

Ni-Os (Nickel-Osmium)

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The Ni-Os phase diagram in [Massalski2] was adopted from [1991Nas]. The phase diagram was based on a thermodynamic model, but the calculated phase boundaries disagreed with experimental data reported by [1951Kos] up to about 30 at.%.

Figure 1 shows the Ni-Os phase diagram proposed by [2002Vel] based on EPMA and DTA. The (Os) liquidus and solidus are still speculative. The liquidus trend appears to be unlikely because an improbable abrupt change of slope is inevitable when the liquidus is extended to the metastable range toward the Ni side.

Table 1 shows Ni-Os crystal structure data.

References

- 1951Kos:** W. Koster and E. Horn, Study of the System of Osmium with Cobalt and Nickel, *Heraeus Festschr.*, 1951, p 114-123, in German
- 1991Nas:** P. Nash, Ni-Os (Nickel-Osmium), *Phase Diagrams of Binary Nickel Alloys*, P. Nash, Ed., ASM International, OH, 1991, p 233-234
- 2002Vel:** T.Ya. Velikonova, T.G. Mazhuga, O.L. Semonova, P.S. Martsenyuk, and V.M. Vereshchaka, Phase Diagram of the Ni-Os System, *Powder Metall. Met. Ceram.*, 2002, **41**(5-6), p 288-295

Table 1 Ni-Os crystal structure data

Phase	Composition, at.% Os	Pearson symbol	Space group	Strukturbericht designation	Prototype
(Ni)	0-13.3	<i>cF4</i>	<i>Fm$\bar{3}m$</i>	A1	Cu
(Os)	88-100	<i>hP2</i>	<i>P6₃/mmc</i>	A3	Mg

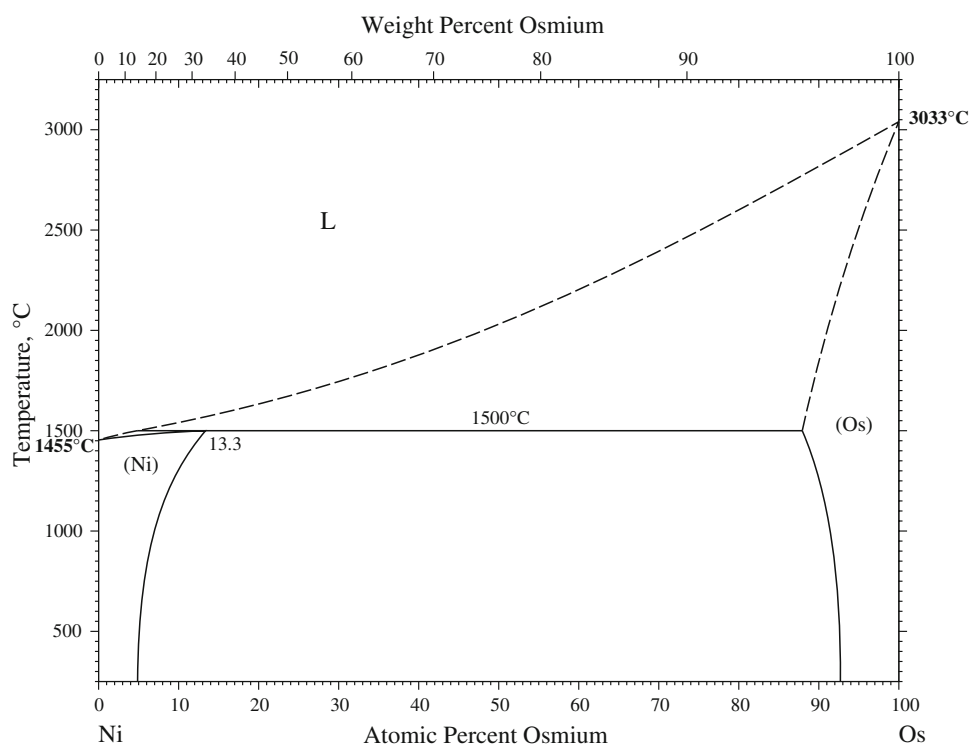


Fig. 1 Ni-Os phase diagram