

Al – Ga (Aluminum – Gallium)

Phase diagram

On the basis of thermodynamic data from literature Watson [92 Wat] has calculated the phase diagram. Within the scatter of the measurements published, it agrees well with the experimentally determined solidus and liquidus.

From results of EMF measurements performed by Jayaganathan et al. [96 Jay] phase equilibria have been calculated, also. The results agree very well with the up to now known phase diagram.

Thermodynamics

Using a Calvet drop calorimeter Bourkba et al. [99 Bou] have determined at 717 K enthalpies of mixing of liquid Al-Ga alloys. The results are reproduced in Fig. 1.

They are in good agreement with approximations by the Redlich-Kister method.

In the frame of the optimizing calculations to get an assessed phase diagram Watson [92 Wat] has found ΔH^L – values which are in excellent agreement with calorimetrically determined data of enthalpies of mixing of liquid alloys [69 Pre].

Using a suitable galvanic cell, [96 Jay] have measured thermodynamic activities for liquid alloys at $T = 1025$ K. The results agree well with a_{Al}^L values present in the literature. The activities are deviating only a little from Raoult's rule.

Figure

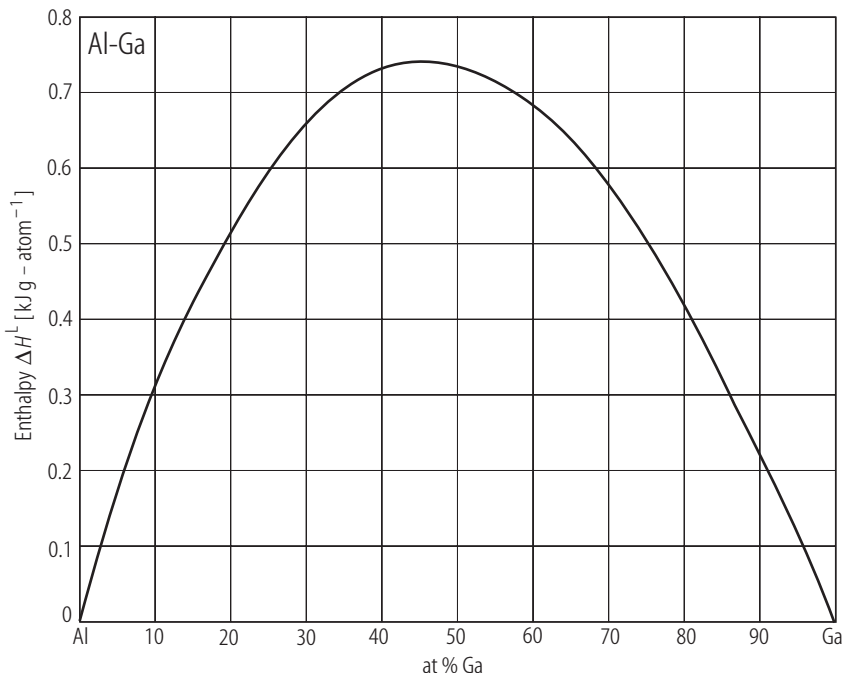


Fig. 1. Al–Ga. Enthalpies of mixing of liquid alloys achieved by the Redlich-Kister approximation [99 Bou].

References

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