Sb-Sn (Antimony-Tin)

H. Okamoto

The Sb-Sn phase diagram in [Massalski2] was redrawn from [1971Pre].

This phase diagram was updated experimentally and theoretically by [1995Oht], as introduced by [1998Oka]. [2008Man] also got a similar result by thermodynamic modeling.

Figure 1 shows the Sb-Sn phase diagram proposed by [2008Che]. The phase diagram was determined by thermodynamic modeling based on experimental data available in the literature supplemented by their own DTA, micrograph, and x-ray diffraction data.

This phase diagram differs from the earlier ones most noticeably with regard to the Sb_2Sn_3 phase. In [Massalski2], this phase exists only in a limited temperature range (~ 250 – 320°C). This phase exists at 57 at.% Sn, not at the stoichiometric composition. Its crystal structure is still unknown.

[1997Vas] doubted the existence of the β phase having a broad solubility range and proposed the existence of three stoichiometric phases in this system at 34, 48, and probably 50 at.% Sn. There has been no supporting report on this feature since then.

References

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Fig. 1 Sb-Sn phase diagram