

Ga-Li (Gallium-Lithium)

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The Ga-Li phase diagram in [Massalski2] was redrawn from [1991San]. The 0-50 at.% Li range of this phase diagram was modified by [1999Oka] based on [1988Til], which was not quoted in the [1991San] assessment. The liquidus profile is shown with a broken line in Fig. 1.

[2003Yua] attempted to thermodynamically describe this system. The calculated phase diagram is shown with solid lines in Fig. 1. Because the broken line in Fig. 1 is based on experimental data ([1991San]), the disagreement with the liquidus shown with solid lines may indicate that calculated liquidus does not represent the true equilibrium. On the other hand, the boundaries of GaLi as calculated may be more realistic than that shown in [1999Oka] with unlikely asymmetry having no solubility on the Ga-rich side of the stoichiometry, which resulted from combining two diagrams reported by [1988Til] and [1991San]. In addition to the phases shown in Fig. 1, [1988Til] reported $\sim\text{Ga}_8\text{Li}_3$

forming by a peritectic reaction at 341 °C. The existence or absence of this phase should be confirmed.

References

- 1988Til:** M. Tillard-Charbonnel and C. Belin, The Lithium-Gallium System. Re-determination of Phase Equilibrium Diagram in the Range Ga-LiGa, *C. R. Acad. Sci. Paris*, 1988, **306**, Série II, p 1161-1164, in French
- 1991San:** J. Sangster and A.D. Pelton, The Ga-Li (Gallium-Lithium) System, *J. Phase Equilibria*, 1991, **12**(1), p 33-37
- 1999Oka:** H. Okamoto, Ga-Li (Gallium-Lithium), *J. Phase Equilibria*, 1999, **20**(1), p 92
- 2003Yua:** W.X. Yuan, W.J. Wang, Y.T. Song, and X.L. Chen, Thermodynamic Descriptions of the Ga-Li System, *Scripta Mater.*, 2003, **48**, p 1053-1059

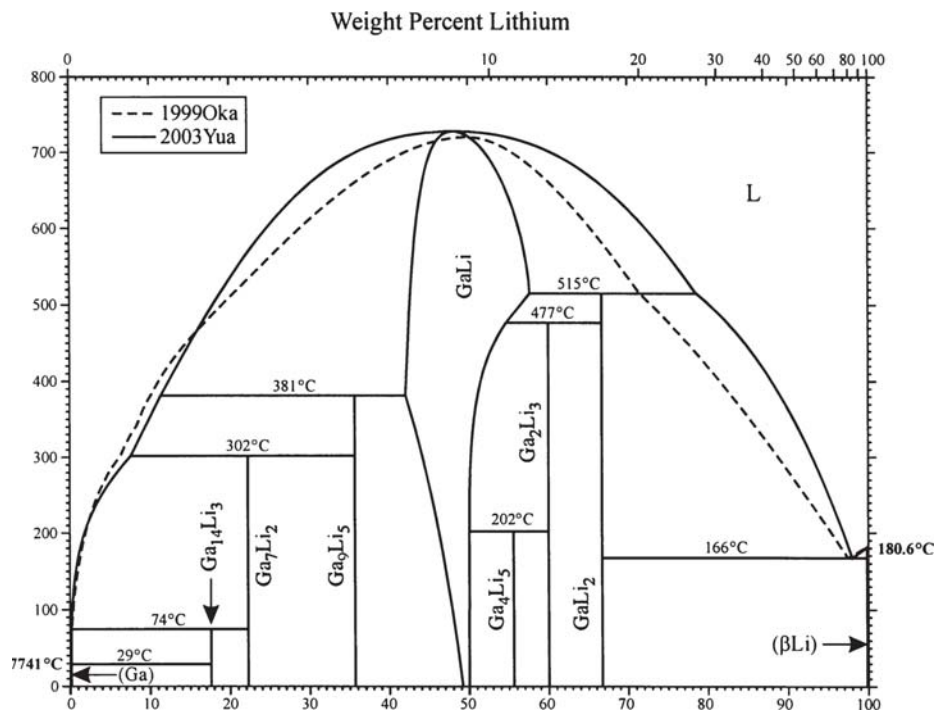


Fig. 1 Ga-Li phase diagram