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Al-Pd (Aluminum-Palladium)

H. Okamoto

The Al-Pd phase diagram in [Massalski2] (from [1986Mca]) was revised by [2003Oka] in the 0-40 at.% Pd range based on new experimental data provided by [2001Yur].

[2006Li] assessed the Al-Pd system thermodynamically by primarily using the phase boundary data given by [1986Mca] and [2001Yur]. The calculated phase diagram is shown in Fig. 1. [1986Mca] showed two low-temperature forms of AlPd, i.e., μ below 740 °C and β′ below 850 °C, but these phases were not taken into account by [2006Li] because the boundaries of these phases have not been well established.

Table 1 shows Al-Pd crystal structure data.

References

1986Mca: A.J. McAlister, The Al-Pd (Aluminum-Palladium) System, *Bull. Alloy Phase Diagrams*, 1986, **7**(4), p 368-374

2001Yur: M. Yurechko, A. Fattah, T. Velikanova, and B. Grushko, A Contribution to the Al-Pd Phase Diagram, *J. Alloys Compds*, 2001, **329**, p 173-181

2003Oka: H. Okamoto, Al-Pd (Aluminum-Palladium), *J. Phase Equilib.*, 2003, **24**(2), p 196

2006Li: M. Li, C. Li, F. Wang, and W. Zhang, Thermodynamic Assessment of the Al-Pd System, *Intermetallics*, 2006, **14**(1), p 39-46

Table 1 Al-Pd Crystal Structure Data

Phase	Composition, at.% Pd	Pearson symbol	Space group	Struktur bericht designation	Prototype
(Al)	0	*cF*4	$Fm\bar{3}m$	*A*1	Cu
Al_4Pd	20	*hP**	$P6_322$	...	...
Al_3Pd	25	*o***	...	...	...
$Al_{21}Pd_8$	27.6	*tI*116	$I4_1/a$	...	$Al_{21}Pt_8$
Al_3Pd_2	39 to 41	*hP*5	$P\bar{3}m1$	$D5_{13}$	Al_3Ni_2
AlPd	44 to 56	*cP*2	$Pm\bar{3}m$	*B*2	CsCl
β′ (a)	48.5 to 52.8	*hR*78	$R\bar{3}$	...	...
μ (a)	48 to 49	*cF*8	$P2_13$	*B*20	FeSi
Al_3Pd_5	62.5	*oP*16	*Pbam*	...	Ge_3Rh_5
$AlPd_2$	65 to 72.5	*oP*12	*Pnma*	*C*23	Co_2Si
Al_2Pd_5	70.5 to 71.5	*oP*28	*Pbmn*	...	Ga_2Pd_5
(Pd)	81.1 to 100	*cF*4	$Fm\bar{3}m$	*A*1	Cu

(a) Not shown in Fig. 1.

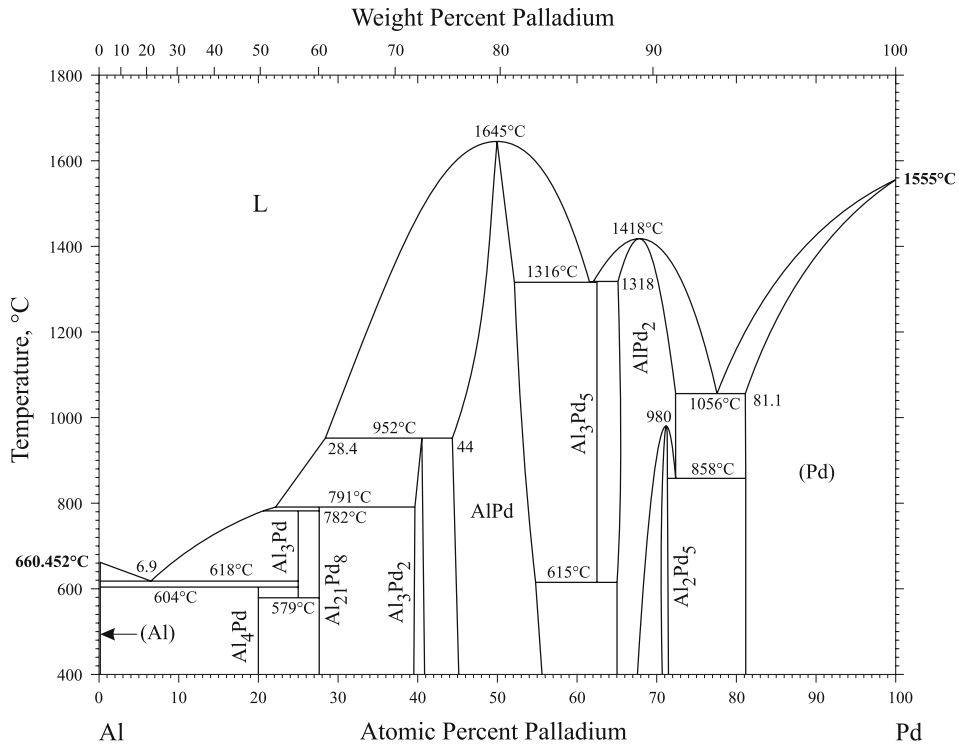

Fig. 1 Al-Pd phase diagram