



>>Entry Name: Copper sulfide (Cu₂S)

Synonym(s): Cuprous sulfide

CAS Registry Number: 22205-45-4

Related CAS Registry Numbers(s): 12175-21-2

Cu₂S

Molecular Formula: Cu₂S

Molecular Weight: 159.158

Accurate Mass: 157.851266

Percentage Composition: Cu 79.85%; S 20.15%

General Statement: Exists in 2 modifications with a transition temp. of 91°

Source/Synthesis: Prepd. by combination of the elements or by reduction of CuS

Use/Importance: Used in luminous paints and in photoelectric solar cells

Physical Description: Blue to blue-black powder or cryst.

Melting Point: Mp 1127°

Solubility: Prac. insol. H₂O, AcOH

Aldrich: 34245-9

>>Variant: Mineral-form

Synonym(s): Chalcocite. Copper glance

CAS Registry Number: 21112-20-9

Molecular Formula: Cu₂S

Molecular Weight: 159.158

Accurate Mass: 157.851266

Percentage Composition: Cu 79.85%; S 20.15%

Source/Synthesis: Occurs in the enriched zones of hydrothermal sulfide vein deposits

Use/Importance: An important ore of copper

Physical Description: Intrinsic semiconductor with metallic appearance

Other Data: Several other phases known which are non-stoichiometric and exhibit a complex structural chemistry. These include Cu_{1.75}S (Anilite); Cu_{1.8}S (Digenite) and Cu_{1.96}S (Djurleite)

References:

Brauer, G., *Handbuch Prep. Anorg. Chem.*, 3rd edn., Ferdinand Enke Verlag, 1975, **2**, 981, (*synth*)

Becker, K.D. *et al.*, *Solid State Commun.*, 1979, **32**, 1107, (*Cu-63 nmr*)

Evans, H.T., *Z. Kristallogr.*, 1979, **150**, 299, (*cryst struct*)

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