Ag – W (Silver – Tungsten)

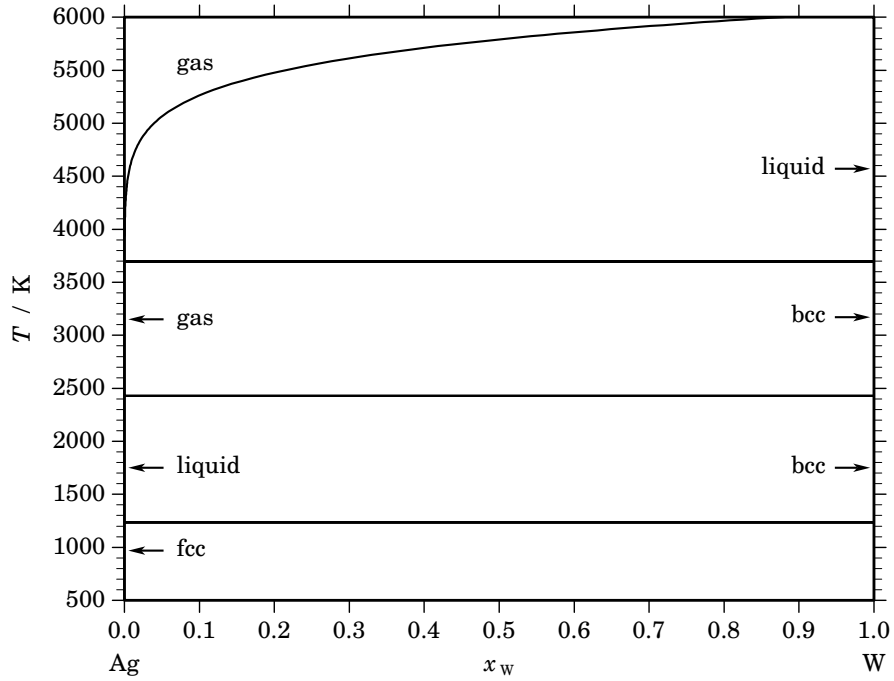

Fig. 1. Calculated phase diagram for the system Ag-W.

A review on the very limited information of the Ag-W system has been given in [1991Nag] and a thermodynamic dataset has been assessed by Korb [2004Kor]. Only three condensed phases are stable: the liquid, Ag-based fcc and the W-based bcc phases. According to experimental investigations [1860Ber, 1929Sch] the Ag-W system exhibits nearly complete immiscibility in both the liquid and the solid states.

Table I. Phases, structures and models.

Phase	Struktur-bericht	Prototype	Pearson symbol	Space group	SGTE name	Model
liquid					LIQUID	$(Ag,W)_1$
fcc	$A1$	Cu	$cF4$	$Fm\overline{3}m$	FCC_A1	$(Ag,W)_1$
bcc	$A2$	W	$cI2$	$Im\overline{3}m$	BCC_A2	$(Ag,W)_1$

Table II. Invariant reactions.

Reaction	Type	T / K	Compositions / x_W			$\Delta_r H$ / (J/mol)
liquid $\rightleftharpoons$ gas + bcc	degenerate	3694.8	1.000	0.000	1.000	−52306
gas + bcc $\rightleftharpoons$ liquid	degenerate	2430.0	0.000	1.000	0.000	−245459
liquid + bcc $\rightleftharpoons$ fcc	degenerate	1235.1	0.000	1.000	0.000	−11297

References

[1860Ber] F.A. Bernoulli: Pogg. Ann. **111** (1860) 587–588.
[1929Sch] M.V. Schwarz: "Metall- u. Legierungskunde" Ferd. Enke Verlag, Stuttgart (1929) 73.
[1991Nag] S.V. Nagender Naidu, P. Rama Rao in: Phase Diagrams of Binary Tungsten Alloys, S.V. Nagender Naidu, P. Rama Rao (eds.), The Indian Institute of Metals, Calcutta, 1991, 5–6.
[2004Kor] J. Korb, unpublished assessment, GTT-Technologies, 2004.