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Tb–Zn (Terbium–Zinc)

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A schematic Tb–Zn phase diagram in [Massalski2] was drawn by [Moffatt] based on information summarized by [1970Bru].

Table 1 Tb–Zn crystal structure data

Phase	Composition, at.% Zn	Pearson symbol	Space group	Strukturbericht designation	Prototype
(βTb)	0	*cI*2	$Im\bar{3}m$	*A*2	W
(αTb)	0	*hP*2	$P6_3/mmc$	*A*3	Mg
TbZn	50	*cP*2	$Pm\bar{3}m$	*B*2	CsCl
$TbZn_2$	66.7	*oI*12	*Imma*	...	$CeCu_2$
$TbZn_3$	75	*oP*16	*Pnma*	...	YZn_3
Tb_3Zn_{11}	78.6	*oI*28	*Immm*	...	$Al_{11}La_3$
$Tb_{13}Zn_{58}$	81.7	*hP*142	$P6_3/mc$	...	$Gd_{13}Zn_{58}$
βTb_2Zn_{17}	89.5	*hR*19	$R\bar{3}m$	...	Th_2Zn_{17}
αTb_2Zn_{17}	89.5	*hP*38	$P6_3/mmc$	...	Th_2Ni_{17}
$TbZn_{12}$	92.3	*tI*26	*I*4/*mmm*	$D2_b$	$Mn_{12}Th$
(Zn)	100	*hP*2	$P6_3/mmc$	*A*3	Mg

[2005Sac] investigated the Tb–Zn system by means of differential thermal analysis, X-ray diffraction, optical and scanning electron microscopy, and electron probe microanalysis. The result is shown in Fig. 1. Tb_2Zn_{17} is reported to be dimorphic, but the allotropic transformation temperature has not been reported.

Tb–Zn crystal structure data shown in Table 1 were obtained from [2005Sac] and [Pearson3].

References

1970Bru: G. Bruzzone, M.L. Fornasini, F. Merlo, "Rare-Earth Intermediate Phases with Zinc," *J. Less-Common Met.*, 1970, **22**, p 53–264

2005Sac: A. Saccone, A.M. Cardinale, S. Delfino, R. Ferro, Binary Phase Diagrams of the Rare Earth Metals with Zinc: The Tb–Zn, Ho–Zn, and Er–Zn Systems, *Z. Metallkd.*, 2005, **96**(12), p 1369–1379

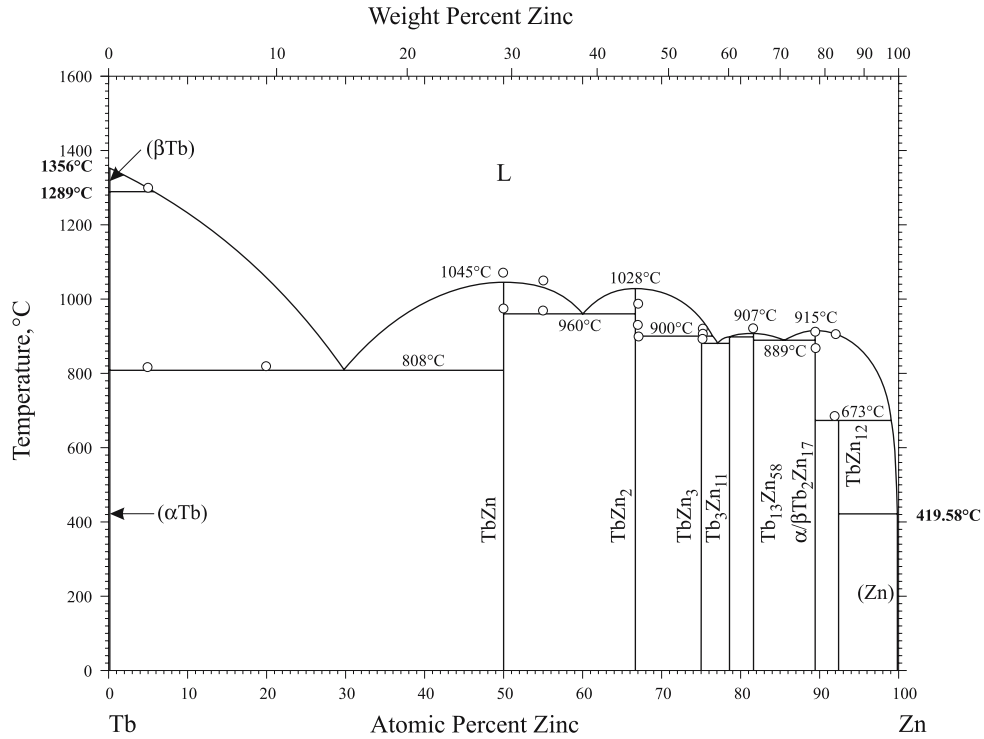

Fig. 1 Tb–Zn Phase Diagram