substance: CoSbS
property: physical properties

CoSbS (pararammelsbergite-type modification)

energy gap

$E_{g,th}$	0.5 eV		from log $\rho \propto E_g/2kT$ above 600 K	59H

thermoelectric power

S	– 500 μV K^{-1}	T = 300 K	measured on sintered sample of [59H]	80H

peritectic temperature

T_{perit}	1149 K	from DTA measurement	70C2, 51L

A 20 min treatment at T = 1420 K, p = 60 kbar completely transformed the D_{2h}^{15} – Pbca structure to the cubic ullmannite type [75H].

lattice parameters, density

(RT values) (space group D_{2h}^{15} – Pbca)

Compound	a [Å]	b [Å]	c [Å]	d_X [g cm^{-3}]	Ref.
CoSbS[a])	5.768	5.949	11.666	7.07	70C2
	5.840	5.958	11.673		59H, 70C2
	5.834	5.953	11.664		75H
[b])	5,842	5.951	11.666	6.97	75R
	5.8351	5.9600	11.6632		79K

[a]) High-temperature modification (h)? [70C1].
[b]) Ordered.

interatomic distances (in Å)

CoSbS (costibite):	Co	– 3Sb	2.480,	2.502 (2×)	
		3S	2.303,	2.354 (2×)	
	Sb	– S	2.521		75R

For structure, chemical bond and comparative tables on crystallographic and physical properties of transition metal-V-VI compounds, see documents , , , .

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