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# Mg-Sb (Magnesium-Antimony)

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The Mg-Sb phase diagram in [Massalski2] was redrawn from [1984Nay].

[1990Oka] pointed out an unlikely feature in this phase diagram, i.e., the metastable melting point of $\alpha Mg_3Sb_2$ cannot be defined uniquely when extrapolated from the liquidus curves on the Mg-rich and Sb-rich side unless thermodynamically unlikely sudden change of curvature is introduced in these liquidus curves.

Figure 1 shows the Mg-Sb phase diagram calculated by [2009Pal]. Naturally, the problem described above is solved in this figure.

Table 1 shows Mg-Sb crystal structure data.

## References

**1984Nay:** A.A. Nayeb-Hashemi and J.B. Clark, The Mg-Sb (Magnesium-Antimony) System, *Bull. Alloy Phase Diagr.*, 1984, **5**(6), p 579-584

**1990Oka:** H. Okamoto and T.B. Massalski, Thermodynamically Improbable Phase Diagrams, *J. Phase Equilib. Diffus.*, 1990, **12**(2), p 148-168

**2009Pal:** M. Paliwal and I.H. Jung, Thermodynamic Modeling of the Mg-Bi and Mg-Sb Binary Systems and Short-Range-Ordering Behavior of the Liquid Solutions, *Calphad*, 2009, **33**, p 744-754

**Table 1 Mg-Sb crystal structure data**

| Phase | Composition, at.% Sb | Pearson symbol | Space group | Strukturbericht designation | Prototype |
|---|---|---|---|---|---|
| (Mg) | 0 | *hP*2 | $P6_3/mmc$ | *A*3 | Mg |
| $\beta Mg_3Sb_2$ | 38.1-40 | *cI*80 | $Ia\bar{3}$ | $D5_3$ | $Mn_2O_3$ |
| $\alpha Mg_3Sb_2$ | 37.9-40 | *hP*5 | $P\bar{3}m1$ | $D5_2$ | $La_2O_3$ |
| (Sb) | 100 | *hR*2 | $R\bar{3}m$ | *A*7 | αAs |

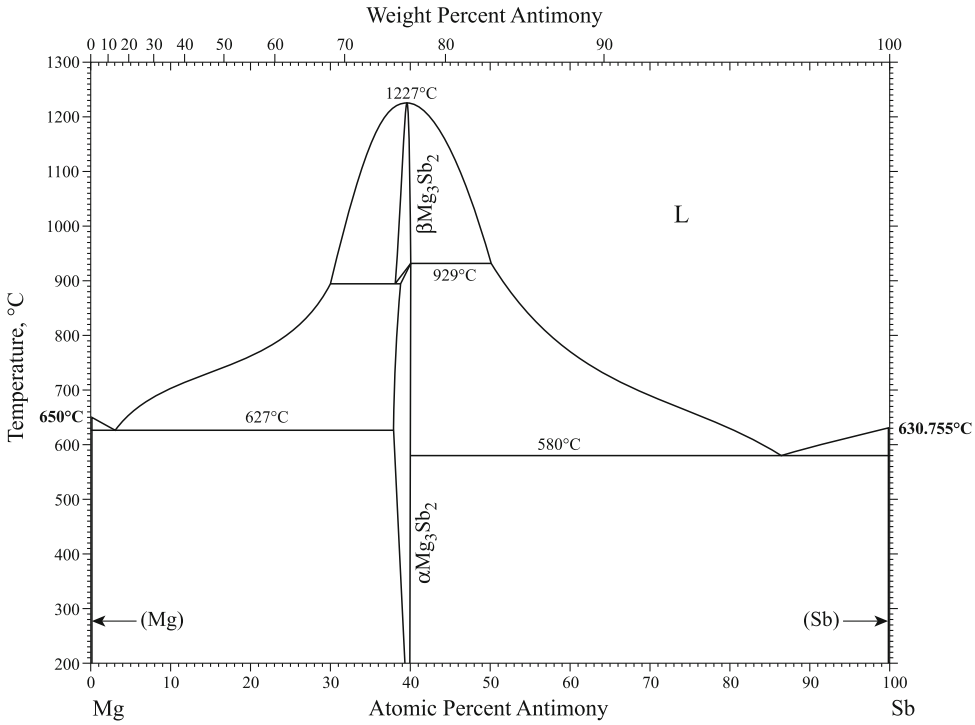


**Fig. 1** Mg-Sb phase diagram