

# Am-O (Americium-Oxygen)

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As [Massalski2] showed no Am-O phase diagram, [1991Oka] reproduced the diagram reported earlier by [1970Sar]. Based on the phase boundary data of [1970Sar] and thermodynamic data in the literature, [2003Thi] proposed an Am-O phase diagram for the composition range from 60-66.7 at.% O, as shown in Fig. 1.

Am-O crystal structure data are shown in Table 1.

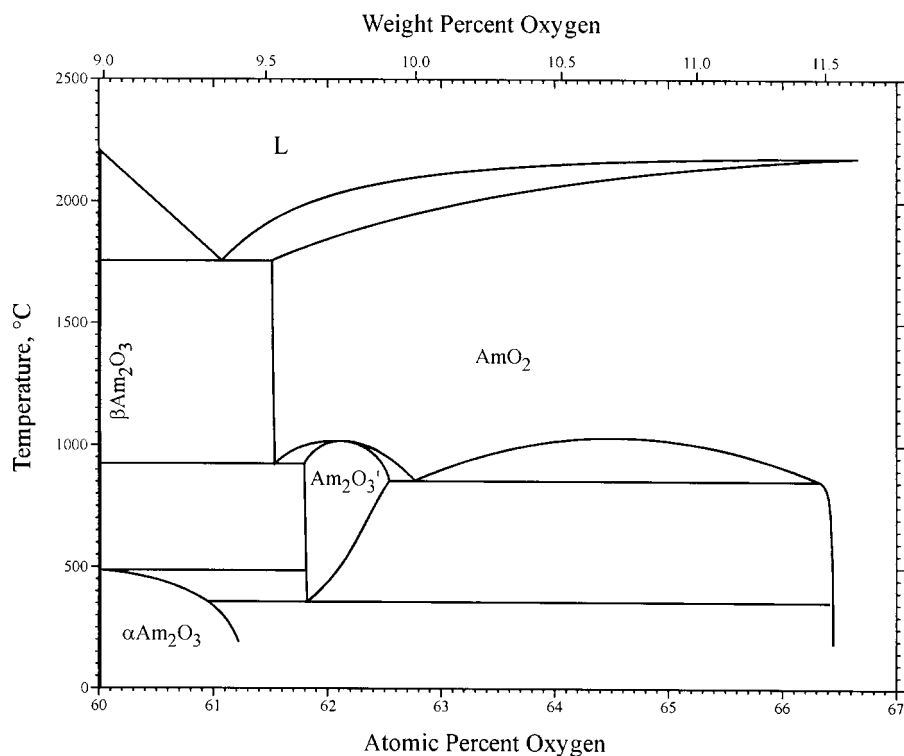
## References

- 1970Sar:** C. Sari and E. Zamorani, An Investigation on the Americium Oxide System, *J. Nucl. Mater.*, 1970, **37**, p 324-330  
**1991Oka:** H. Okamoto, Am-O (Americium-Oxygen), *J. Phase Equilibria*, 1991, **12**(6), p 696-697  
**2003Thi:** C. Thiriet and R.J.M. Konings, Chemical Thermodynamic Representation of AmO<sub>2- $\nu$</sub> , *J. Nucl. Mater.*, 2003, **320**, p 292-298

**Table 1 Am-O crystal structure data**

Phase	Composition, at.% O	Pearson symbol	Space group	Strukturbericht designation	Prototype
( $\gamma$ Am)(a)	0	<i>cI2</i>	<i>Im<math>\bar{3}m</math></i>	A2	W
( $\beta$ Am)(a)	0	<i>cF4</i>	<i>Fm<math>\bar{3}m</math></i>	A1	Cu
( $\alpha$ Am)(a)	0	<i>hP4</i>	<i>P6</i> <sub>3</sub> / <i>mmc</i>	A3	$\alpha$ La
AmO(a)	50	<i>cF8</i>	<i>Fm<math>\bar{3}m</math></i>	B1	NaCl
$\beta$ Am <sub>2</sub> O <sub>3</sub>	60	<i>hP5</i>	<i>P<math>\bar{3}m1</math></i>	D5 <sub>2</sub>	La <sub>2</sub> O <sub>3</sub>
$\alpha$ Am <sub>2</sub> O <sub>3</sub>	60-61.3	<i>cI(a)</i>	...	...	...
$\alpha$ Am <sub>2</sub> O <sub>3</sub> '	61.8-62.6	<i>cI80</i>	<i>Ia<math>\bar{3}</math></i>	D5 <sub>3</sub>	Mn <sub>2</sub> O <sub>3</sub>
AmO <sub>2</sub>	61.5-66.7	<i>cF12</i>	<i>Fm<math>\bar{3}m</math></i>	C1	CaF <sub>2</sub>

(a) Not shown in Fig. 1



**Fig. 1** Am-O phase diagram