

B-Mg (Boron-Magnesium)

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[2003Oka] showed the Mg-B phase diagram calculated by [2001Liu]. Three intermediate phases MgB_2 , MgB_4 , and MgB_7 exist in this phase diagram. [2002Bru] discovered the existence of a new phase MgB_{20} , and [2005Bal] calculated the Mg-B phase diagram including the new phase (Fig. 1). The diagrams of [2001Liu] and [2005Bal] are similar in the

relationships among phases except MgB_{20} . However, [2005Bal] found that the decomposition temperatures of MgB_2 and MgB_4 on heating are higher than those reported by [2001Liu] by approximately 150 °C.

Table 1 Al-Ru crystal structure data

Phase	Composition, at.% B	Pearson symbol	Space group	Strukturbericht designation	Prototype
(Mg)	0	<i>hP2</i>	<i>P6₃/mmc</i>	A3	Mg
MgB_2	66.7	<i>hP3</i>	<i>P6/mmm</i>	C32	AlB_2
MgB_4	80	<i>oP20</i>	<i>Pnam</i>
MgB_7	87.5	<i>oI64</i>	<i>Imam</i>
MgB_{20}	95.2	<i>hR*</i>	<i>R3m</i>
(βB)	100	<i>hR108</i>	<i>R3m</i>

References

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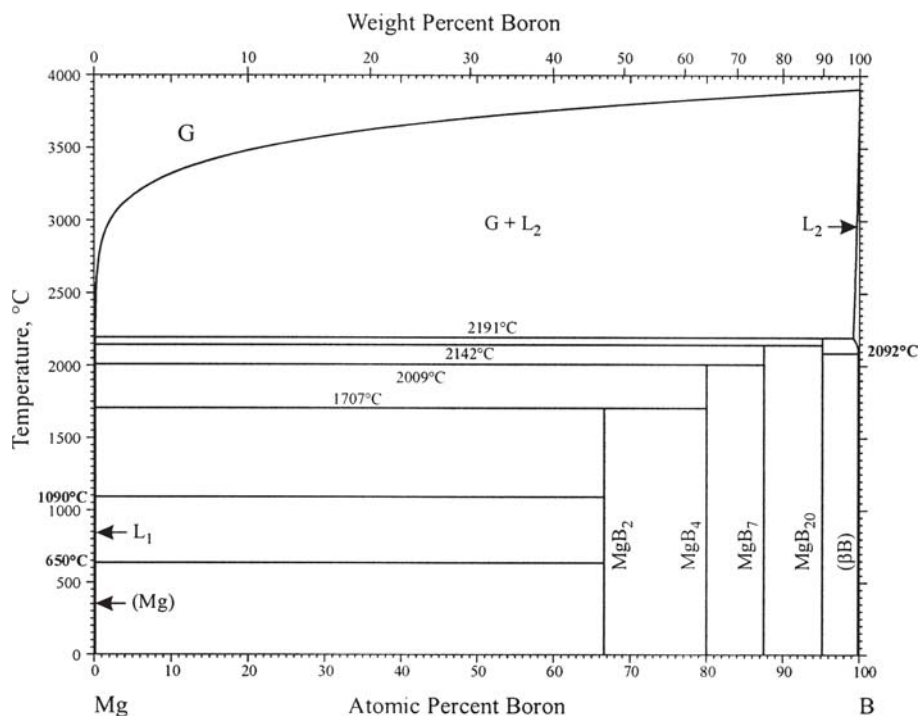


Fig. 1 B-Mg phase diagram