

# H-Zr (Hydrogen-Zirconium)

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The Zr-H phase diagram in [Massalski2] was evaluated by [1990Zuz] (dashed lines in Fig. 1). Intermediate phases  $\delta$  and  $\varepsilon$  are shown. [1999Dup] obtained the Zr-H phase diagram by thermodynamic modeling. The result is shown with dotted lines in Fig. 1.

According to pressure-composition isotherm measurement by [2003Set], the Zr-H phase diagram appears as shown with solid lines. Figure 2 shows the ( $\alpha$ Zr) phase region in detail. The diagrams of [1990Zuz], [1999Dup], and [2003Set] are similar, but refinement seems to be needed due to disagreement among them.

[2003Set] could not observe the change in the isotherms

corresponding to the  $\varepsilon$  phase. Therefore, the existence of the  $\varepsilon$  phase must be reexamined.

## References

- 1990Zuz:** E. Zuzek, J.P. Abriata, A. San-Martin, and F.D. Manchester, The H-Zr (Hydrogen-Zirconium) System, *Bull. Alloy Phase Diagrams*, **11**(4), 1990, p 385-395
- 1999Dup:** N. Dupin, I. Ansara, C. Servant, C. Toffolon, C. Lemaignan, and J.C. Brachet, A Thermodynamic Database for Zirconium Alloys, *J. Nucl. Mater.*, **275**(3), 1999, p 287-295
- 2003Set:** D. Setoyama and S. Yamanaka, Phase Diagram of Zr-O-H Ternary System, *J. Alloys Compd.*, **370**, 2003, p 144-148

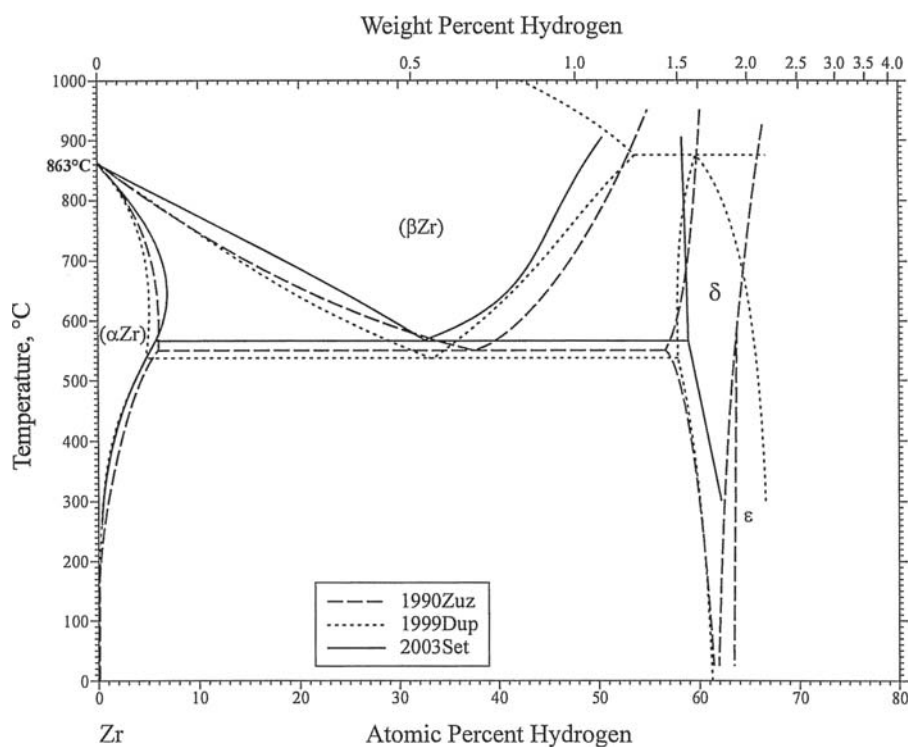


Fig. 1 Zr-H phase diagram

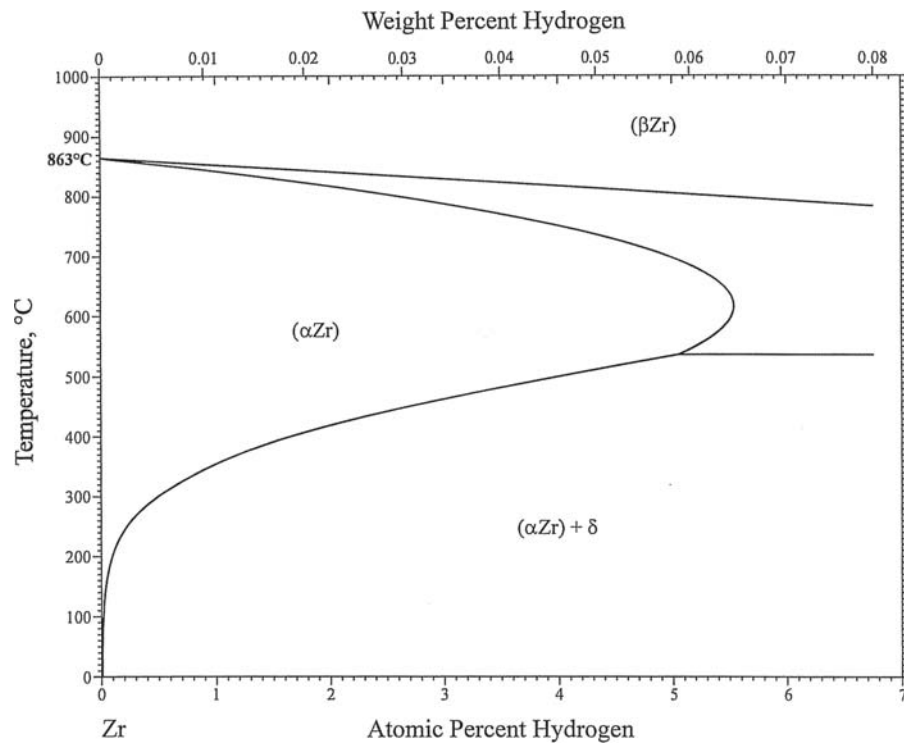


Fig. 2 Detail of the (αZr) phase region