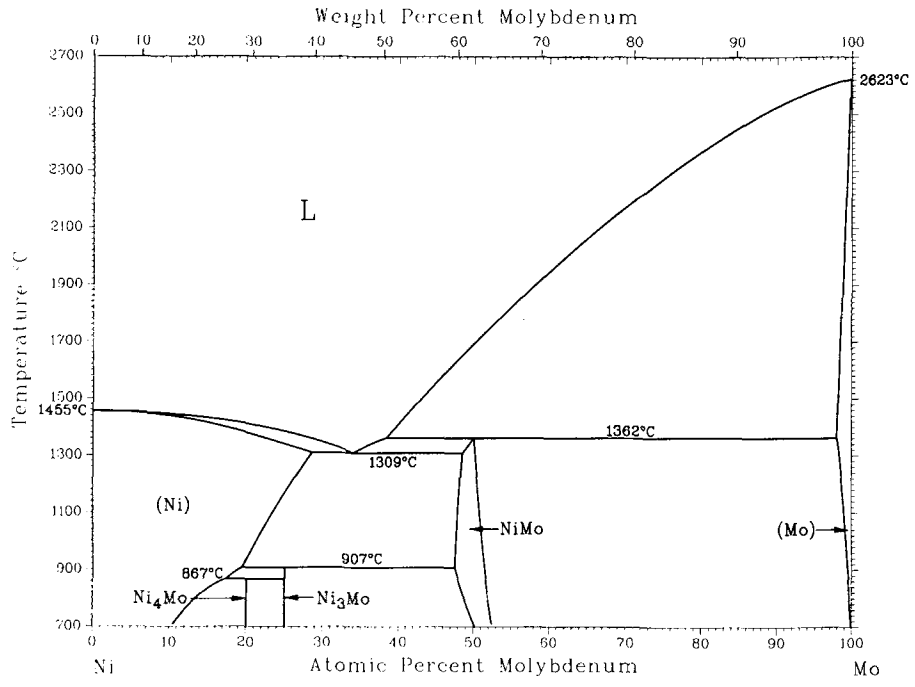

Fig. 1 Ni-Mo phase diagram.