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Ge-Sr (Germanium-Strontium)

H. Okamoto

The Ge-Sr phase diagram in [Massalski2] was tentative. [2005Pal] investigated the phase diagram of this system using differential thermal analysis and x-ray diffraction. The result is shown in Fig. 1. In this phase diagram, the thermal effect observed at 925 °C is not accounted for. The existence of $Ge_{1.85}Sr$ in the equilibrium diagram in the form as shown in Fig. 1 must be reexamined because very delicate (hence unlikely) balance is needed among the thermodynamic properties of the phases involved (L, Ge_2Sr, $Ge_{1.85}Sr$).

Ge-Sr crystal structure data are given in Table 1.

Table 1 Ge-Sr crystal structure data

Phase	Composition, at.% Sr	Pearson symbol	Space group	Strukturbericht designation	Prototype
(Ge)	0	*cF*8	$Fd\bar{3}m$	*A*4	C (diamond)
Ge_2Sr	33.3	*oP*24	*Pnma*	…	$BaSi_2$
$Ge_{1.8}Sr$	35.7	*hP*3	*P6/mmm*	*C*32	AlB_2
GeSr	50	*oC*8	*Cmcm*	B_f	CrB
Ge_3Sr_5	62.5	*tI*32	*I*4/*mcm*	$D8_l$	Cr_5B_3
$GeSr_2$	66.7	*oP*12	*Pnma*	*C*23	Co_2Si
(βSr)	100	*cI*2	$Im\bar{3}m$	*A*2	W
(αSr)	100	*cF*4	$Fm\bar{3}m$	*A*1	Cu

Reference

2005Pal: A. Palenzona and M. Pani, The Phase Diagram of the Sr-Ge System, *J. Alloys Compd.,* **402,** 2005, p 136-140

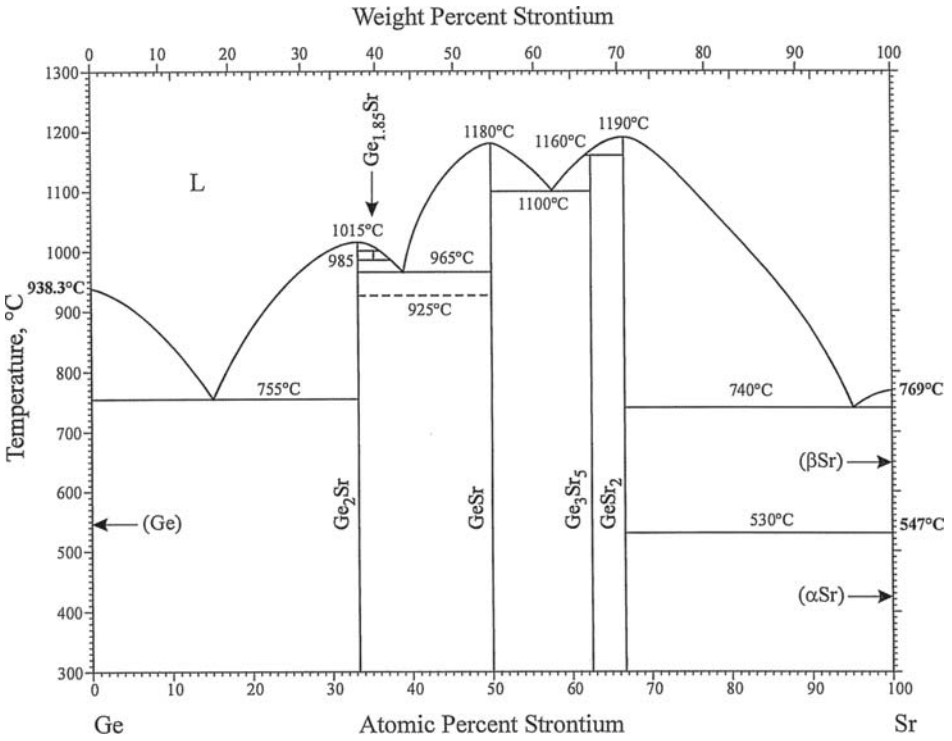

Fig. 1 Ge-Sr phase diagram