

Ba-Ge (Barium-Germanium)

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The Ba-Ge phase diagram in [Massalski2] showed four intermeditated phases: Ba_2Ge , $BaGe$, $BaGe_2$, and $BaGe_4$. The existence of “ $BaGe_4$ ” was speculative.

[2005Car] clarified the phase relationship around “ $BaGe_4$ ” by means of metallography, X-ray powder diffraction, and differential thermal analysis. The result is shown in Fig. 1.

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

References

2005Car: W. Carrillo-Cabrera, H. Borrmann, S. Paschen, M. Benitz, F. Steglich, and Y. Grin, Ba_6Ge_{25} : Low-Temperature Ge-Ge Bond Breaking during Temperature-Induced Structure Transformation, *J. Solid State Chem.*, 2005, **178**, p 515-728

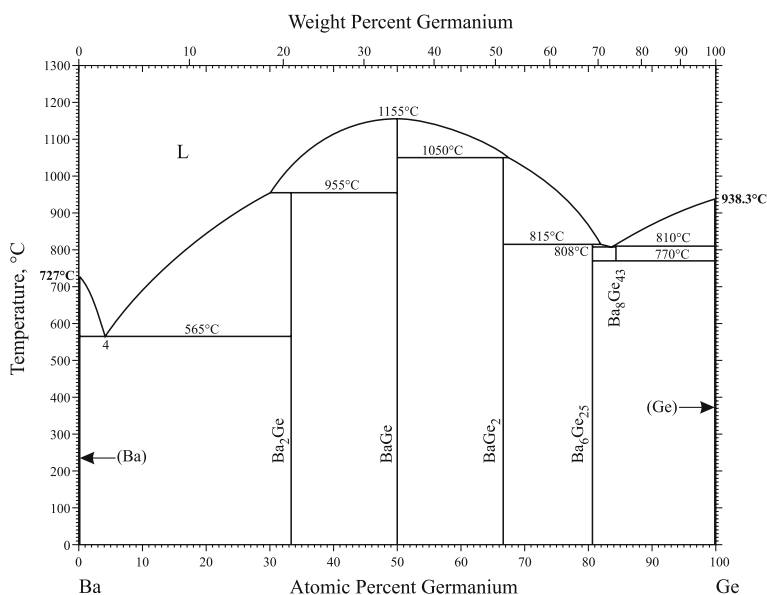


Fig. 1 Ba-Ge phase diagram

Table 1 Ba-Ge Crystal Structure Data

Phase	Composition, at.% Ge	Pearson symbol	Space group	Strukturbericht designation	Prototype
(Ba)	0	<i>cI2</i>	$Im\bar{3}m$	<i>A2</i>	W
Ba_2Ge	33.3	<i>oP12</i>	$Pnma$	<i>C23</i>	CO_2Si
$BaGe$	50	<i>oC8</i>	$Cmcm$	B_f	CrB
$BaGe_2$	66.7	<i>oP24</i>	$Pmna$...	$BaSi_2$
Ba_6Ge_{25}	80.6	<i>cP*</i>	$P4_132$
Ba_8Ge_{43}	84.3
(Ge)	100	<i>cF8</i>	$Fd\bar{3}m$	<i>A4</i>	C (diamond)