

B-Os (Boron-Osmium)

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The B-Os phase diagram in [Massalski2] was drawn schematically by [1976Spe] by assuming similarity to the B-Re and B-Ir systems. The existence of four intermediate phases (B_2Os , B_3Os_2 , and $\alpha/\beta BOs$) were predicted.

[2004Stu] investigated the B-Os phase diagram by metallographic analysis of samples annealed at various temperatures. The result is shown in Fig. 1. Apparently, this phase diagram obtained experimentally supersedes the [Massalski2] phase diagram.

Crystal structure data in Table 1 were adopted from [Pearson3] for B_2Os and from [2004Stu] for other intermediate phases.

Table 1 B-Os crystal structure data

Phase	Composition, at.% Os	Pearson symbol	Space group	Strukturbericht designation	Prototype
(βB)	0	<i>hR108</i>	$R\bar{3}m$
B_2Os	31-32.5	<i>oP6</i>	<i>Pmmm</i>	...	B_2Ru
βB_3Os_2	38-40	<i>hP*</i>
αB_3Os_2	40	<i>hP*</i>
$B_{11}Os_{10}$	45.5-50	<i>hP*</i>
(Os)	100	<i>hP2</i>	$P6_3/mmc$	A3	Mg

References

1976Spe: K.E. Spear, Correlations and Predictions of Metal-Boron Phase Equilibria, *Applications of Phase Diagram in Metallurgy*

and *Ceramics*, Vol 2, NBS Spec. Pub. 496, National Bureau of Standards, Gaithersburg, MD, 1978

2004Stu: L. Stuparevic and D. Zivkovic, Phase Diagram Investigation and Thermodynamic Study of Os-B System, *J. Therm. Anal. Cal.*, 2004, **76**(3), p 975-983

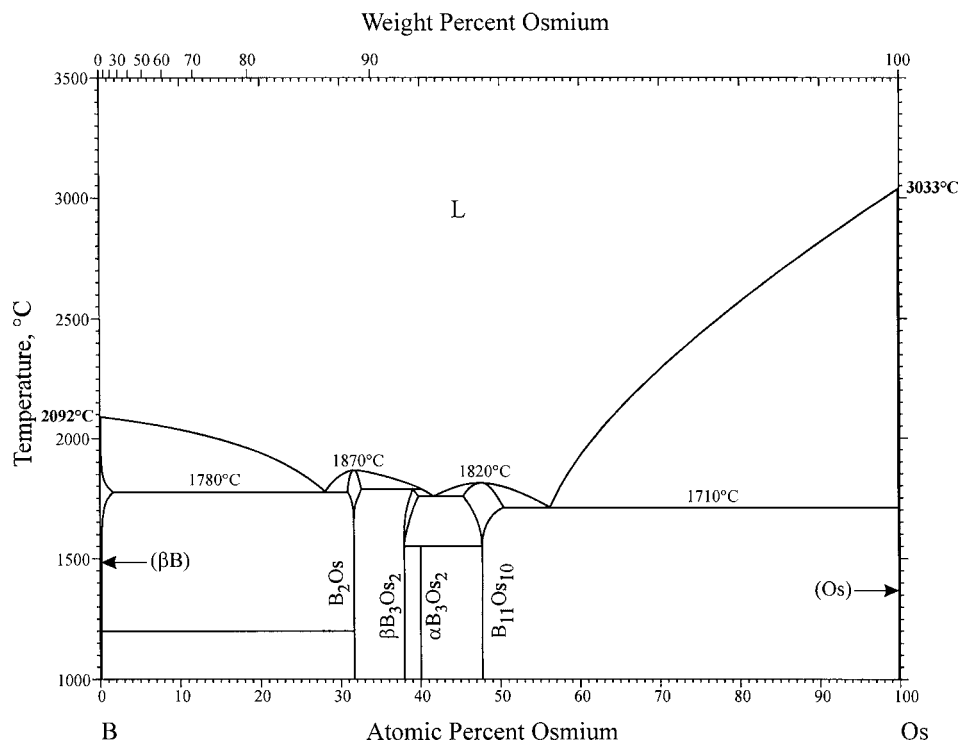


Fig. 1 B-Os phase diagram