

# Er-Zn (Erbium-Zinc)

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

[2005Sac] investigated the Er-Zn system by means of differential thermal analysis, x-ray diffraction, optical and scanning electron microscopy, and electron probe micro-analysis. The result is shown in Fig. 1. Er<sub>2</sub>Zn<sub>17</sub> is reported to be dimorphic, but the polymorphic transformation temperature has not been reported.

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

## References

- 1970Bru:** G. Bruzzone, M.L. Fornasini, and F. Merlo, Rare-Earth Intermediate Phases with Zinc, *J. Less-Common Met.*, 1970, **22**, p 253-264
- 2005Sac:** A. Saccone, A.M. Cardinale, S. Delfino, and 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

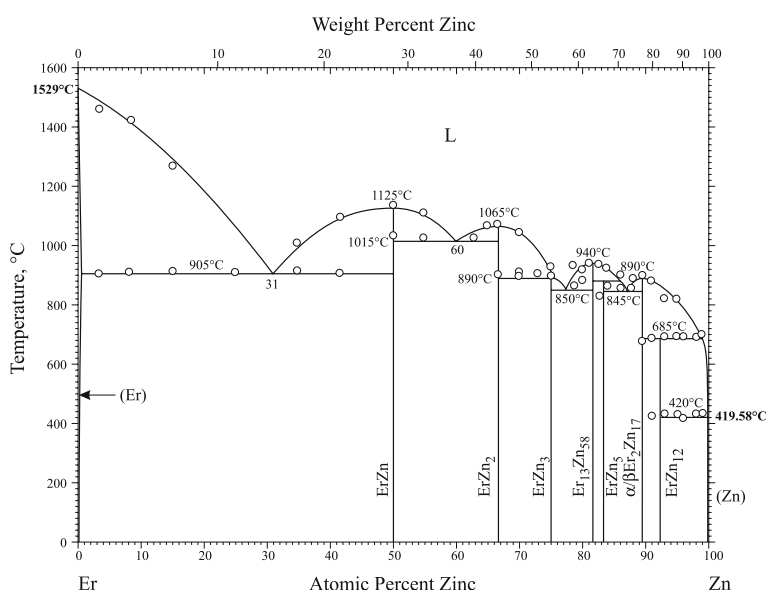


Fig. 1 Er-Zn phase diagram

Table 1 Er-Zn crystal structure data

Phase	Composition, at.% Zn	Pearson symbol	Space group	Struktur-bericht designation	Prototype
(Er)	0	<i>hP2</i>	<i>P6<sub>3</sub>/mmc</i>	<i>A3</i>	Mg
ErZn	50	<i>cP2</i>	<i>Pm3̄m</i>	<i>B2</i>	CsCl
ErZn <sub>2</sub>	66.7	<i>oI12</i>	<i>Imma</i>	...	CeCu <sub>2</sub>
ErZn <sub>3</sub>	75	<i>oP16</i>	<i>Pnma</i>	...	YZn <sub>3</sub>
Er <sub>13</sub> Zn <sub>58</sub>	81.7	<i>hP142</i>	<i>P6<sub>3</sub>/mc</i>	...	Gd <sub>13</sub> Zn <sub>58</sub>
ErZn <sub>5</sub>	83.3	<i>hP36</i>	<i>P6<sub>3</sub>/mmc</i>	...	ErZn <sub>5</sub>
βEr <sub>2</sub> Zn <sub>17</sub>	89.5	<i>hR19</i>	<i>R3̄m</i>	...	Th <sub>2</sub> Zn <sub>17</sub>
αEr <sub>2</sub> Zn <sub>17</sub>	89.5	<i>hP38</i>	<i>P6<sub>3</sub>/mmc</i>	...	Th <sub>2</sub> Ni <sub>17</sub>
ErZn <sub>12</sub>	92.3	<i>tI26</i>	<i>I4/mmm</i>	<i>D2<sub>b</sub></i>	Mn <sub>12</sub> Th
(Zn)	100	<i>hP2</i>	<i>P6<sub>3</sub>/mmc</i>	<i>A3</i>	Mg