

Be-Ti (Beryllium-Titanium)

H. Okamoto

The Be-Ti phase diagram in [Massalski2] was redrawn from [1987Mur]. Four intermediate phases Be_{12}Ti , $\text{Be}_{17}\text{Ti}_2$ (dimorphic), Be_3Ti , and Be_2Ti were shown.

Table 1 Be-Ti crystal structure data

Phase	Composition, at.% Ti	Pearson symbol	Space group	Strukturbericht designation	Prototype
(β Be)	0	<i>cI2</i>	<i>Im$\bar{3}m$</i>	<i>A2</i>	W
(α Be)	0	<i>hP2</i>	<i>P6</i> $_3$ / <i>mmc</i>	<i>A3</i>	Mg
Be_{12}Ti	7.7	<i>tI26</i>	<i>I4/mmm</i>	<i>D2</i> $_b$	Mn_{12}Th
Be_{10}Ti	9.1	...	...	...	...
$\beta\text{Be}_{17}\text{Ti}_2$	10.5	<i>hR19</i>	<i>R$\bar{3}m$</i>	...	$\text{Be}_{17}\text{Nb}_2$
$\alpha\text{Be}_{17}\text{Ti}_2$	10.5	<i>hP38</i>	<i>P6</i> $_3$ / <i>mmc</i>	...	$\text{Ni}_{17}\text{Th}_2$
$\text{Be}_{13}\text{Ti}_2$	13.3	...	...	...	...
Be_3Ti	25	<i>hR12</i>	<i>R$\bar{3}m$</i>	...	Be_3Nb
Be_2Ti	33.3	<i>cF24</i>	<i>Fd$\bar{3}m$</i>	<i>C15</i>	Cu_2Mg
Be_5Ti_4	44.4	...	...	...	...
(β Ti)	91 to 100	<i>cI2</i>	<i>Im$\bar{3}m$</i>	<i>A2</i>	W
(α Ti)	100	<i>hP2</i>	<i>P6</i> $_3$ / <i>mmc</i>	<i>A3</i>	Mg

Figure 1 shows the Be-Ti phase diagram thermodynamically evaluated by [2006Tok]. Three new intermediate phases Be_{10}Ti , $\text{Be}_{13}\text{Ti}_2$, and Be_5Ti_4 discovered by [2004Ohn] have been included.

Table 1 shows Be-Ti crystal structure data.

References

- 1987Mur:** J.L. Murray, The Be-Ti (Beryllium-Titanium) System, *Phase Diagrams of Binary Titanium Alloys*, J.L. Murray, Ed., ASM International, Metals Park, OH, 1987, p 40-43
- 2004Ohn:** I. Ohnuma, R. Kainuma, M. Uda, T. Iwadachi, M. Uchida, H. Kawamura, and K. Ishida, Phase Equilibria in the Be-V and Be-Ti Binary Systems, Proc. of the 6th International Workshop on Beryllium Technology for Fusion, JAERI-conf. 2004-2006, Japan Atomic Energy Research Institute, Japan, 2004, p 172-183
- 2006Tok:** T. Tokunaga, H. Ohtani, and M. Hasebe, Thermodynamic Evaluation of the Phase Equilibria and Glass-Forming Ability of the Ti-Be System, *J. Phase Equilibria Diffusion*, 2006, **27**(1), p 83-91

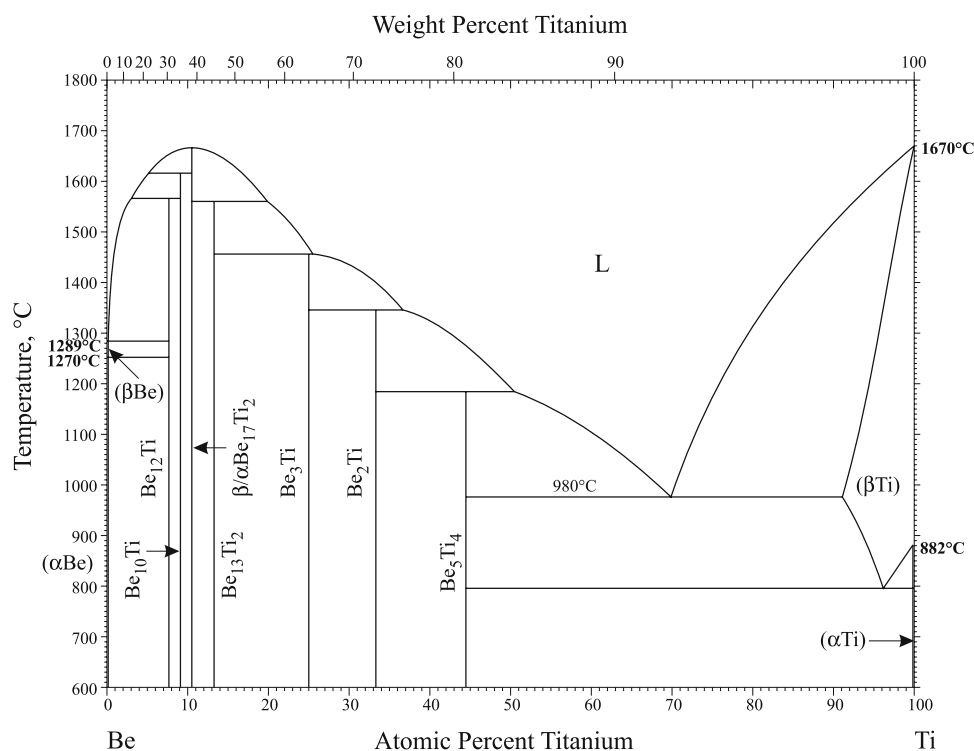


Fig. 1 Be-Ti phase diagram