



LTS Research Laboratories, Inc.
Safety Data Sheet
Copper

1. Product and Company Identification

Trade Name: Copper
Chemical Formula: Cu
Recommended Use: Scientific research and development

Manufacturer/Supplier: LTS Research Laboratories, Inc.
Street: 2001 Oaks Pkwy
City: Belmont
State: North Carolina
Zip Code: 28012
Country: USA
Tel #: +1 (704) 899 2840

24-Hour Emergency Contact: 800-424-9300 (US & Canada)
+1-703-527-3887 (International)

2. Hazards Identification

Signal Word: Danger



Hazard Statements: H228: Flammable solid
H315: Causes skin irritation
H319: Causes serious eye irritation
H335: May cause respiratory irritation
H410: Very toxic to aquatic life with long lasting effects.

Precautionary Statements: P210: Keep away from heat/ sparks/ open flames hot surfaces. No smoking.
P233: Keep container tightly closed.
P240: Ground/ bond container and receiving equipment.
P241: Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P261: Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray.
P273: Avoid release to the environment.
P280: Wear protective gloves/ eye protection/ face protection.
P302 + P352: IF ON SKIN: Wash with plenty of soap and water.
P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P370 + P378: In case of fire: Use dry sand, dry chemical, or alcohol-resistant foam to extinguish.
P391: Collect spillage.
P403 + P235: Store in a well-ventilated place. Keep cool.
P407: Maintain air gap between stacks or pellets.
P410: Protect from sunlight.
P420: Store separately.
P501: Dispose of contents/ container in accordance with local/ regional/national/ international regulations.

HMIS Health Ratings (0-4):	Powder	Bulk
Health:	1	0
Flammability:	2	0
Physical:	1	0

3. Composition

Chemical Family:	Metal
Additional Names:	None
Copper (Cu):	
Percentage:	100 wt%
CAS #:	7440-50-8
EC #:	231-159-6

4. First Aid Procedures

General Treatment:	Seek medical attention if symptoms persist.
Special Treatment:	Treat symptomatically
Important Symptoms:	None
Inhalation:	Remove victim to fresh air. Supply oxygen if breathing is difficult. Seek medical attention.
Ingestion:	Clean mouth with water and drink afterwards plenty of water. Seek medical attention. If symptoms occur.
Skin:	Wash affected area with mild soap and water. Remove any contaminated clothing. Seek medical attention. If skin irritation persists, call a physician.
Eyes:	Flush eyes with water, blinking often for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. Seek medical attention.

5. Firefighting Measures

Flammability:	Non-flammable, except as powder
Extinguishing Media:	No special restrictions – use suitable extinguishing agent for surrounding material and type of fire. Do not use water for metal fires – use dry sand, approved class D extinguishers.
Spec. Fire Fighting Procedure:	Use full-face, self-contained breathing apparatus with full protective clothing to prevent contact with skin and eyes. Dust can form an explosive mixture with air. Fine dust dispersed in air may ignite. Keep product and empty container away from heat and sources of ignition. Do not allow run-off from fire-fighting to enter drains or water courses. See section 10 for decomposition products.

6. Accidental Release Measures

If Material Is Released/Spilled:	Wear appropriate respiratory and protective equipment specified in special protection information. Isolate spill area and provide ventilation. Vacuum up spill using a high efficiency particulate absolute (HEPA) air filter and place in a closed container for disposal. Take care not to raise dust.
Environmental Precautions:	Isolate runoff to prevent environmental pollution.

7. Handling and Storage

Handling Conditions:	Wear personal protective equipment/ face protection. Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation. Avoid dust formation. Ensure adequate ventilation.
Storage Conditions:	Store in a cool dry place in a tightly sealed container. Flammables area. Keep away from heat, sparks and flame. Store apart from materials and conditions listed in section 10.
Work/Hygienic Maintenance:	Do not use tobacco or food in work area. Wash thoroughly before eating and smoking. Do not blow dust off clothing or skin with compressed air. Remove and wash contaminated clothing and gloves, including the inside, before re-use.
Ventilation:	Provide sufficient ventilation to maintain concentration at or below threshold limit.

