

# Ni-Zr (Nickel-Zirconium)

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Ni-Zr samples containing 41.2-43.0 at.% Zr were annealed at 700, 800, and 1000 °C and furnace cooled to examine the homogeneity range of Ni<sub>10</sub>Zr<sub>7</sub> by means of x-ray diffraction and metallographic studies [2004Tak]. The result indicated that the homogeneity range of Ni<sub>10</sub>Zr<sub>7</sub> is very narrow. Figure 1 shows the Ni-Zr phase diagram assessed by [1991Nas] with the Ni<sub>10</sub>Zr<sub>7</sub> phase field as modified by [2004Tak]. In the original diagram, the width of the Ni<sub>10</sub>Zr<sub>7</sub> phase was approximately 2.5 at.%. This result is consistent with the criterion given by [1993Oka] that a two-phase field becoming increasingly wider at higher temperatures is unlikely. In this regard, Ni<sub>5</sub>Zr and Ni<sub>3</sub>Zr may also have a narrow homogeneity range.

## References

- 1991Nas:** P. Nash and C.S. Jayanth, Ni-Zr (Nickel-Zirconium), in *Phase Diagrams of Binary Nickel Alloys*, P. Nash, Ed., ASM International, Materials Park, OH, 1991, p 390-394
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- 2004Tak:** H.T. Takeshita, S. Kondo, H. Miyamura, N. Takeichi, N. Kuriyama, and T. Oishi, Re-examination of Zr<sub>7</sub>Ni<sub>10</sub> Single Phase Region, *J. Alloys Compounds*, 2004, **376**, p 268-274

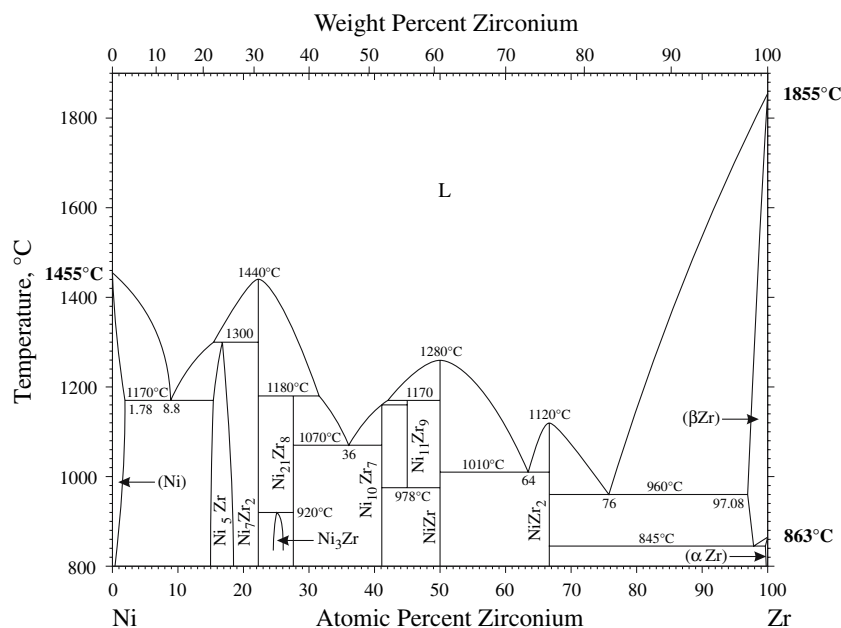


Fig. 1 Ni-Zr phase diagram