In-Ir (Indium-Iridium)

H. Okamoto

A partial In-Ir phase diagram was reported by [2000Anr], as reviewed by [2000Oka]. This phase diagram was updated to a complete phase diagram by [2002Fra], as reviewed by [2004Oka].

Figure 1 shows the In-Ir phase diagram obtained by thermodynamic modeling by [2011Ser]. The result of [2002Fra] was used as the primary source of the input phase boundary data. This calculated phase diagram is more tempting in appearance than that of [2002Fra] because it alleviates an unlikely situation wherein $\alpha\text{In}_3\text{Ir}$, In_2Ir , and (Ir) phases were drawn with constant widths over a wide temperature range in [2002Fra]. However, further confirmation of the thermodynamic modeling may be needed because of the following reason: The In_2Ir phase, which is stoichiometric at 0 °C in Fig. 1 and has the CuMg_2 -type structure, melts congruently at ~40 at.% Ir (in the metastable range). Usually the composition of the congruent melting point of a compound is close to that of the compound. In this regard, the original diagram of [2002Fra]

is more likely as the composition of the extrapolated congruent melting point is close to the stoichiometry.

References

- 2000Anr** P. Anres, P. Fossati, K. Richter, M. Gambino, M. Gaune-Escard, and J.P. Bros, Thermodynamics of the [Ir-In] System, *J. Alloys Compd.*, 2000, **296**, p 119-127
- 2000Oka** H. Okamoto, In-Ir (Indium-Iridium), *J. Phase Equilib.*, 2000, **21**(4), p 412
- 2002Fra** H. Frandorfer, K.W. Richter, E. Hayer, H. Ipser, G. Borzone, and J.P. Bros, The Binary System In-Ir: A New Investigation of Phase Relationships, Crystal Structures, Enthalpies of Mixing, *J. Alloys Compd.*, 2002, **345**, p 130-139
- 2004Oka** H. Okamoto, In-Ir (Indium-Iridium), *J. Phase Equilib. Diffus.*, 2004, **25**(1), p 103
- 2011Ser** C. Servant and M. Idbenali, Thermodynamic Assessment of the In-Ir System in the In Rich Part, *Thermochim. Acta*, 2011, **517**, p 1-8

Fig. 1 In-Ir phase diagram