

Be-Sc (Beryllium-Scandium)

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The Be-Sc phase diagram was unknown in [Massalski2], but the existence of three intermetallic compounds was known (Table 1).

Figure 1 shows the Be-Sc phase diagram proposed by [2003Fri] with the form based primarily upon metallographic information. Allotropic forms of Be and Sc have been added to the diagram by this editor.

Figure 1 requires further refinement because of the following unlikely features in view of guidelines summarized by [1990Oka].

- Be₁₃Sc is too asymmetric.
- Sharpness of liquidus at the melting point is too uneven.
- The initial slope of (βSc) is too flat.

References

- 1990Oka:** H. Okamoto and T.B. Massalski, Thermodynamically Improbable Phase Diagrams, *J. Phase Equilib.*, 1991, **12**(2), p 148-168
- 2003Fri:** I.N. Fridlyander and L.V. Molchanova, Interaction of Beryllium with Aluminum and Scandium, *Metally*, 2003, (5), p 109-114, in Russian

Table 1 Be-Sc crystal structure data

Phase	Composition, at.% Sc	Pearson symbol	Space group	Strukturbericht designation	Prototype
(βBe)	0	<i>cI2</i>	<i>Im</i> $\bar{3}m$	<i>A2</i>	W
(αBe)	0	<i>hP2</i>	<i>P6</i> ₃ / <i>mmc</i>	<i>A3</i>	Mg
Be ₁₃ Sc	7.2	<i>cF112</i>	<i>Fm</i> $\bar{3}c$	<i>D2</i> ₃	NaZn ₁₃
Be ₁₇ Sc ₂	10.5	<i>hP38</i>	<i>P6</i> ₃ / <i>mmc</i>	...	Ni ₁₇ Th ₂
		<i>hR19</i>	<i>R</i> $\bar{3}m$...	Th ₂ Zn ₁₇
Be ₅ Sc	16.7	<i>hP6</i>	<i>P6</i> / <i>mmm</i>	<i>D2</i> _d	CaCu ₅
(βSc)	100	<i>cI2</i>	<i>Im</i> $\bar{3}m$	<i>A2</i>	W
(αSc)	100	<i>hP2</i>	<i>P6</i> ₃ / <i>mmc</i>	<i>A3</i>	Mg

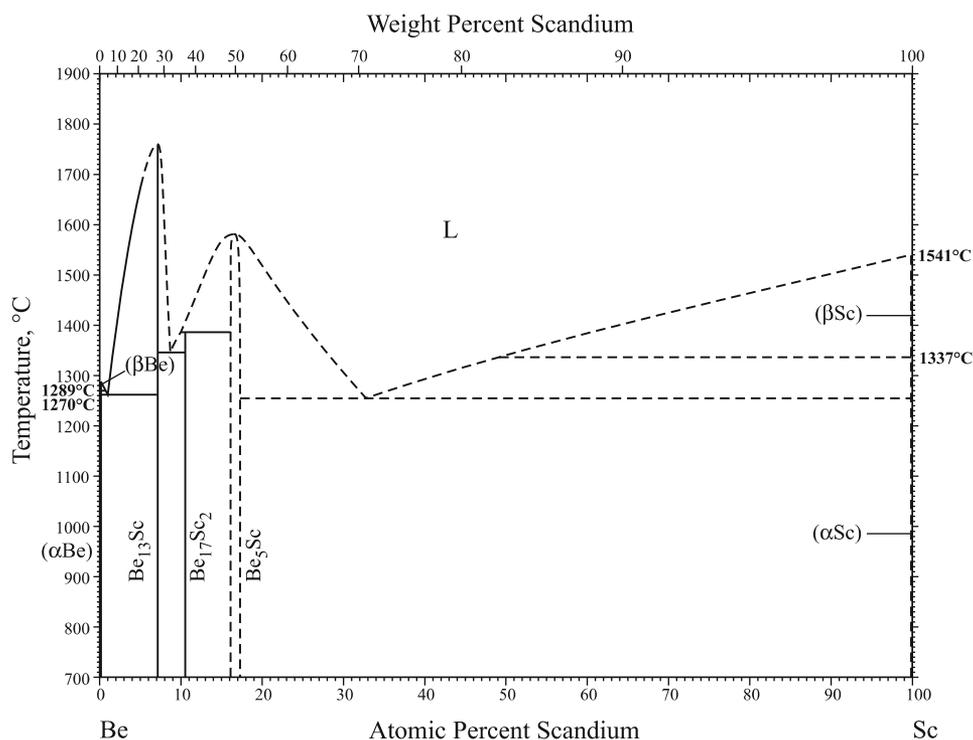


Fig. 1 Be-Sc phase diagram