

As – K (Arsenic – Potassium)

Phase diagram

Sangster et al. [93 San] have published an assessed phase diagram. It is reproduced in Fig. 1.

Crystal structure

Crystallographic data of intermediate phases are shown in Table 1.

Table 1. As–K. Crystal structure data of intermediate phases [93 San].

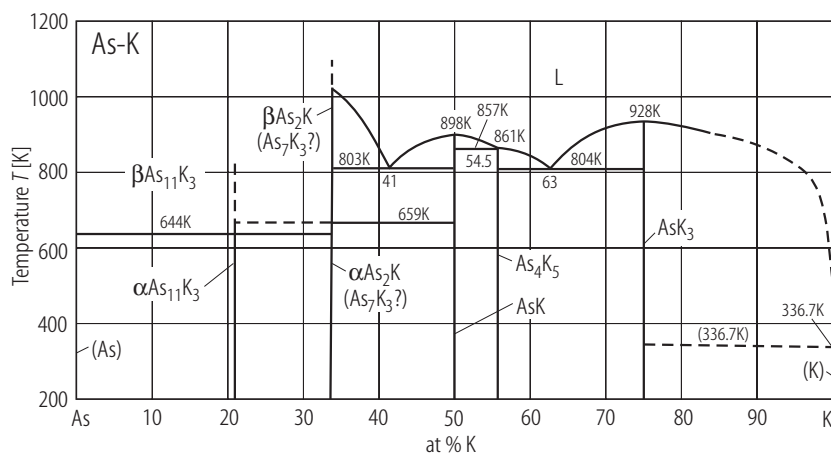
Phase	Composition [at% As]	Structure	Prototype	Lattice parameters [nm]			Reference
				<i>a</i>	<i>b</i>	<i>c</i>	
AsK ₃	25	hex	Na ₃ As	0.5794		1.0243	[37 Bra]
AsK ₃	25	hex	Cu ₃ P	1.0015		1.0222	[65 Man]
AsK	50	ort	NaP	0.6676	0.6426	1.1584	[78 Hön]
α - As ₁₁ K ₃	78.6	ort	α - Na ₃ P ₁₁	1.0596	1.4525	1.0914	[91 Sch]

Thermodynamics

From results of EMF measurements and of partial vapor pressure determinations Voronin et al. [74 Vor] have calculated thermodynamic properties of intermediate phases. The results are given in Table 2.

Table 2 As–K. Enthalpies and entropies of formation of intermediate phases synthesized from liquid K and solid As [93 San], [72 Vor].

Phase	ΔH^S [kJ mol ⁻¹]	ΔS^S [J mol ⁻¹ ·K ⁻¹]	Temperature range [K]
As ₂ K	- 123.9	- 15.6	601 ... 792
	- 129.3	- 16.3	507 ... 582
AsK	- 114.6	- 35.1	565 ... 727
As ₄ K ₅	- 501	- 169	430 ... 544
AsK ₃	- 203	- 115	407 ... 531

Figure**Fig. 1. As–K.** Phase diagram assessed by [93 San].**References**

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