JPEDAV (2005) 26:398
DOI: 10.1361/154770305X56917
1547-7037/$19.00 ©ASM International

Ga-Ti (Gallium-Titanium)

H. Okamoto

The partial Ga-Ti phase diagram in [Massalski2] was adopted from [1985Mur]. A complete diagram was reported by [2001Ant], as shown with dashed lines in Fig. 1. [2002Oka] introduced the work of [2001Ant] and pointed out a few unlikely features in this phase diagram: (a) The liquidus of Ga_2Ti is too asymmetric; (b) the two boundaries on the Ga-rich and Ti-rich side of the $\gamma + Ga_4Ti_5$ two-phase field are curved inward at high temperatures (at about >1200 °C); and (c) although to a lesser degree, a similar problem may occur for the $GaTi_3 + (\alpha Ti)$ two-phase field.

[2003Li] thermodynamically assessed the Ga-Ti system. The calculated phase diagram is shown with solid lines in Fig. 1. Invariant temperatures and compositions in Fig. 1 are from the diagram of [2003Li]. The problems pointed out by [2002Oka], as indicated above, are solved in this phase diagram. Therefore, the diagram of [2003Li] is expected to be a better representation of the experimental diagram of [2001Ant].

References

1985Mur: J.L. Murray, The Ga-Ti (Gallium-Titanium) System, *Bull. Alloy Phase Diagrams,* Vol 6 (No. 4), 19985, p 327-330

2001Ant: N.V. Antonova and L.A. Tretyachenko, Phase Diagram of the Ti-Ga System, *J. Alloys Compd.,* Vol 317-318, 2001, p 398-405

2002Oka: H. Okamoto, Gallium-Titanium, *J. Phase Equilib.,* Vol 23 (No. 5), 2002, p 457-458

2003Li: J.B. Li, J.C. Tedenac, and M.C. Record, Thermodynamic Analysis of the Ga-Ti System, *J. Alloys Compd.,* Vol 358, 2003, p 133-141

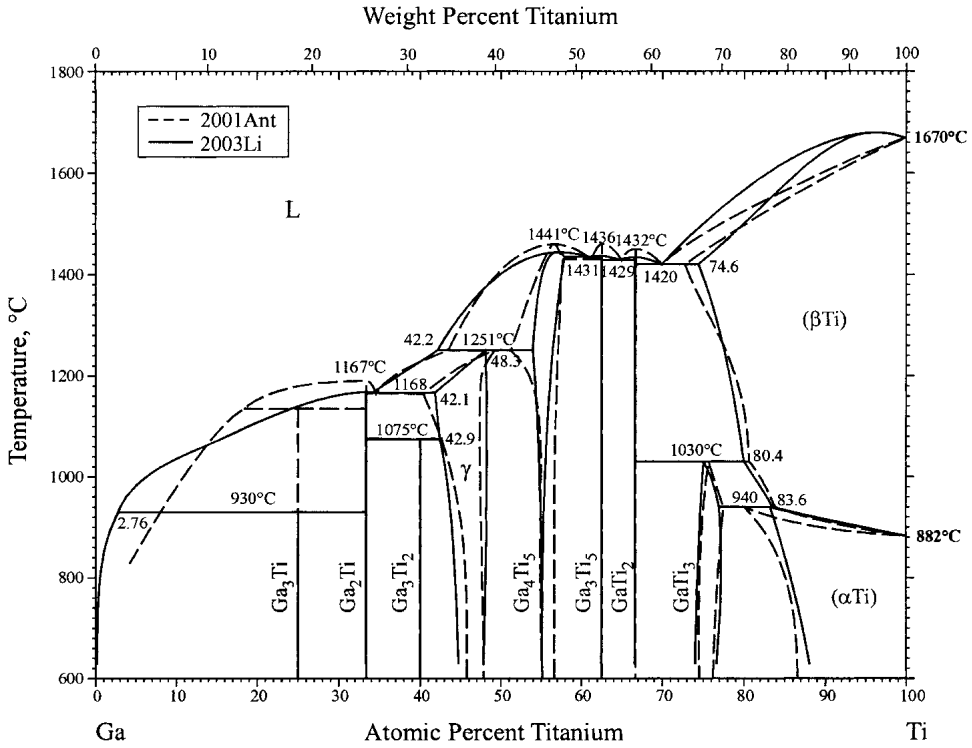

Fig. 1 Ga-Ti phase diagram