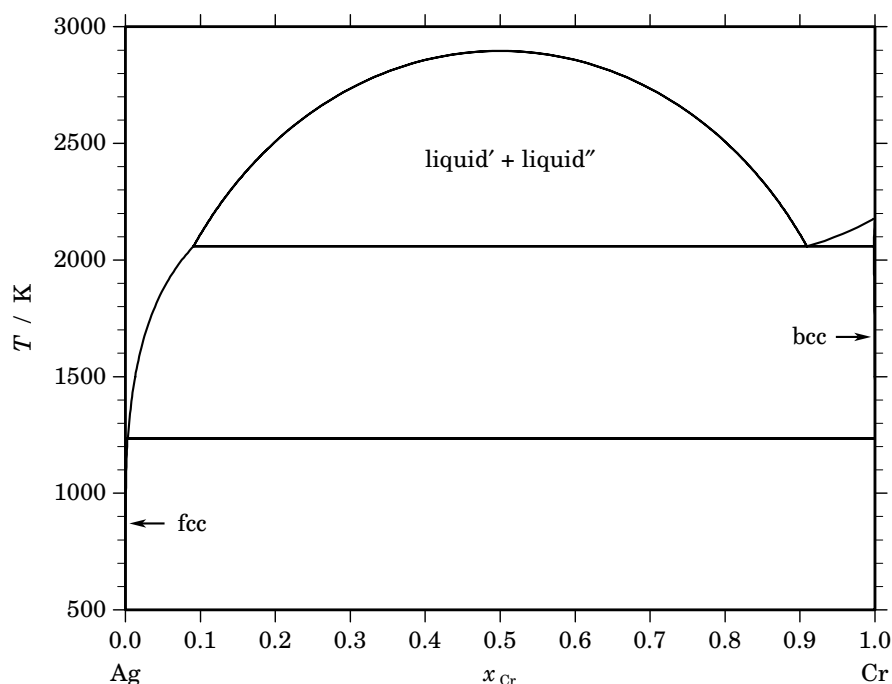


**Ag – Cr (Silver – Chromium)****Fig. 1.** Calculated phase diagram for the system Ag-Cr.

The Ag-Cr system shows a wide range of immiscibility in the liquid phase. A monotectic reaction according to Allen [1967All] occurs at about 1723 K, where the Ag-rich liquid contains about 3 at.% Cr [1990Ven]. The assessed equilibrium Ag-Cr phase diagram is based on the studies of Hindrichs [1908Hin], Grigorev *et al.* [1954Gri], and Allen [1967All]. The boundaries of the liquid miscibility gap above the monotectic temperature have not been established. The absence of intermediate phases was confirmed by the thin-film studies of Simic and Marinkovic [1978Sim]. The solubility of Cr in liquid Ag was measured by Allen [1967All]. Neumann *et al.* [1981Neu] determined the solubility of Cr in solid Ag in the temperature range 973 K to 1233 K. Formation of a metastable solid solution of Cr in Ag beyond the equilibrium concentration was observed by Ning [1983Nin], who quenched liquid Ag-rich alloys at cooling rates of 105 to 106 K/s. The observed metastable solid solubility limit corresponds to the solubility of Cr in liquid Ag at the monotectic temperature. The thermodynamic assessment of the Ag-Cr system was carried out by Korb [2004Kor]. The melting point of pure Cr at 2136 K reported in [1990Ven] does not correspond with the value of 2180 K given by SGTE [1991Din]. The calculated monotectic temperature using the SGTE data is about 2058 K. The experimental data are well represented by the calculated phase equilibria.

**Table I.** Phases, structures and models.

Phase	Strukturbericht	Prototype	Pearson symbol	Space group	SGTE name	Model
liquid					LIQUID	(Ag,Cr) <sub>1</sub>
fcc	A1	Cu	<i>cF4</i>	<i>Fm<math>\bar{3}m</math></i>	FCC_A1	(Ag,Cr) <sub>1</sub>
bcc	A2	W	<i>cI2</i>	<i>Im<math>\bar{3}m</math></i>	BCC_A2	(Ag,Cr) <sub>1</sub>

**Table II.** Invariant reactions.

Reaction	Type	$T / \text{K}$	Compositions / $x_{\text{Cr}}$			$\Delta_{\text{r}}H / (\text{J/mol})$
liquid $\rightleftharpoons$ liquid' + liquid''	critical	2896.9	0.500	0.500	0.500	0
liquid'' $\rightleftharpoons$ liquid' + bcc	monotectic	2058.4	0.091	0.909	0.998	–23354
liquid' $\rightleftharpoons$ fcc + bcc	eutectic	1234.0	0.003	0.003	1.000	–11353

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