

# Sc-Th (Scandium-Thorium)

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The Sc-Th phase diagram in [Massalski2] was updated by [1991Oka] based on the work of [1990Ter].

Figure 1 shows the Sc-Th phase diagram calculated by [2009Liu]. The experimental phase boundary data used were essentially taken from [1990Ter]. Accordingly, the diagrams of [1991Oka] and [2009Liu] are similar. The most significant difference is found around the minimum melting point. In the phase diagram of [1991Oka], the liquidus curve showed sudden curvature change, which is unlikely. The shape shown in Fig. 1 seems to be more normal.

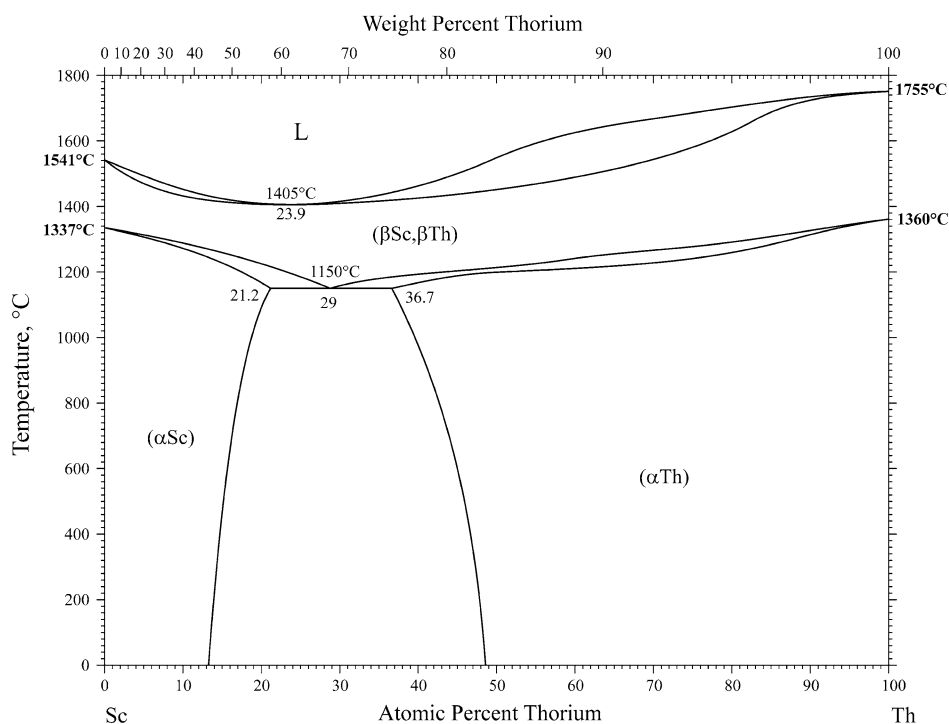
Table 1 shows Sc-Th crystal structure data.

## References

- 1990Ter:** G.I. Terekhov and S.I. Sinyakova, The Th-Sc Phase Diagram, *Izv. Akad. Nauk SSSR, Met.*, 1990, (3), p 215-218, in Russian
- 1991Oka:** H. Okamoto, Sc-Th (Scandium-Thorium), *J. Phase Equilib.*, 1991, **12**(1), p 123
- 2009Liu:** X.J. Liu, S.L. Wang, and C.P. Wang, “Thermodynamic Assessments of the Sc-M (M: Ag, B and Th)” Systems, *J. Alloys Compd.*, 2009, **469**, p 186-192

**Table 1 Sc-Th crystal structure data**

Phase	Composition, at.% Th	Pearson symbol	Space group	Strukturbericht designation	Prototype
(βSc, βTh)	0-100	<i>cI2</i>	<i>Im</i> $\bar{3}m$	A2	W
(αSc)	0-21.2	<i>hP2</i>	<i>P6</i> $_3/mmc$	A3	Mg
(αTh)	36.7-100	<i>cF4</i>	<i>Fm</i> $\bar{3}m$	A1	Cu



**Fig. 1** Sc-Th phase diagram