

# C-Ti (Carbon-Titanium)

H. Okamoto

[95Alb] proposed a Ti-C phase diagram (see [95Oka] lit. rev.) by thermodynamic optimization of phase boundary data obtained by [65Rud], [89Loo], and [95Alb], and thermodynamic data obtained by [95Alb]. However, [96Sei] found that the Gibbs energy description of the liquid phase used by [95Alb] is a mathematical artifact not warranted experimentally. Figure 1 shows the Ti-C phase diagram calculated by [96Sei]. The result agrees well with experimental phase boundary data reported by [53Cad], [56Wag], [59Bic], [62Bit], [65Rud], and [89Loo]. In addition to TiC in Fig. 1, an ordered phase  $Ti_2C$  may exist with a maximum transformation temperature at  $\sim 1900\text{ }^{\circ}\text{C}$  [87Mur].

## Cited References

**53Cad:** I. Cadoff and J.P. Nielsen, *Trans. Metall. Soc. AIME*, **197**, 248-254 (1953).

**56Wag:** F.C. Wagner, E.J. Bucur, and M.A. Steinberg, *Met. Trans. ASM*, **48**, 742-761 (1956).

**59Bic:** R.L. Bickerdike and G. Hughes, *J. Less-Common Met.*, **1**, 42-49 (1959).

**62Bit:** H. Bittner and H. Goretzki, *Monatsh. Chem.*, **93**, 1000-1004 (1962).

**65Rud:** E. Rudy, AFML-TR-65-2 Part I, Vol. IV, Air Force Materials Laboratory Research and Technology Division, Air Force Systems Command, Wright-Patterson AFB, Ohio (1963).

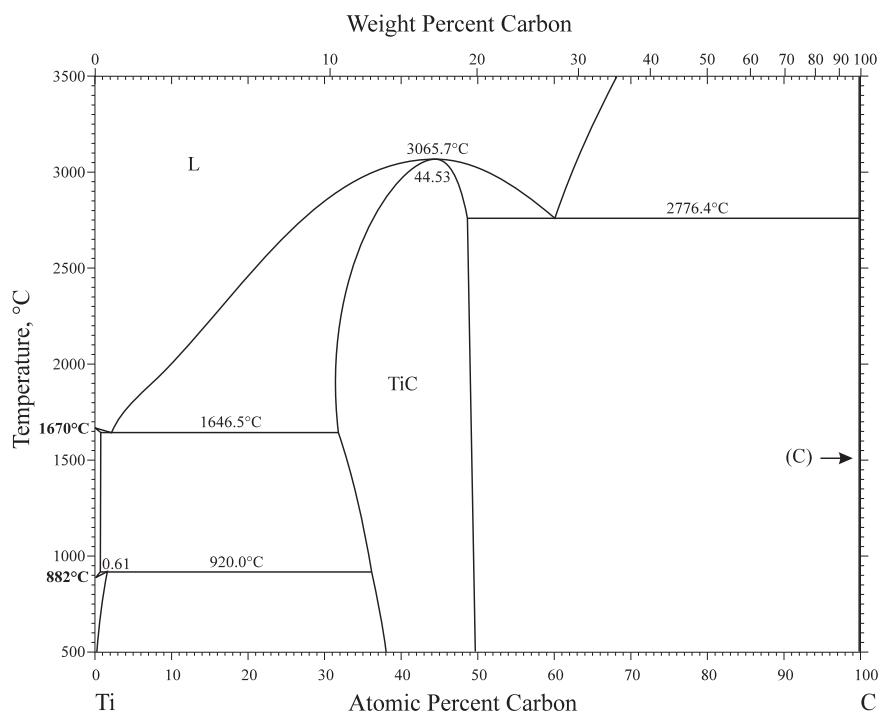
**87Mur:** J. Murray, *Phase Diagrams of Binary Titanium Alloys*, ASM International, Metals Park, OH, 47-51 (1987).

**89Loo:** F.J.J. van Loo and G.F. Bastin, *Met. Trans. A*, **20**, 403-411 (1989).

**95Alb:** K. Albertsen and H.J. Schaller, *Z. Metallkde.*, **86**(5), 319-325 (1995).

**95Oka:** H. Okamoto, *J. Phase Equilibria*, **16**(6), 532-533 (1996).

**96Sei:** H.J. Seifert, H.L. Lukas, and G. Petzow, *J. Phase Equilibria*, **17**(1), 24-35 (1996).



**Fig. 1** The Ti-C phase diagram.