

Al-Mo (Aluminum-Molybdenum)

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The Al-Mo phase diagram in [Massalski2] (1990) was based on the evaluation issued later by [1997Sau]. In the meantime, [1991Sch] reported a more detailed partial phase diagram for the range 0-28 at.% Mo. [2000Oka] updated the Al-Mo phase diagram by combining [1991Sch] and [1997Sau].

[2006Eum] re-evaluated the Al-Mo phase diagram with particular attention to phase equilibria among intermediate phases and homogeneity range of each phase by using various means such as DTA, EPMA, X-ray diffraction, and microanalysis. The result is shown in Fig. 1. [2010Cup] attempted to assess this system thermodynamically and

Table 1 Al-Mo crystal structure data

Phase	Composition, at.% Mo	Pearson symbol	Space group	Strukturbericht designation	Prototype
(Al)	0	<i>cF4</i>	<i>Fm$\bar{3}m$</i>	<i>A1</i>	Cu
Al ₁₂ Mo	7.5-8.1	<i>cI26</i>	<i>Im$\bar{3}$</i>	...	Al ₁₂ W
β Al ₅ Mo	16.7-17.1	<i>hP12</i>	<i>P6₃</i>	...	Al ₅ W
α Al ₅ Mo	16.7-17.1	<i>hR36</i>	<i>R$\bar{3}c$</i>	...	...
Al ₂₂ Mo ₅	18.2-18.5	<i>oF216</i>	<i>Fdd2</i>	...	...
Al ₁₇ Mo ₄	19-19.3	<i>mC84</i>	<i>C2</i>	...	...
Al ₄ Mo	20-20.4	<i>mC30</i>	<i>Cm</i>	...	Al ₄ W
Al ₃ Mo	24.8-25.3	<i>mC32</i>	<i>Cm</i>	...	...
Al ₈ Mo ₃	26.8-27.8	<i>mC22</i>	<i>C2/m</i>	...	...
Al ₆₃ Mo ₃₇	37	...	...	...	...
AlMo	48.1-54.1	<i>cI2</i>	<i>Im$\bar{3}m$</i>	<i>A2</i>	W
AlMo ₃	74.2-76.6	<i>cP8</i>	<i>Pm$\bar{3}n$</i>	<i>A15</i>	Cr ₃ Si
(Mo)	80-100	<i>cI2</i>	<i>Im$\bar{3}m$</i>	<i>A2</i>	W

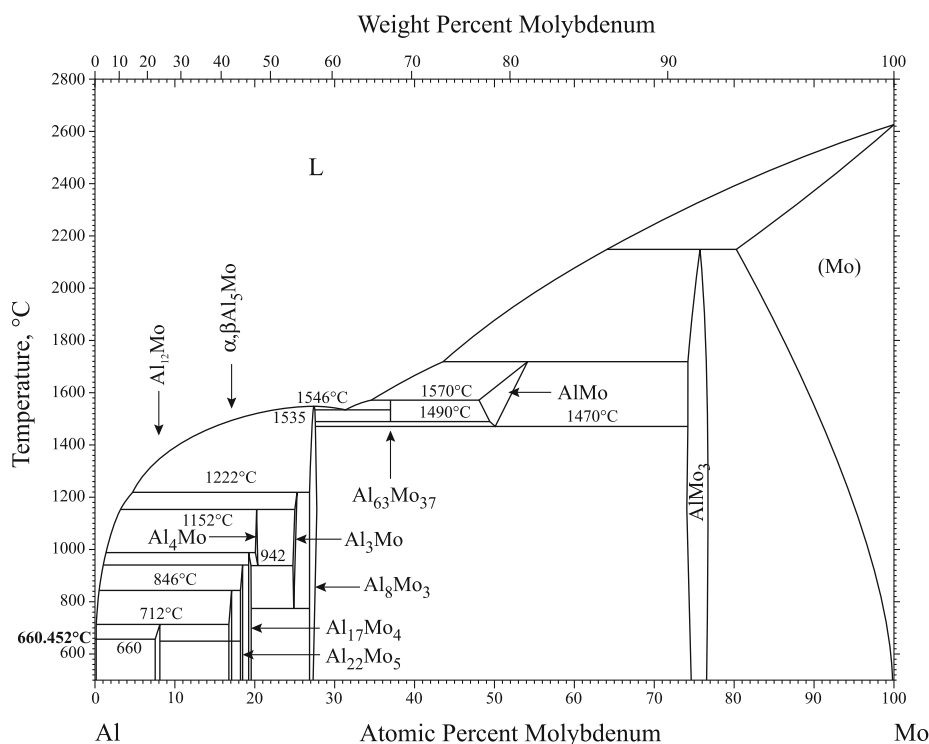


Fig. 1 Al-Mo phase diagram [2006Eum]

calculated the Al-Mo phase diagram. According to their result, the Al-Mo phase melts congruently unlike the peritectic type shown in Fig. 1.

Table 1 shows Al-Mo crystal structure data summarized in [2000Oka] with additional information from [2006Eum].

References

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