

Ba-Ge (Barium-Germanium)

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The Ba-Ge phase diagram in [Massalski2] was redrawn from [Moffatt].

Figure 1 shows the Ba-Ge phase diagram revised by [2008Pan] based on thermal analysis data measured for the range 0-75 at.% Ge. The Ge-rich part was adopted from [2005Car]. This phase diagram is more complex in comparison with the [Massalski2] phase diagram, which showed only four intermediate phases.

Table 1 shows Ba-Ge crystal structure data.

References

2005Car: W. Carrillo-Cabrera, H. Borrmann, S. Paschen, M. Baenitz, 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**(3), p 715-728

2008Pan: M. Pani and A. Palenzona, The Phase Diagram of the Ba-Ge System, *J. Alloy. Compds.*, 2008, **462**, p L9-L11

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>	<i>Pnma</i>	<i>C23</i>	Co_2Si
Ba_5Ge_3	37.5	<i>tP32</i>	<i>P4/ncc</i>	...	...
$BaGe$	50	<i>oC8</i>	<i>Cmcm</i>	<i>B_F</i>	CrB
βBa_3Ge_4	57.1	<i>tP28</i>	<i>P4₂/nmn</i>	...	...
αBa_3Ge_4	57.1	<i>oC56</i>	<i>Cmmm</i>	...	...
$BaGe_2$	66.7	<i>oP24</i>	<i>Pmna</i>	...	$BaSi_2$
Ba_6Ge_{25}	80.6	<i>cP124</i>	<i>P4₁32</i>	...	...
Ba_8Ge_{43}	84.3	<i>cI408</i>	<i>Ia\bar{3}d</i>	...	...
$BaGe_5$	~83.3	...	...	...	...
?	~84	...	...	...	...
(Ge)	100	<i>cF8</i>	$Fd\bar{3}m$	<i>A4</i>	C (diamond)

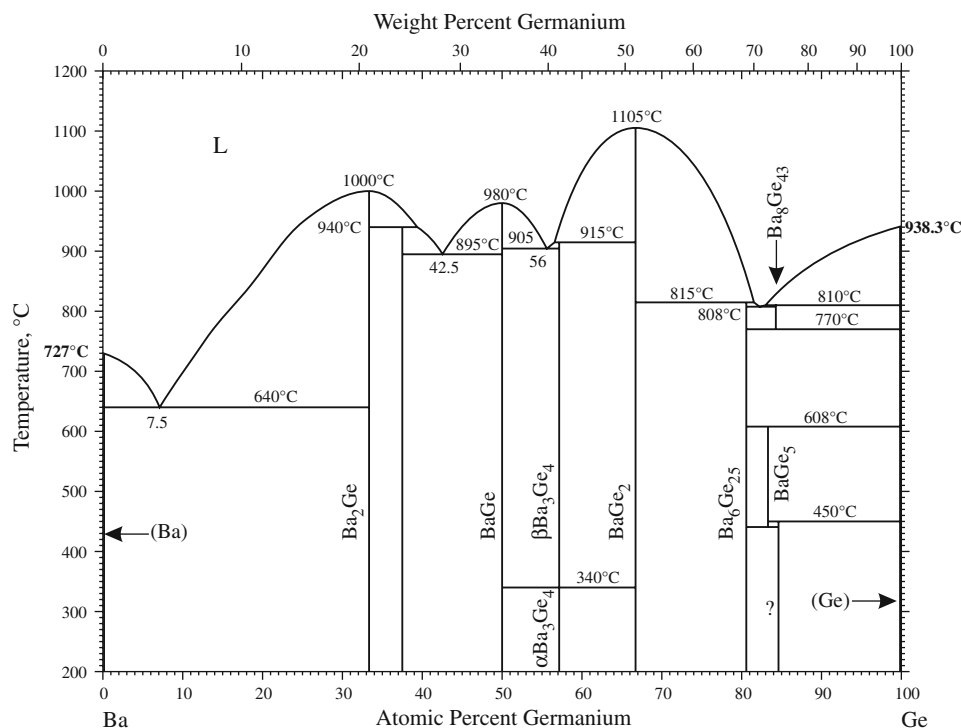


Fig. 1 Ba-Ge phase diagram