



MATERIAL SAFETY DATA SHEET  
COMPLIES WITH 29 CFR 1910.1200.  
OSHA HAZARD COMMUNICATION RULE

DATE OF LAST REVISION: 06-19-95

## CHEMICAL IDENTITY

LABEL IDENTITY	<b>Copper Sulfide</b>	
CHEMICAL NAME/SYNONYMS	<b>Copper Sulfide</b>	
FORMULA	<b>Cu<sub>2</sub>S (or Cu<sub>1.8</sub>S)</b>	
CHEMICAL FAMILY	<b>Metal Sulfide</b>	
CAS REGISTRY NUMBER	<b>22205-45-4, LISTED IN THE TSCA INVENTORY</b>	
HAZARDOUS INGREDIENTS	<b>Copper Sulfide</b>	
%: <b>100</b>	TLV: <b>1mg/m<sup>3</sup></b> <b>(as Cu)</b>	OSHA/PEL: <b>1mg/m<sup>3</sup></b> <b>(as Cu)</b>

## PHYSICAL AND CHEMICAL PROPERTIES

COLOR, FORM AND ODOR	<b>Bluish-black crystalline powder</b>
BOILING POINT	<b>ND</b>
DENSITY (gm/cc)	<b>5.6</b>
VAPOR PRESSURE @ 20°	<b>NA</b>
% VOLATILE BY VOLUME (%)	<b>NA</b>
REACTION WITH WATER	<b>None</b>
EVAPORATION RATE (H <sub>2</sub> O=1)	<b>NA</b>
SOLUBILITY IN WATER	<b>Insoluble (1x10<sup>-14</sup>g/100ml)</b>
MELTING POINT	<b>1100</b>
OTHER	<b>Heating in air yields CuO, CuSO<sub>4</sub>, SO<sub>2</sub></b>

## FIRE AND EXPLOSION HAZARD DATA

FLASH POINT	<b>NA</b>
AUTOIGNITION TEMPERATURE (°C)	<b>NA</b>
FLAMMABILITY	<b>Non-flammable</b>
EXTINGUISHING MEDIA	<b>Use dry chemical, CO<sub>2</sub></b>
SPECIAL FIRE FIGHTING PROCEDURES	<b>Wear self contained breathing apparatus and full protective clothing to prevent contact with skin and eyes</b>
UNUSUAL FIRE & EXPLOSION HAZARDS	<b>Material emits toxic fumes of So<sub>x</sub> when heated to decomposition. Hydrogen sulfide evolved can form explosive mixtures with air. Upon contact with moisture or acids hydrogen sulfide may be evolved. Many powerful oxidizers on contact with sulfides ignite violently.</b>



## COPPER SULFIDE MATERIAL SAFETY DATA SHEET

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### HEALTH HAZARD INFORMATION

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TOXICITY DATA      otr-ham:      emb 380umo1/L                      dnd-ham:      emb 380umo1/L

HMIS RATING:

HEALTH: **3**      FLAMMABILITY: **0**      REACTIVITY: **1**                      PERSONAL PROTECTION: **I**

ROUTES OF ENTRY

INHALATION:      **Yes**  
SKIN:                      **Yes**  
INGESTION:              **Yes**

MEDICAL CONDITIONS AGGRAVATED BY OVEREXPOSURE: **Respiratory disorders**

EFFECTS OF OVEREXPOSURE (acute and chronic):

INHALATION: **respiratory irritant. Irritation, sneezing, coughing, difficulty breathing and pulmonary edema possible.**

DERMAL: **itching, redness, inflammation and dermatitis possible.**

EYE: **irritation, watering, redness, possibility of burns and tissue damage.**

OTHER: INGESTION: **nausea, vomiting, salivation, stomach cramps, dizziness, and diarrhea possible. May cause liver, kidney and nervous system damage with chronic exposure.**

**\*SEE ATTACHED SHEET\***

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CARCINOGENICITY: **None**    NTP: **no**    IARC MONOGRAPHS: **no**    OSHA REGULATE: **no**

