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La-Si (Lanthanum-Silicon)

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The La-Si phase diagram was unknown in [Massalski2].

Figure 1 shows the La-Si phase diagram determined by [2001Bul] by using differential thermal analysis, metallography, and x-ray diffraction.

Table 1 shows La-Si crystal structure data given in [Massalski2] with the composition ranges modified to agree with [2001Bul].

Table 1 La-Si crystal structure data

Phase	Composition, at.% Si	Pearson symbol	Space group	Struktur bericht designation	Prototype
(γLa)	0 to 2	*cI*2	$Im\bar{3}m$	*A*2	W
(βLa)	0 to 1.5	*cF*4	$Fm\bar{3}m$	*A*1	Cu
(αLa)	0	*hP*4	$P6_3/mmc$	*A*3′	αLa
La_5Si_3	37.5	*tI*32	*I*4/*mcm*	$D8_l$	Cr_5B_3
La_3Si_2	40	*tP*10	*P*4/*mbm*	$D5_a$	Si_2U_3
La_5Si_4	44.4	*tP*36	$P4_12_12$	...	Zr_5Si_4
LaSi	50	*oP*8	*Pnma*	*B*27	FeB
$\alpha LaSi_2$	62.5 to 64	*oI*12	*Imma*	...	$\alpha GdSi_2$
$\beta LaSi_2$	64.5 to 67	*tI*12	$I4_1/amd$	C_c	$ThSi_2$
(Si)	100	*cF*8	$Fd\bar{3}m$	*A*4	C (diamond)

References

2001Bul: M.V. Bulanova, P.N. Zheltov, K.A. Meleshevich, P.A. Saltykov, G. Effenberg, and J.C. Tedenac, Lanthanum-Silicon System, *J. Alloys Compd.*, 2001, **329**, p 214-223

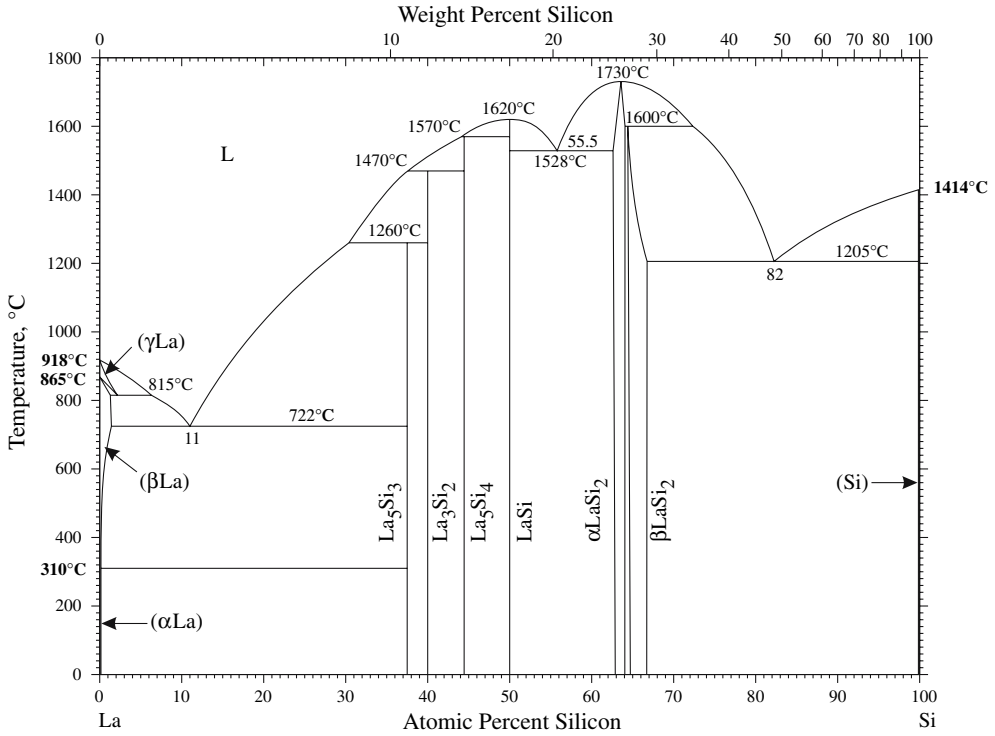

Fig. 1 La-Si phase diagram