

Dy-Sn (Dysprosium-Tin)

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The Dy-Sn phase diagram in [Massalski2] was updated by [1993Oka] primarily based on the works of [1983Che] and [1992Ere]. The [1993Oka] diagram was updated further by [1995Oka] as [1993Pal] investigated systematic trends of RE-Sn systems in the range 60-100 at.% Sn. The dashed line in Fig. 1 shows liquidus boundaries of the [1995Oka] diagram.

Solid lines in Fig. 1 show the Dy-Sn phase diagram thermodynamically assessed by [2004Wan]. The phase diagram data used are essentially the same as [1993Oka]. The strongly asymmetric Dy_5Sn_3 liquidus in [1995Oka] is more symmetric in [2004Wan]. Therefore, the diagram of [2004Wan] is more likely in this range. However, the diagram of [2004Wan] needs confirmation in the range between DySn_2 and 100 at.% Sn because the result of [1993Pal] was not taken into account in the assessment. According to [1993Pal], Dy_3Sn_7 (dimorphic) exists and DySn_3 is stable below 470 °C, not above 470 °C, as shown

in Fig. 1. Further experimental information is needed in this range.

References

- 1983Che:** R.Z. Chen and J.X. Zheng, *Acta Phys. Sin.*, Vol 32 (No. 7), 1983 p 933-938
- 1992Ere:** V.N. Eremenko, M.V. Bulanova, and P.S. Martsenjuk, The Dysprosium-Tin Phase Diagram, *J. Alloy. Compd.*, Vol 189, 1992, p 229-233
- 1993Oka:** H. Okamoto, Dy-Sn (Dysprosium-Tin), *J. Phase Equilibria*, Vol 14 (No 3), 1993, p 397-398
- 1995Oka:** H. Okamoto, Comment on Dy-Sn (Dysprosium-Tin), *J. Phase Equilibria*, Vol 16 (No. 1), 1995, p 99-100
- 2004Wan:** X. Wang, X. Su, and F. Yin, A Thermodynamic Assessment of the Dy-Sn System, in *The 12th National Symposium on Phase Diagram, Materials, Design, and Their Applications (China)*, 2004, p 88-92 (in Chinese)

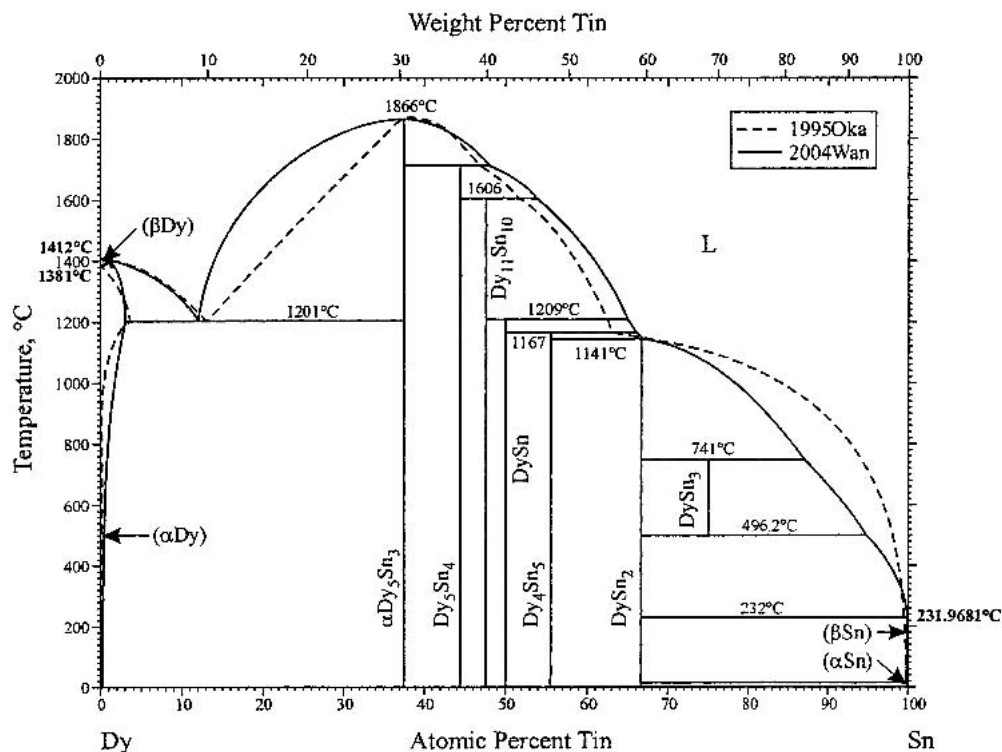


Fig. 1 Dy-Sn phase diagram