8. Exposure Controls and Personal Protection

Permissible Exposure Limits:	0.1 mg/m ³ as Cu, fumes, long-term value 1 mg/m ³ as Cu, dust and mist, long-term value
Threshold Limit Value:	0.2 mg/m ³ as Cu, fumes, long-term value 1 mg/m ³ as Cu, dust and mist, long-term value
Special Equipment:	None
Respiratory Protection:	Dust Respirator. Filter type P1
Protective Gloves:	Nitrile rubber gloves, 0.11 mm thick
Eye Protection:	Safety glasses or goggles
Body Protection:	Protective work clothing. Wear close-toed shoes and long sleeves/pants.

9. Physical and Chemical Characteristics

Color	Metallic light brown
Form:	Powder, Granules, Pellets, Sputtering target, Custom parts
Odor:	Odorless
Water Solubility:	Insoluble
Boiling Point:	2580 °C
Melting Point:	1083 °C
Flash Point:	N/A
Autoignition Temperature:	N/A
Density:	8.94 g/cc
Molecular weight:	63.55 g/mol

10. Reactivity

Stability:	Stable under recommended storage conditions
Reacts With:	Acids, Strong oxidizing agents, ethylene oxides, fluorine, hydrogen sulfide, halogen-halogen compounds, alkali oxides, nitrides, salts of hydrazine, sulfuric acid, chlorine, acetylene, azides, ammonium compounds, iodates, bromopropane, perchlorates, bromates, picrates, chlorates, peroxides.
Incompatible Conditions:	Excess heat. Avoid dust formation. Keep away from open flames, hot surfaces and sources of ignition. Exposure to air. Exposure to moist air or water.
Hazardous Decomposition Products:	Metal oxide fume, copper oxides.

11. Toxicological Information

Potential Health Effects:

Eyes:	Causes serious eye damage
Skin:	Causes skin irritation
Ingestion:	May cause irritation
Inhalation:	May cause irritation
Chronic:	N/A

Signs & Symptoms:

Symptoms of systemic copper poisoning may include: capillary damage, headache, cold sweat, weak pulse, kidney and liver damage, central nervous system excitation followed by depression, jaundice, convulsions, paralysis, and coma. Death may occur from shock or renal failure. Chronic copper poisoning is typified by hepatic cirrhosis, brain damage and demyelination, kidney defects, and copper deposition in the cornea as exemplified by humans with Wilson's disease. It has also been reported that copper poisoning has lead to hemolytic anemia and accelerates arteriosclerosis. Damage to the lungs, vomiting, diarrhea, abdominal pain, blood disorders.

Aggravated Medical Conditions:

N/A

Median Lethal Dose:

N/A

Carcinogen:

N/A

12. Ecological Information

Aquatic Toxicity:

High

Persistent Bioaccumulation Toxicity:

N/A

Very Persistent, Very Bioaccumulative:

N/A

Notes:

Do not allow material to be released to the environment without proper governmental permits.
Also poisonous for fish and plankton in water bodies.
Avoid transfer into the environment.
Very toxic to aquatic organisms.
Do not empty into drains.

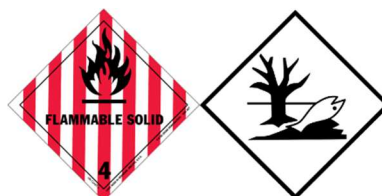
13. Disposal Considerations

Dispose of in accordance with local, state, national, and international regulations.

14. Transportation Data

Hazardous:

Hazardous for transportation as powder only.



Hazard Class:

4.1 Flammable solids, self-reactive substances and solid desensitized explosives.

Packing Group:

III

UN Number:

UN3089

Proper Shipping Name:

Metal powders, flammable, n.o.s. (Copper Powder)

15. Regulatory Information

Sec 302 Extremely Hazardous:	No
Sec 304 Reportable Quantities:	N/A
Sec 313 Toxic Chemicals:	No

16. Other Information

This safety data sheet should be used in conjunction with technical sheets. It does not replace them. The information given is based on our knowledge of this product, at the time of publication. It is given in good faith. The attention of the user is drawn to the possible risks incurred by using the product for any other purpose other than that for which it was intended. This does not in any way excuse the user from knowing and applying all the regulations governing his activity. It is the sole responsibility of the user to take all precautions required in handling the product. The aim of the mandatory regulations mentioned is to help the user to fulfill his obligations regarding the use of hazardous products.

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