

Mg-Sc (Magnesium-Scandium)

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The Mg-Sc phase diagram in [Massalski2] was redrawn from [1988Nay]. The phase diagram was schematic on the Sc-rich side due to lack of experimental phase boundary data.

[1998Pis] attempted thermodynamic modeling of this system based on experimental data in good agreement with [1988Nay]. Accordingly, the calculate phase diagram was speculative on the Sc-rich side. [2008Bel] showed a calculated phase diagram by adopting the thermodynamic data of [1998Pis]. Therefore, the diagrams of [1998Pis] and [2008Bel] were very similar. In these diagrams, the MgSc phase was treated as a line compound.

Figure 1 shows the Mg-Sc phase diagram calculated by [2008Kan] based on more experimental data. This phase diagram is still speculative for the range over 60 at.% Sc due to absence of experimental data.

Table 1 shows Mg-Sc crystal structure data.

References

1988Nay: A.A. Nayeb-Hashemi and J.B. Clark, The Mg-Sc (Magnesium-Scandium) System, *Bull. Alloy Phase Diagrams*, 1988, 7(6), p 574-577

Table 1 Mg-Sc crystal structure data

Phase	Composition, at.% Sc	Pearson symbol	Space group	Strukturbericht designation	Prototype
(Mg)	0-29	<i>hP2</i>	<i>P6₃/mmc</i>	<i>A3</i>	Mg
MgSc	33-50	<i>cP2</i>	<i>Pm$\bar{3}m$</i>	<i>B2</i>	CsCl
(β Sc)	22-100	<i>cI2</i>	<i>Im$\bar{3}m$</i>	<i>A2</i>	W
(α Sc)	72-100	<i>hP2</i>	<i>P6₃/mmc</i>	<i>A3</i>	Mg

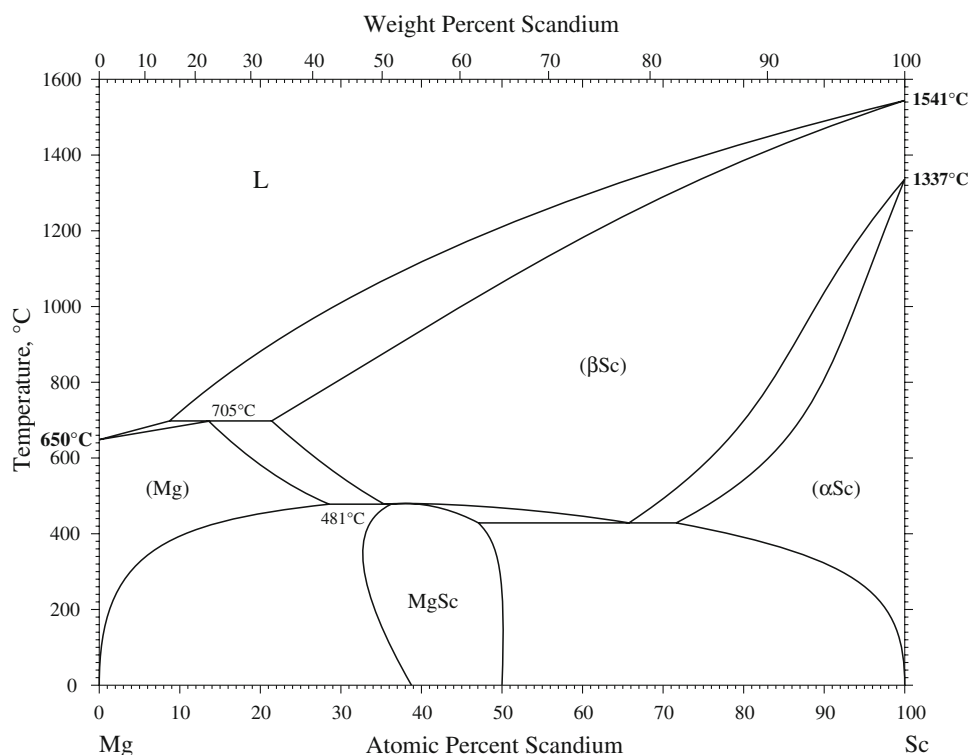


Fig. 1 Mg-Sc phase diagram

1998Pis: A. Pisch, R. Schmid-Fetzer, G. Cacciamani, P. Riani, A. Saccone, and R. Ferro, Mg-rich Phase Equilibria and Thermodynamic Assessment of the Mg-Sc System, *Z. Metallkd.*, 1998, **89**(7), p 474-477

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