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Au-Nd (Gold-Neodymium)

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The Au-Nd phase diagram in [Massalski2] was calculated by [1987Gsc] by assuming systematic changes in thermodynamic properties with the atomic number in the Au-lanthanide systems.

[1999Sac] determined the Au-Nd phase diagram experimentally by differential thermal analysis, X-ray diffraction, optical microscopy, scanning electron microscopy, and electron probe microanalysis. The result is shown in Fig. 1. Au_2Nd in [1987Gsc] was identified as $Au_{36}Nd_{17}$ and a new phase Au_4Nd_3 was found.

The Au-Nd crystal structure data shown in Table 1 were adopted from [1987Gsc], [1999Sacfs], and [Pearson3].

References

1987Gsc: K.A. Gschneidner Jr., F.W. Calderwood, H. Okamoto, and T.B. Massalski, The Au-Pr (Gold-Praseodymium) System, in *Phase Diagrams of Binary Gold Alloys*, H. Okamoto and T.B. Massalski, Eds., ASM International, Metals Park, OH, 1987, p 191-193

1999Sac: A. Saccone, D. Maccio, S. Delfino, and R. Ferro, The Neodymium-Gold Phase Diagram, *Metall. Mater. Trans.*, 1999, **A30**, p 1169-1176

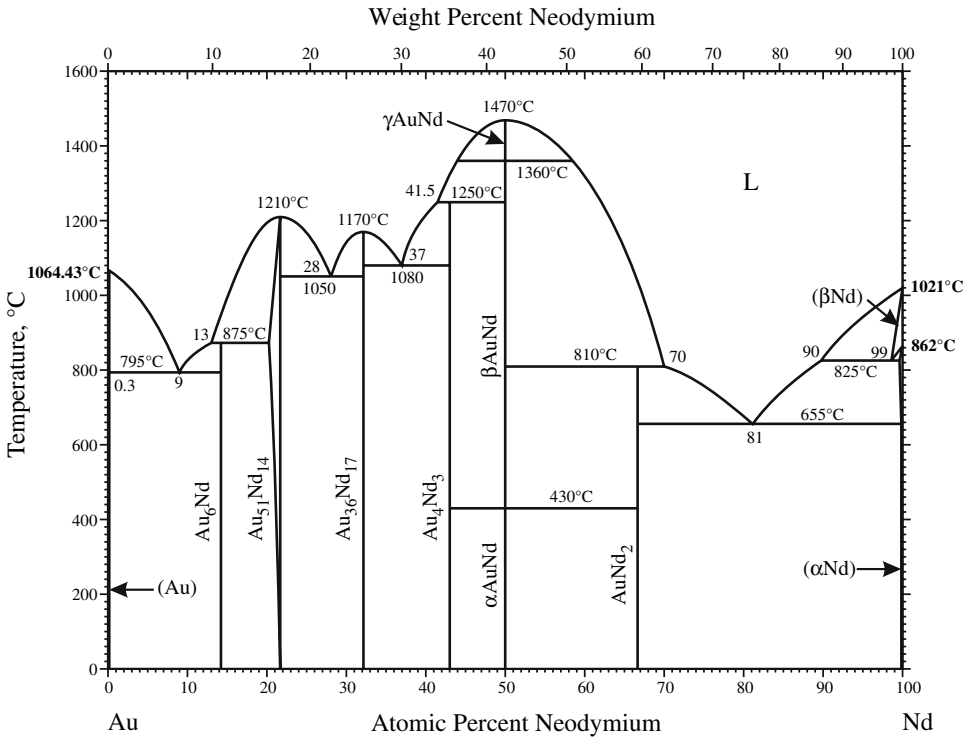

Fig. 1 Au-Nd phase diagram

Table 1 Au-Nd crystal structure data

Phase	Composition, at.% Nd	Pearson symbol	Space group	Struktur-bericht designation	Prototype
(Au)	0-0.3	*cF*4	$Fm\bar{3}m$	*A*1	Cu
Au_6Nd	14.3	*mC*28	C2/c	...	Au_6Pr
$Au_{51}Nd_{14}$	20.3-21.5	*hP*65	*P*6/*m*	...	$Ag_{51}Gd_{14}$
$Au_{36}Nd_{17}$	32.1	*tP*106	...	...	$Au_{36}Nd_{17}$
Au_4Nd_3	42.9	*hR*14	$R\bar{3}$	...	Pu_3Pd_4
γAuNd	50	*cP*2	$Pm\bar{3}m$	*B*2	CsCl
βAuNd	50	*oC*8	*Cmcm*	B_f	CrB
αAuNd	50	*oP*8	*Pnma*	*B*27	FeB
$AuNd_2$	66.7	*oP*12	*Pnma*	*C*23	Co_2Si
(βNd)	99-100	*cI*2	$Im\bar{3}m$	*A*2	W
(αNd)	100	*hP*4	$P6_3/mmc$	*A*3′	αLa