

As – Cr (Arsenic – Chromium)

Phase diagram

Due to the high volatility of As the phase equilibria concerning the liquid phase are not investigated. Venkatraman et al. [90 Ven], [92 Ven] have constructed an assessed partial phase diagram involving only solid phase equilibria. This diagram is reproduced in Fig. 1 (taken from [Massalski]).

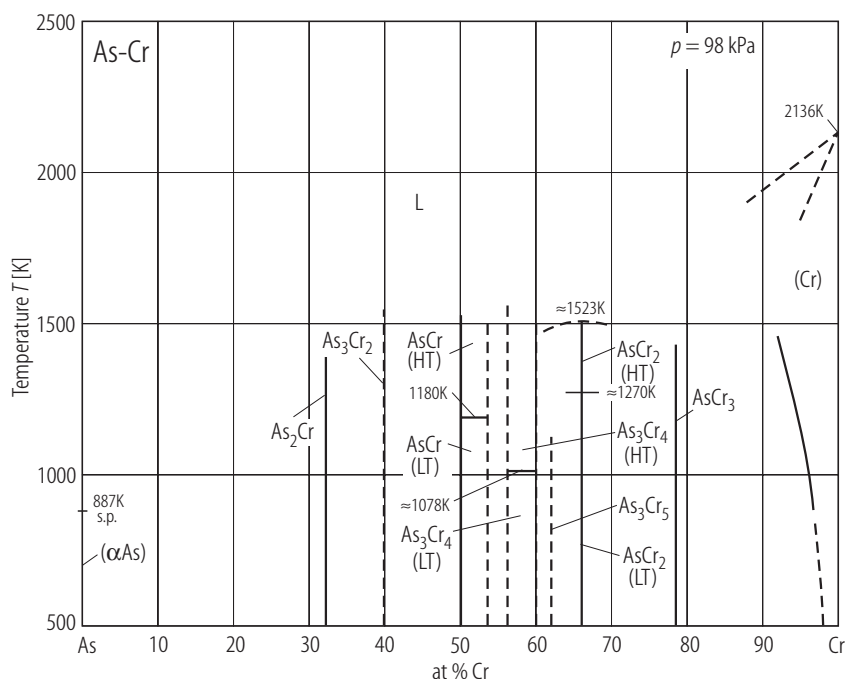
In a short discussion [90 Ven], [92 Ven] pointed out, that the phase equilibria between 35 at% As to 45 at% As need some confirmation. The phase As_2Cr_3 mentioned by Dieckmann et al. [14 Die] seems to be questionable, too.

Crystal structure

Crystallographic data of intermediate phases are given in Table 1.

Table 1. As–Cr. Structure and lattice parameters of intermediate compounds (taken from [Pearson] and [Massalski]).

Phase	Composition [at% As]	Structure	Prototype	Lattice parameters [nm]			Reference
				<i>a</i>	<i>b</i>	<i>c</i>	
AsCr_3	21 ... 22	cub	Cr_3Si	0.4616			[67 Bol]
AsCr_2 (HT)	~ 33	hex	FeP	0.43407		0.34543	[72 Jei]
AsCr_2 (LT)	~ 33	tet	Cu_2Sb	0.3595		0.6344	[65 Hol]
As_3Cr_5	~ 37.5	ort	$\beta\text{-Sb}_3\text{Yb}_5$	0.92655	0.74493	0.63959	[76 Ber]
As_3Cr_4 (HT)	~ 40 ... 43						
As_3Cr_4 (LT)	~ 40 ... 43	mon	As_3Cr_4	1.3168	0.3542	0.9302	[70 Bau]
					$\beta = 102.19^\circ$		
As_2Cr (HT)	~ 46 ... 50	hex	AsNi	0.363		0.581	[73 Sel]
As_2Cr (LT)	~ 46 ... 50	ort	MnP	0.5649	0.3463	0.6212	[71 Sel]
As_3Cr_2	60						
As_2Cr 6.5 GPa	66.7	mon	Ge_2Os	0.8893	0.3273	0.7389	[73 Jei]
					$\beta = 119.88^\circ$		

Figure**Fig. 1. As–Cr.** Assessed partial phase diagram As–Cr [90 Ven], [92 Ven].**References**

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