



>>Entry Name: **Copper(II) sulfate**

Synonym(s): Cupric sulfate, USAN. Copper sulfate, BSI

CAS Registry Number: 7758-98-7

Related CAS Registry Numbers(s): 33772-44-0

Extra CAS Registry Numbers(s): 10124-44-4 18939-61-2

CuSO₄

Molecular Formula: CuO₄S

Molecular Weight: 159.61

Accurate Mass: 158.891328

Percentage Composition: Cu 39.81%; O 40.10%; S 20.09%

Source/Synthesis: Rare mineral

Use/Importance: Drying agent

Biological Use/Importance: Phosphorus antidote, topical antifungal agent, molluscicide; used with cupric hydroxide as *Bordeaux mixture*

Physical Description: Hygroscopic white rhomb. cryst. or amorph. powder

Melting Point: Mp 200°

Solubility: V. sol. H₂O; sol. MeOH, glycerol; sl. sol. EtOH

Other Data: Dec. above 560°; forms CuO at 650°

Hazard & Toxicity: Ingestion of large amounts of copper salts (15-75 mg Cu) causes gastrointestinal disturbances. Haemolysis, hepatotoxic and nephrotoxic effects, and death also result from acute exposure. Chronic copper toxicity usually only encountered with inherited metabolic copper disorders (e.g. Wilson's disease). LD₅₀ (rat, orl) 300 mg/kg. Exp. reprod. and teratogenic effects

Aldrich: 20917-1

Fluka: 61230

Sigma: C1297

>>Variant: Mineral-form

Synonym(s): Chalcocyanite, 9Cl. Chalcokyonite. Blue Copperas. Chalcanthite

CAS Registry Number: 24270-43-7

Molecular Formula: CuO₄S

Molecular Weight: 159.61

Accurate Mass: 158.891328

Percentage Composition: Cu 39.81%; O 40.10%; S 20.09%

Source/Synthesis: Found as a sublimation product in fumaroles after various eruptions of Mount Vesuvius, Italy

Physical Description: V. hygroscopic pale green, sky-blue or yellowish-brown orthorhombic cryst.

Solubility: V. sol. H₂O

Other Data: Pure artificial cryst. are colourless

>>Derivative: Pentahydrate

Synonym(s): Hydrocyanite. Pentaquasulfatocopper(II). Bluestone. Blue vitriol. Roman vitriol. Salzburg vitriol

CAS Registry Number: 7758-99-8

Molecular Formula: CuH₁₀O₉S

Molecular Weight: 249.686

Percentage Composition: Cu 25.45%; H 4.04%; O 57.67%; S 12.84%

Use/Importance: Lewis acid catalyst for alcohol dehydration, acetonide formation, acetal exchange; reagent for formation of Cu carbenoids, intramolecular cyclopropanations; redox catalyst with KMnO₄ for oxidation of alcohols and alkenes

Physical Description: Blue cryst. (H₂O)

Solubility: V. sol. H₂O; sol. MeOH, glycerol; sl. sol. EtOH

Other Data: Loses 2H₂O at 30°, two more at 110°, becomes anhyd. by 250°. Acidic: 0.2M aq. soln. has pH 4.0

Aldrich: 46913-0

Fluka: 61245

Sigma: C2284

References: