

MATERIAL SAFETY DATA SHEET

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Version 1.3

Section 1 - Product and Company Information

Product Name COPPER, TURNINGS, 99%
Product Number 266094
Brand ALDRICH

Company Sigma-Aldrich
Street Address 3050 Spruce Street
City, State, Zip, Country SAINT LOUIS MO 63103 US
Technical Phone: 314 771 5765
Emergency Phone: 414 273 3850 Ext. 5996
Fax: 800 325 5052

Section 2 - Composition/Information on Ingredient

Substance Name	CAS #	SARA 313
COPPER	7440-50-8	Yes

Formula Cu
Synonyms Allbri natural copper * ANAC 110 * Arwood copper * Bronze powder * CDA 101 * CDA 102 * CDA 110 * CDA 122 * C.I. 77400 * C.I. Pigment Metal 2 * Copper (ACGIH:OSHA) * Copper-airborne * Copper bronze * Copper-milled * Copper slag-airborne * Copper slag-milled * 1721 Gold * Gold bronze * Kafar copper * M 1 * M 3 * M 4 * M1 (Copper) * M2 (Copper) * M3 (Copper) * M4 (Copper) * M3R * M3S * OFHC Cu * Raney copper

RTECS Number: GL5325000

Section 3 - Hazards Identification

HMIS RATING

HEALTH: 0

FLAMMABILITY: 0

REACTIVITY: 0

NFPA RATING

HEALTH: 0

FLAMMABILITY: 0

REACTIVITY: 0

For additional information on toxicity, please refer to Section 11.

Section 4 - First Aid Measures

ORAL EXPOSURE

If swallowed, wash out mouth with water provided person is conscious. Call a physician.

INHALATION EXPOSURE

If inhaled, remove to fresh air. If breathing becomes difficult,

call a physician.

DERMAL EXPOSURE

In case of contact, immediately wash skin with soap and copious amounts of water.

EYE EXPOSURE

In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

Section 5 - Fire Fighting Measures

FLASH POINT

N/A

AUTOIGNITION TEMP

N/A

FLAMMABILITY

N/A

EXTINGUISHING MEDIA

Suitable: Water spray. Carbon dioxide, dry chemical powder, or appropriate foam.

FIREFIGHTING

Protective Equipment: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.
Specific Hazard(s): Emits toxic fumes under fire conditions.

Section 6 - Accidental Release Measures

PROCEDURE(S) OF PERSONAL PRECAUTION(S)

Exercise appropriate precautions to minimize direct contact with skin or eyes and prevent inhalation of dust.

METHODS FOR CLEANING UP

Sweep up, place in a bag and hold for waste disposal. Avoid raising dust. Ventilate area and wash spill site after material pickup is complete.

Section 7 - Handling and Storage

HANDLING

User Exposure: Avoid inhalation. Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated exposure.

STORAGE

Suitable: Keep tightly closed. Store under nitrogen.

SPECIAL REQUIREMENTS

Store under inert gas. Air sensitive.

Section 8 - Exposure Controls / PPE

ENGINEERING CONTROLS

Safety shower and eye bath. Mechanical exhaust required.

PERSONAL PROTECTIVE EQUIPMENT

Respiratory: Wear dust mask.

Hand: Protective gloves.

Eye: Chemical safety goggles.

GENERAL HYGIENE MEASURES

Wash thoroughly after handling.

EXPOSURE LIMITS, RTECS

Country	Source	Type	Value
USA	MSHA Standard-air	TWA	0.1 MG/M3 (FUME, DUSTS & MISTS)
USA	OSHA.	PEL	8H TWA 0.1 MG(CU)/M3, FUME
New Zealand	OEL		
Remarks:	check ACGIH TLV		
USA	NIOSH	TWA	1 MG/M3

