

# Nb-Ni (Niobium-Nickel)

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Thermodynamically unlikely features in the Nb-Ni phase diagram in [Massalski2] (adopted from [1986Nas]) were removed by thermodynamic modeling by [1992Zen] (chained lines in Fig. 1), as introduced by [1992Oka]. Subsequently, [1996Bol] proposed another phase diagram (dashed lines in Fig. 1), as introduced by [1998Oka]. More recently, [2004Jou] reported one more phase diagram (solid lines in Fig. 1). As shown in Fig. 1, the Nb-Ni phase diagrams of [1992Zen] and [2004Bol] are similar. The phase diagram of [1996Bol] differs from these diagrams most markedly along the (Ni) liquidus. Experimental phase boundary data (see [1986Nas]) support [1992Zen] and [2004Bol]. On the other hand, the  $\mu$  phase boundaries calculated by [2004Jou] differ markedly from those calculated by [1992Zen] and [1996Bol]. Experimental phase boundary data do not support either situation conclusively. According to [2004Jou], the  $\mu$  phase appears to decompose eutectoidally into (Nb) and  $\text{NbNi}_3$  at 227 °C, which is (by coincidence?) the lowest temperature (500 K) in the graph shown by [2004Jou]. The existence of  $\text{NbNi}_8$  was reported in

[1986Nas]. This phase was taken into account only in the thermodynamic model of [2004Jou].

After examination of the currently available reports, thermodynamic modeling of the Nb-Ni system appears not yet to have been determined conclusively.

## References

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- 1996Bol:** A. Bolcavage and U.R. Kattner, A Reassessment of the Calculated Ni-Nb Phase Diagram, *J. Phase Equilib.*, 1996, **17**(2), p 92-100
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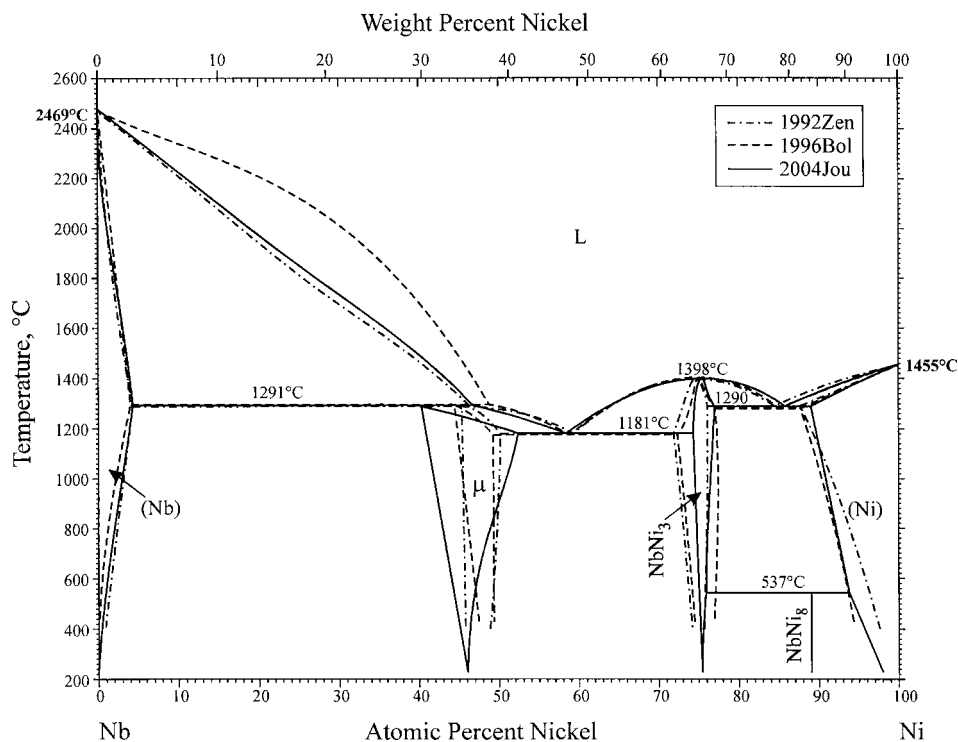


Fig. 1 Nb-Ni phase diagram