

Al – Y (Aluminum – Yttrium)

Phase diagram

By thermodynamic modelling including all relevant data present in the literature, Gröbner et al. [95 Grö] have calculated a phase diagram (Fig. 1), which is almost identical with that published by [Landolt-Börnstein].

Thermodynamics

[95 Grö] have summarized enthalpies of formation of intermediate phases. The data given there are reproduced in Table 1.

Table 1. Al–Y. Enthalpies of formation of intermediate phases in kJ g-atom⁻¹ Reference states: Al (fcc) and Y (hcp).

Phase	Temperatur[K]	ΔH^S experimental	ΔH^S calculated	Method	Reference
Al ₃ Y	298	- 47.1	- 47.5	combustion calorimetry	[60 Sny]
Al ₂ Y		- 80.9	- 50.4		
AlY		- 87.8	- 45.0		
Al ₃ Y	620 ... 906	- 47.5	- 47.5	EMF	[88 deB]
Al ₂ Y	1473 ± 2	- 50.4	-50.4	direct synthesis calorimetry	[91 Jun]
Al ₂ Y ₃	1473 ± 2	- 40.0	- 40.0		
Al ₂ Y ₃			- 38.0		[95 Grö]
AlY ₂			- 35.0		

Figures

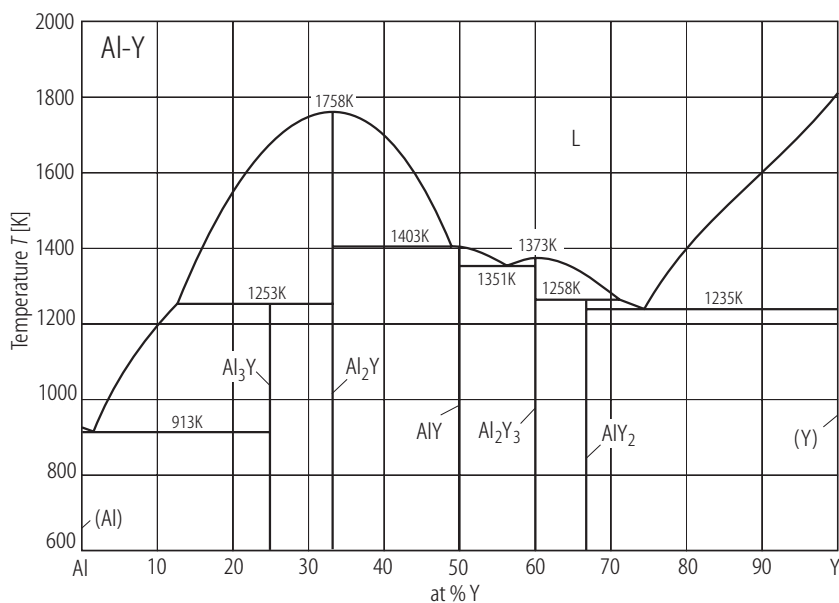


Fig. 1. Al–Y. Calculated phase diagram of Al-Y system [95 Grö].

References

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 [95 Grö] Gröbner, J., Lukas, H.L., Aldinger, F.: J. Alloys and Comp. **220** (1995) 8
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