



>>Entry Name: Cobalt sulfides

Synonym(s): Linnaeite

CAS Registry Number: 12015-75-7

Extra CAS Registry Numbers(s): 1308-08-3

Molecular Formula: [CoS]

General Statement: Many phases known

>>Variant: Cobalt(II) sulfide (CoS), 8Cl

CAS Registry Number: 1317-42-6

Molecular Formula: CoS

Molecular Weight: 90.999

Accurate Mass: 90.905268

Percentage Composition: Co 64.76%; S 35.24%

General Statement: Has NiAs struct., gen. deficient in Co (Co_{1-x}S), but other phases with excess Co also known, e.g. Co_9S_8

Physical Description: Reddish solid; metallic

Melting Point: Mp 1116°

Solubility: Insol. H_2O ; sol. acids (when freshly prepd.)

>>Variant: Cobalt sulfide (CoS_2)

CAS Registry Number: 12013-10-4

Molecular Formula: CoS_2

Molecular Weight: 123.065

Accurate Mass: 122.877338

Percentage Composition: Co 47.89%; S 52.11%

General Statement: Pyrite struct.

Physical Description: Metallic

>>Variant: Cobalt sulfide (Co_3S_4)

Molecular Formula: Co_3S_4

Molecular Weight: 305.064

Accurate Mass: 304.687874

Percentage Composition: Co 57.95%; S 42.05%

General Statement: Spinel struct.

Physical Description: Metallic

>>Variant: Cobalt sulfide (Co_9S_8)

CAS Registry Number: 12017-76-4

Molecular Formula: Co_9S_8

Molecular Weight: 786.927

Accurate Mass: 786.175342

Percentage Composition: Co 67.40%; S 32.60%

General Statement: Isostruct. with pentlandite

Source/Synthesis: Synth. by heating Co + S

References:

Lundquist, D. *et al.*, *Z. Anorg. Allg. Chem.*, 1938, **239**, 85-88, (Co_9S_8)

Sidgwick, N.V., *The Chemical Elements and their Compds.*, Oxford, 1950, 1378

Geller, S., *Acta Cryst.*, 1962, **15**, 1195-1198, (Co_9S_8 , *cryst struct*)

Brauer, G., *Handb. Prep. Inorg. Chem.*, 2nd edn., Academic Press, 1965, 1523-1524, (Co_9S_8)

Wells, A.F., *Structural Inorg. Chem.*, 5th Ed., Oxford, 1984, 752; 757, (*struct*)

Lewis, R.J., *Sax's Dangerous Properties of Industrial Materials*, 8th edn., Van Nostrand Reinhold, 1992, CNE200