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EMERGENCY FIRST AID PROCEDURES:

INGESTION: **give 2 glasses of water and induce vomiting**

INHALATION: **remove to fresh air; give oxygen if breathing is difficult. Seek medical attention.**

SKIN CONTACT: **brush material off skin and wash area with soap and water, seek medical attention.**

EYE CONTACT: **flush eyes with lukewarm water for at least 15 minutes and seek medical attention.**

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### REACTIVITY DATA

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STABILITY

CONDITIONS CONTRIBUTING TO UNSTABILITY

INCOMPATIBILITY (MATERIALS TO AVOID)

HAZARDOUS DECOMPOSITION PRODUCTS

HAZARDOUS POLYMERIZATION

CONDITIONS TO AVOID

**Unstable**

**Heating in air**

**Oxidizers, acids**

**SO<sub>x</sub>, Cn fumes (thermal), H<sub>2</sub>S**

**Will Not Occur**

**Heat, incompatible materials**



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### SAFE HANDLING AND USE

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STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: **wear a self-contained breathing apparatus and full protective clothing. Isolate area where spill occurred and insure proper ventilation is available. Vacuum up spill using a high efficiency unit and place in a container for proper disposal. Take care not to raise dust.**

WASTE DISPOSAL METHOD:  
**Dispose of in accordance with local, state and federal regulations.**

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### SPECIAL PROTECTIVE INFORMATION

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RESPIRATORY PROTECTION: **NIOSH-approved dust-mist-fume cartridge respirator**  
LOCAL EXHAUST: **Maintain exposure below TLV**  
MECHANICAL (general): **Recommended**  
PROTECTIVE GLOVES: **Neoprene**  
EYE PROTECTION: **Safety glasses**  
OTHER PROTECTIVE EQUIPMENT: **Wear protective clothing to prevent skin/clothing contact.**

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### SPECIAL PRECAUTIONS

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PRECAUTIONS TO BE TAKEN IN HANDLING/STORAGE: **Store in tightly closed containers in a cool, dry place. Wash hands and face thoroughly after handling and before eating.**

TRANSPORTATION REQUIREMENTS	DOT CLASS:	<b>Not Classified</b>
	UN NUMBER:	<b>NC</b>
	IMCO CLASS:	<b>NC</b>
	OTHER:	<b>SPC, Corrosive</b>

PRECAUTIONARY LABELING **NONE**

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THE ABOVE INFORMATION IS ACCURATE TO THE BEST OF OUR KNOWLEDGE. HOWEVER, SINCE DATA, SAFETY STANDARDS AND GOVERNMENT REGULATIONS ARE SUBJECT TO CHANGE THE CONDITIONS OF HANDLING AND USE, OR MISUSE ARE BEYOND OUR CONTROL, **ANGSTROM SCIENCES** MAKE NO WARRANTY, EITHER EXPRESSED OR IMPLIED, WITH RESPECT TO THE COMPLETENESS OR CONTINUING ACCURACY OF THE INFORMATION CONTAINED HEREIN AND DISCLAIMS ALL LIABILITY FOR THE RELIANCE THEREON. USER SHOULD SATISFY HIMSELF THAT HE HAS ALL CURRENT DATA RELEVANT TO HIS PARTICULAR USE.

**NA= NOT APPLICABLE**

**ND= NO DATA FOUND**

**NR=NOT RECORDED**



ATTACHED SHEET FOR: **COPPER SULFIDE MSDS**

EFFECTS OF OVEREXPOSURE (acute/chronic):

**OTHER: as the sublimed oxide, copper may be responsible for one form of metal fume fever. Inhalation of copper dust has caused, in animals, hemolysis of the red blood cells, deposition of hemofuscin in the liver and pancreas, and injury to the lung cells. Cuprous oxide is irritation to the eyes and upper respiratory tract. Discoloration of the skin is often seen in persons handling copper, but this does not indicate any actual injury from copper.**