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Be-V (Beryllium-Vanadium)

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The Be-V phase diagram in [Massalski2] was redrawn from [1989Oka]. The existence of $Be_{12}V$ and Be_2V was reported, but the overall form of the phase diagram was schematic.

[2004Ohn] investigated phase equilibria in the Be-rich part of the Be-V system primarily by microstructure and EPMA observation of composition profiles in diffusion layers. The result (0 to 40 at.% V) is shown in Fig. 1. A new phase $Be_{17}V_2$ was discovered. The composition range from 40 to 100 at.% V in Fig. 1 was redrawn from [1989Oka]. Because the melting points of $Be_{12}V$ and Be_2V in Fig. 1 were reproduced from [1989Oka], further refinement is necessary. In the true equilibrium diagram, the sharpness of the $Be_{12}V$ liquidus and the Be_2V liquidus should be similar.

Table 1 shows Be-V crystal structure data given in [1989Oka]. The crystal structure of $Be_{17}V_2$ is unknown.

Table 1 Be-V crystal structure data

Phase	Composition, at.% V	Pearson symbol	Space group	Strukturbericht designation	Prototype
(βBe)	0	*cI*2	$Im\bar{3}m$	*A*2	W
(αBe)	0	*hP*2	$P6_3/mmc$	*A*3	Mg
$Be_{12}V$	7.5-8.5	*tI*26	*I*4/*mmm*	$D2_b$	$Mn_{12}Th$
$Be_{17}V_2$	10.5	…	…	…	…
Be_2V	31.5-35.5	*hP*12	$P6_3/mmc$	*C*14	$MgZn_2$
(V)	85-100	*cI*2	$Im\bar{3}m$	*A*2	W

References

1989Oka: H. Okamoto and L.E. Tanner, The Be-V (Beryllium-Vanadium) System, *Phase Diagrams of Binary Beryllium Alloys,* H. Okamoto and L. Tanner, Ed., ASM International, 1989, p 211-212

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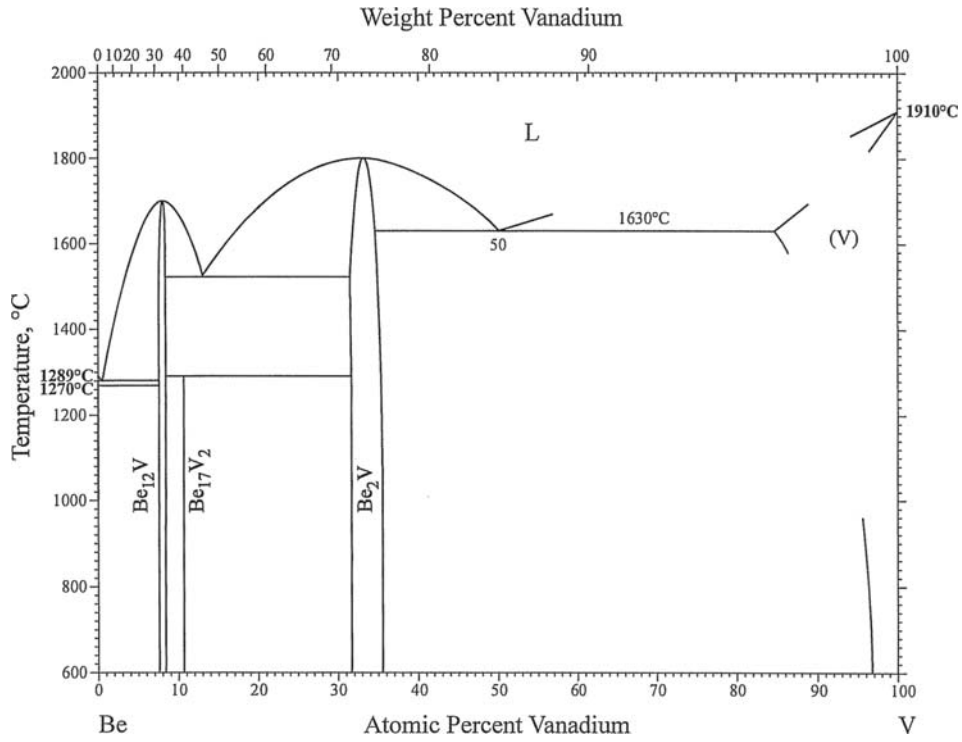

Fig. 1 Be-V phase diagram