

Ba-Si (Barium-Silicon)

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The Ba-Si phase diagram in [Massalski2] showed the existence of two intermediate phases, BaSi and BaSi₂. However, crystal structure data indicated the existence of three more phases.

Figure 1 shows the Ba-Si phase diagram determined by thermal analysis by [2008Pan]. The existence

of the three additional phases was confirmed (Table 1).

Reference

2008Pan: M. Pani and A. Palenzona, The Phase Diagram of the Ba-Si System, *J. Alloys Compds.*, 2008, **454**, p L1-L2

Table 1 Ba-Si crystal structure data

| Phase | Composition, at.% Si | Pearson symbol | Space group | Strukturbericht designation | Prototype |
|---------------------------------|----------------------|----------------|---------------------------|-----------------------------|--------------------|
| (Ba) | 0 | <i>cI2</i> | <i>Im</i> $\bar{3}m$ | <i>A2</i> | W |
| Ba ₂ Si | 33.3 | <i>oP12</i> | <i>Pnma</i> | <i>C23</i> | Co ₂ Si |
| Ba ₅ Si ₃ | 37.5 | <i>tP32</i> | <i>P4/ncc</i> | ... | ... |
| BaSi | 50 | <i>oC8</i> | <i>Cmcm</i> | <i>B_f</i> | CrB |
| Ba ₃ Si ₄ | 57.1 | <i>tP28</i> | <i>P4₂/mnm</i> | ... | ... |
| BaSi ₂ | 66.7 | <i>oP24</i> | <i>Pnma</i> | ... | BaSi ₂ |
| (Si) | 100 | <i>cF8</i> | <i>Fd</i> $\bar{3}m$ | <i>A4</i> | C (diamond) |

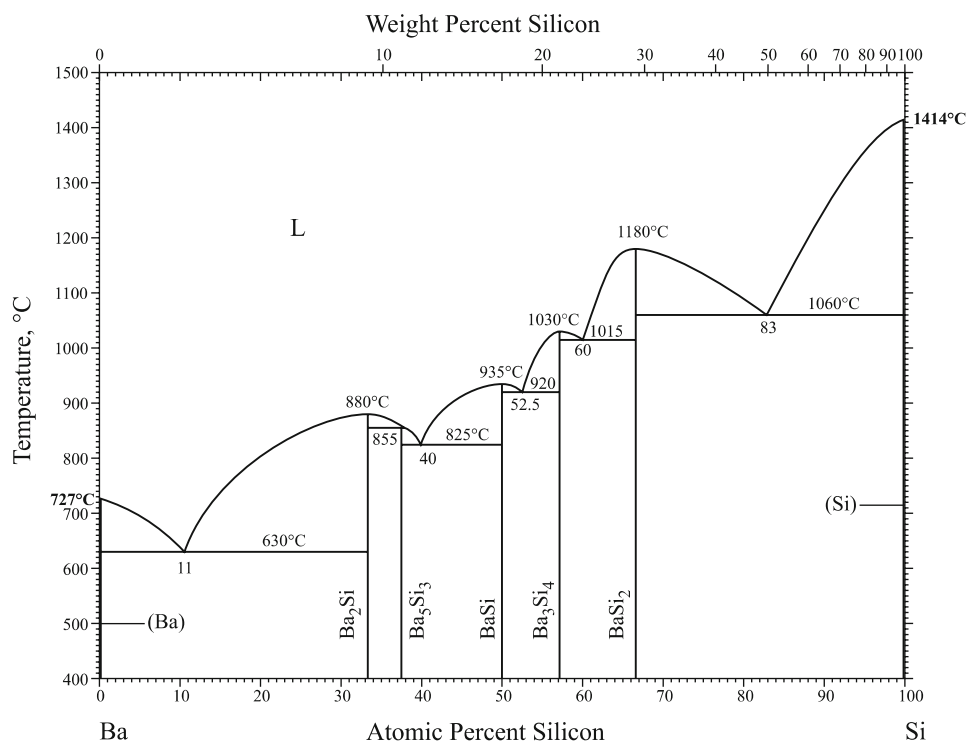


Fig. 1 Ba-Si phase diagram