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Ni-S (Nickel-Sulfur)

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The Ni-S phase diagram in [Massalski2] was redrawn from [1991Sin].

Figure 1 shows the Ni-S phase diagram determined by thermodynamic calculations by [2004Wal]. In the diagram of [1991Sin], β1 and β2 phases existed in the β phase field in Fig. 1. The presence or absence of these phases must be confirmed.

Ni-S crystal structure data are shown in Table 1.

References

1991Sin: M. Singleton, P. Nash, and K.J. Lee, Ni-S (Nickel-Sulfur), *Phase Diagrams of Binary Nickel Alloys*, P. Nash, Ed., ASM International, Materials Park, OH, 1991, p. 277-283

2004Wal: P. Waldner and A.D. Pelton, Thermodynamic Modeling of the Ni-S System, *Z. Metallkd.*, 2004, **95**(8), p 672-681

Table 1 Ni-S crystal structure data

Phase	Composition, at.% S	Pearson symbol	Space group	Strukturbericht designation	Prototype
(Ni)	0	*cF*4	$Fm\bar{3}m$	*A*1	Cu
β	36.7-44	*hP**	...	...	...
Ni_3S_2	40	*hR*5	*R*32	...	...
Ni_7S_6	46.2	*oC*56	*Cmcm*	...	...
Ni_9S_8	47.1	...	...	...	...
NiS	50	*hR*6	$R\bar{3}m$	*B*13	NiS
δ	50-52	*hP*4	$P6_3/mmc$	$B8_1$	NiAs
Ni_3S_4	57.1	*cF*56	$Fd\bar{3}m$	$D7_2$	Co_3S_4
NiS_2	66.7	*cP*12	$Pa\bar{3}$	*C*2	FeS_2 (pyrite)
(βS)	100	*mP*48	$P2_1/a$	...	...
(αS)	100	*oF*128	*Fddd*	*A*16	αS

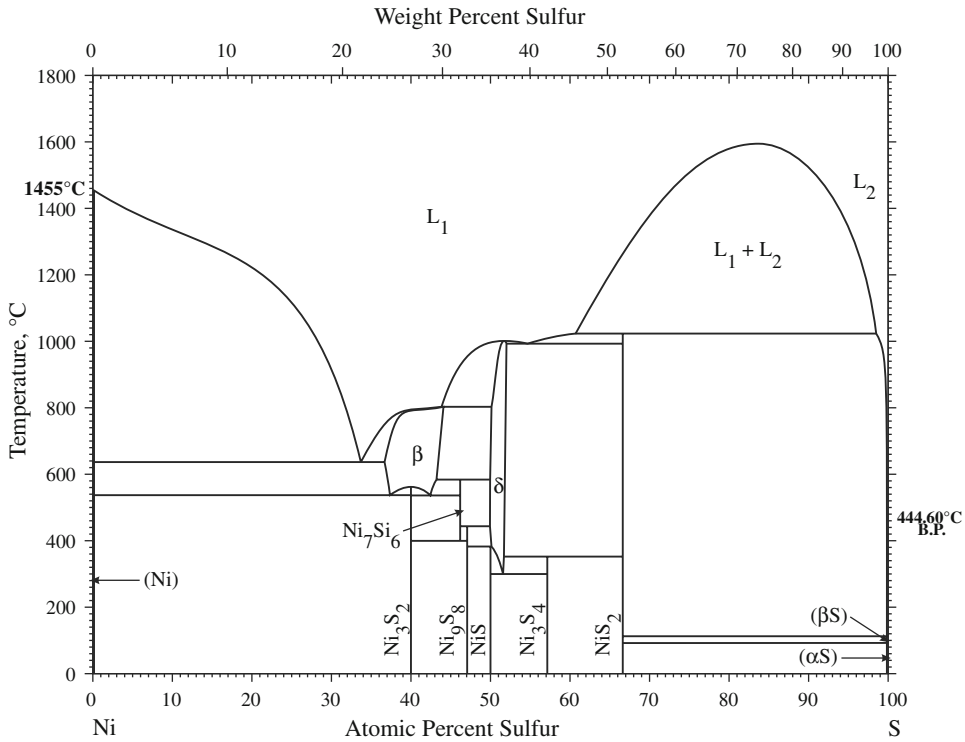

Fig. 1 Ni-S phase diagram