

Eu-F (Europium-Fluorine)

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The Eu-F phase diagram was unknown in [Massalski2]. Figure 1 shows a partial Eu-F phase diagram determined by [1970Bed] by means of differential thermal analysis, X-ray diffraction, and microscopy. No identifications were given to the intermediate phases.

Crystal structure data for EuF_2 and EuF_3 given in Table 1 were adopted from [2007Vil]. In order to identify other phases, the formulae in Table 1 have been assigned according to the location in the phase diagram. [2007Vil] lists crystal structures for $\text{EuF}_{2.25}$ and $\text{EuF}_{2.40}$, but no exact

matching phases are found in Table 1. Further clarification may be needed.

References

1970Bed: H.G. Bedford and E. Catalano, A Study of the Binary Systems SmF_2 - SmF_3 , EuF_2 - EuF_3 , and YbF_2 - YbF_3 and Their Equilibria with Corresponding Ln-Pt Systems, *Proceedings of the Rare Earth Research Conference*, 8th, Reno, Nevada, 1970, p 388-399

2007Vil: P. Villars and K. Cenzual, *Pearson's Crystal Data CD-ROM*, ASM International, OH, 2007

Table 1 Eu-F crystal structure data

Phase	Composition, at.% F	Pearson symbol	Space group	Strukturbericht designation	Prototype
EuF_2	66.6	$cF12$	$Fm\bar{3}m$	C1	CaF_2
$\text{EuF}_{2.06}$	67.3	...	...	...	...
ϵ	67.7 to 71	...	...	...	...
$\text{EuF}_{2.2}$	68.8	...	...	...	...
$\text{EuF}_{2.27}$	69.5	...	...	...	...
Eu_3F_7	70	...	...	...	...
$\text{EuF}_{2.42}$	70.8	...	...	...	...
$\beta\text{EuF}_{2.47}$	71.2 to 71.3	...	...	...	...
$\alpha\text{EuF}_{2.47}$	71.2	...	...	...	...
$\text{EuF}_{2.77}$	73.5	...	...	...	...
βEuF_3	75	$hP24$	$P\bar{3}c1$	...	...
αEuF_3	75	$oP16$	$Pnma$	$D0_{11}$	Fe_3C

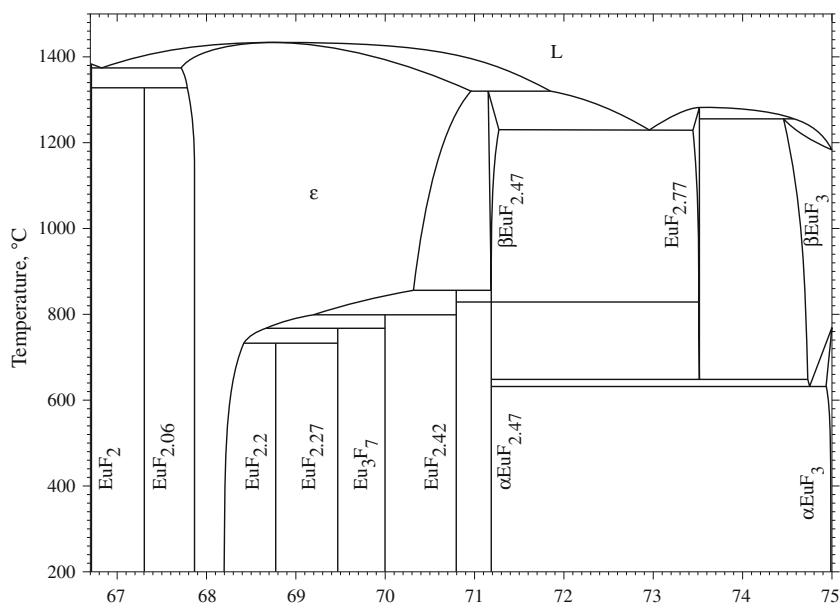


Fig. 1 Eu-F phase diagram