Ga-Tb (Gallium-Terbium)

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The Ga-Tb phase diagram in [Masalski2] was redrawn from [Moffatt].

Figure 1 shows the Ga-Tb phase diagram calculated by [2008Jun]. The problem of asymmetry in the Ga₂Tb liquidus in the [Masalski2] diagram was solved.

[1981Cir] reported the existence of two modifications in the crystal structure of Ga₃Tb (Table 1). The transition temperature is unknown.

References

1981Cir: S. Cirafici and E. Franceschi, Stacking of Close-Packed AB₃ Layers in RGa₃ Compounds (R = Heavy Rare Earth), *J. Less-Common Met.*,1981, **77**, p 269-280
2008Jun: Z.K. Jun, L.B. Liu, H.S. Liu, X.M. Huang, and Z.P. Jin, Thermodynamic Assessment of the Ga-Sc and Ga-Tb Systems, *J. Alloys Compd.*, 2008, **463**, p 511-515

Table 1 Ga-Tb crystal structure data

Phase	Composition, at.% Tb	Pearson symbol	Space group	Strukturbericht designation	Prototype
(Ga)	0	<i>oC8</i>	<i>Cmca</i>	<i>A11</i>	Ga
Ga ₆ Tb	14.3	<i>tP14</i>	<i>P4/nbm</i>	...	...
βGa ₃ Tb	25	<i>cP4</i>	<i>Pm3̄m</i>	<i>L1₂</i>	AuCu ₃
αGa ₃ Tb	25	<i>hP8</i>	<i>P6₃/mmc</i>	<i>D0₁₉</i>	Ni ₃ Sn
Ga ₂ Tb	33.3	<i>hP3</i>	<i>P6/mmm</i>	<i>C32</i>	AlB ₂
GaTb	50	<i>oC8</i>	<i>Cmcm</i>	<i>B_f</i>	CrB
Ga ₃ Tb ₅	62.5	<i>tI32</i>	<i>I4/mcm</i>	<i>D8_I</i>	Cr ₅ B ₃
(βTb)	100	<i>cI2</i>	<i>Im3̄m</i>	<i>A2</i>	W
(αTb)	100	<i>hP4</i>	<i>P6₃/mmc</i>	<i>A3</i>	Mg

Fig. 1 Ga-Tb phase diagram