

## As – Co (Arsenic – Cobalt)

### Phase diagram

A review of this system is given by Ishida et al. [90 Ish].

Mainly based on the results published by [37 Has], [73 Sel] and [72 Kje], Ishida et al. [90 Ish] have proposed an assessed phase diagram, which is reproduced in Fig. 1.

### Crystal structure

Crystallographic data of intermediate phases are collected in Table 1.

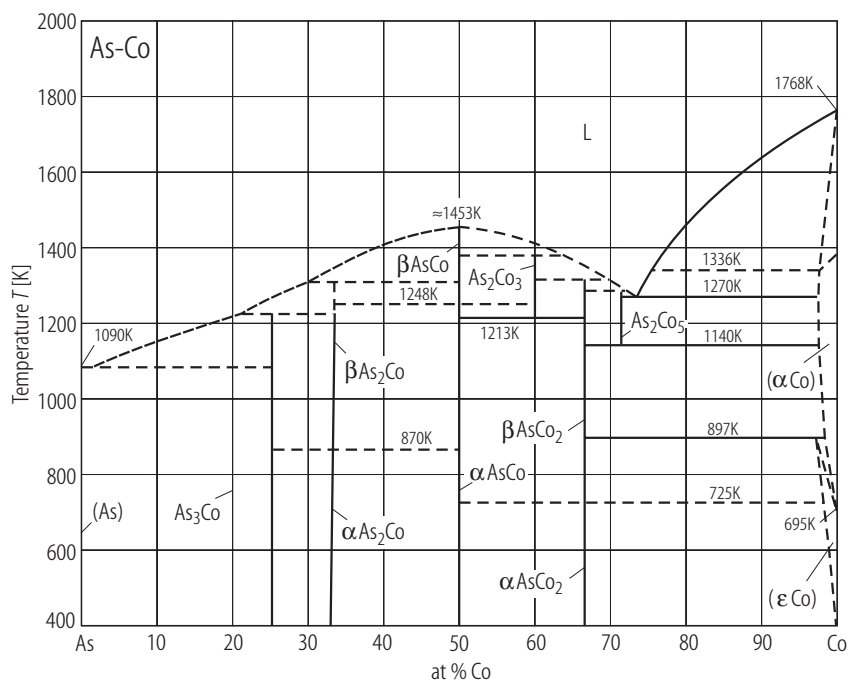
**Table 1. As–Co.** Structure of intermediate phases [90 Ish].

Phase	Composition [at% As]	Structure	Prototype	Lattice parameters [nm]			Reference
				<i>a</i>	<i>b</i>	<i>c</i>	
As <sub>2</sub> Co <sub>5</sub>	28.6	hex	Pd <sub>5</sub> Sb <sub>2</sub>	0.6797		1.2423	[86 Ell]
β-AsCo <sub>2</sub>	33.3 ... 33.6	hex	Fe <sub>2</sub> P	0.606		0.356	[57 Hey]
α-AsCo <sub>2</sub>	33.3	hex		1.1982		0.358	[57 Hey] [91 Lin]
As <sub>2</sub> Co <sub>3</sub>	40						[57 Hey]
β-AsCo	50	hex	AsNi	0.5225		0.6187	[73 Sel]
α-AsCo	50	ort	AsCo	0.347	0.586	0.527	[71 Sel]
β-As <sub>2</sub> Co	66.7	ort	FeS <sub>2</sub>	0.5145	0.5924	0.3108	[77 Kje]
α-As <sub>2</sub> Co	66.7	mon	marcasite CoSb <sub>2</sub>	0.5914	0.5871 β=116.5°	0.5964	[66 Ben]
As <sub>3</sub> Co	74.7 ... 75.0	cub	As <sub>3</sub> Co	0.8223			[77 Kje]

### Thermodynamics

Ellner [86 Ell] has determined the enthalpy of formation of AsCo. The value amounts to

$$\Delta H^S = -28 \text{ kJ g-atom}^{-1}$$

**Figure****Fig. 1. As–Co.** Phase diagram As-Co assessed by [90 Ish].**References**

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