



>>Entry Name: Copper(I) oxide (Cu₂O)

Synonym(s): Cuprous oxide. Red copper oxide

CAS Registry Number: 1317-39-1

Cu₂O

Molecular Formula: Cu₂O

Molecular Weight: 143.091

Accurate Mass: 141.874111

Percentage Composition: Cu 88.82%; O 11.18%

General Statement: Structural prototype

Source/Synthesis: Prepd. by oxidation of finely-divided Cu, by reduction of CuO with Cu, by reduction of Fehling's soln., etc. Films can be electrodeposited onto various substrates from alk. Cu(II) lactate solns. at 25-65°; highly pure Cu(I) oxide produced with Cu(II) oxide and Cu absent

Use/Importance: Used as a fungicide, in antifouling paints, and as a red pigment for ceramics; weak base; activates halides towards nucleophilic substitution; forms carbenoid intermed. from diazo compds. and radicals from arenediazonium salts; activates isocyanides towards 1,1-addn. Possible use for photocatalytic splitting of H₂O

Physical Description: Yellow or red cryst. or microcryst. powder

Melting Point: Mp 1235°

Boiling Point: Bp 1800° dec.

Solubility: Insol. H₂O

Other Data: *p*-type semiconductor; direct bandgap, 2.1 eV; resistivity. Ω cm -10¹⁴ Ω cm, depending on preparative technique

Hazard & Toxicity: Mod. toxic by ingestion. LD₅₀ (rat, orl) 470 mg/kg

Aldrich: 20882-5

Fluka: 61199

>>Variant: Mineral-form

Synonym(s): Cuprite

CAS Registry Number: 1308-76-5

Molecular Formula: Cu₂O

Molecular Weight: 143.091

Accurate Mass: 141.874111

Percentage Composition: Cu 88.82%; O 11.18%

Source/Synthesis: Widespread in the oxidised zone of copper deposits

Use/Importance: An ore of copper

References:

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