

Fe-Pt (Iron-Platinum)

H. Okamoto

The Fe-Pt phase diagram was evaluated earlier by [1993Oka]. For clarity, only the high-temperature part above 400 °C is shown in Fig. 1 with solid lines.

The order-disorder transitions from (γ Fe, Pt) to Fe_3Pt , FePt, and FePt_3 were reexamined by [2002Osa] and [2003Nos] (Fig. 1). [2002Osa] determined the Fe_3Pt boundary and part of the FePt boundary by high-temperature powder x-ray diffraction. The peak temperature of the Fe_3Pt phase was observed at about 33 at.% Pt, not at 25 at.% Pt. [2003Nos] determined the boundaries of FePt and FePt_3 phases by measuring compositions of interphase boundaries in diffusion couples, equilibrium compositions in two-phase alloys, and electrical resistivity.

Because [1993Oka] was based on a smaller number of experimental data points with substantial scattering (see

data points in [1993Oka]), the results obtained by [2002Osa] and [2003Nos] appear to be more reliable.

References

- 1993Oka:** H. Okamoto: "Fe-Pt (Iron-Platinum)," in *Phase Diagrams of Binary Iron Alloys*, H. Okamoto, ed., ASM International, Materials Park, OH, 1993, pp. 330-36.
- 2002Osa:** K. Osaka, D. Sakai, and T. Takama: "In Situ X-Ray Measurement of Order-Disorder Transition Temperature of Fe-Rich Fe-Pt Alloys," *Jpn. J. Appl. Phys.*, 41, Pt. 2 (2A), 2002, L155-57.
- 2003Nos:** Y. Nose, A. Kushida, T. Ikeda, H. Nakajima, K. Tanaka, and H. Numakura: "Re-examination of Phase Diagram of Fe-Pt System," *Mater. Trans.*, 44(12), 2003, pp. 2723-31.

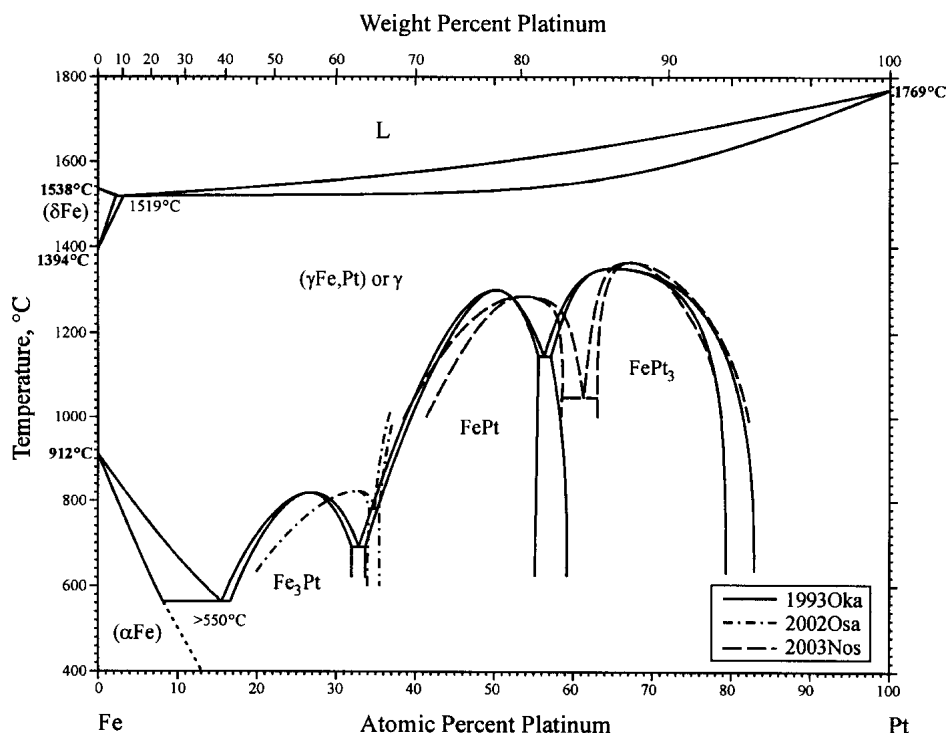


Fig. 1 Fe-Pt phase diagram