Section 9 - Physical/Chemical Properties

Appearance	Physical State: Solid	
Property	Value	At Temperature or Pressure
Molecular Weight	63.54 AMU	
pH	N/A	
BP/BP Range	N/A	
MP/MP Range	N/A	
Freezing Point	N/A	
Vapor Pressure	N/A	
Vapor Density	N/A	
Saturated Vapor Conc.	N/A	
SG/Density	8.96 g/cm3	
Bulk Density	N/A	
Odor Threshold	N/A	
Volatile%	N/A	
VOC Content	N/A	
Water Content	N/A	
Solvent Content	N/A	
Evaporation Rate	N/A	
Viscosity	N/A	
Surface Tension	N/A	
Partition Coefficient	N/A	
Decomposition Temp.	N/A	
Flash Point	N/A	
Explosion Limits	N/A	
Flammability	N/A	
Autoignition Temp	N/A	
Refractive Index	N/A	
Optical Rotation	N/A	
Miscellaneous Data	N/A	
Solubility	N/A	

N/A = not available

Section 10 - Stability and Reactivity

STABILITY

Stable: Stable.

Conditions of Instability: May discolor on exposure to air and moisture.

Materials to Avoid: Halogens, Acid chlorides, Strong oxidizing agents, Strong acids Violent reaction may occur with acetylene, ammonium nitrate, bromates, chlorates, iodates, chlorine, chlorine trifluoride, ethylene oxide, fluorine, hydrogen peroxide, hydrazine mononitrite, hydrogen sulfide, hydrazoic acid, lead azide, potassium peroxide, sodium azide, and sodium peroxide.

Reaction of copper wool, trichloroacetic acid in dimethyl sulfoxide is very exothermic

HAZARDOUS DECOMPOSITION PRODUCTS

Hazardous Decomposition Products: Copper oxide.

HAZARDOUS POLYMERIZATION

Hazardous Polymerization: Will not occur

Section 11 - Toxicological Information

ROUTE OF EXPOSURE

Skin Contact: May cause skin irritation.

Skin Absorption: May be harmful if absorbed through the skin.

Eye Contact: May cause eye irritation.

Inhalation: Material may be irritating to mucous membranes and upper respiratory tract. May be harmful if inhaled.

Ingestion: May be harmful if swallowed.

SIGNS AND SYMPTOMS OF EXPOSURE

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.

TOXICITY DATA

Intraperitoneal

Mouse

3500 UG/KG

LD50

CHRONIC EXPOSURE - CARCINOGEN

Species: Rat

Route of Application: Intrapleural

Dose: 100 MG/KG

Result: Tumorigenic: Equivocal tumorigenic agent by RTECS criteria. Lungs, Thorax, or Respiration: Fibrosis, focal (pneumoconiosis). Lungs, Thorax, or Respiration: Tumors.

CHRONIC EXPOSURE - TERATOGEN

Species: Rat

Dose: 152 MG/KG

Route of Application: Oral

Exposure Time: (22W PRE)

Result: Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus). Specific Developmental Abnormalities: Central nervous system.

Species: Rat

Dose: 1520 UG/KG

Route of Application: Oral

Exposure Time: (22W PRE)

Result: Specific Developmental Abnormalities: Musculoskeletal system.

CHRONIC EXPOSURE - REPRODUCTIVE HAZARD

Species: Rat

Dose: 1210 UG/KG
Route of Application: Oral
Exposure Time: (35W PRE)
Result: Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants).
Effects on Fertility: Pre-implantation mortality (e.g., reduction in number of implants per female; total number of implants per corpora lutea).

Species: Rat
Dose: 250 UG/KG
Route of Application: Intrauterine
Exposure Time: (1D PRE)
Result: Effects on Fertility: Female fertility index (e.g., # females pregnant per # sperm positive females; # females pregnant per # females mated). Maternal Effects: Uterus, cervix, vagina.

Section 12 - Ecological Information

No data available.

ADDITIONAL RESULTS/DATA FROM RELEVANT SCIENTIFIC EXPERIMENTS
Avoid contamination of the environment

Section 13 - Disposal Considerations

APPROPRIATE METHOD OF DISPOSAL OF SUBSTANCE OR PREPARATION
Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. Observe all federal, state, and local environmental regulations.

Section 14 - Transport Information

DOT

Proper Shipping Name: None
Non-Hazardous for Transport: This substance is considered to be non-hazardous for transport.

IATA

Non-Hazardous for Air Transport: Non-hazardous for air transport.

Section 15 - Regulatory Information

UNITED STATES REGULATORY INFORMATION

SARA LISTED: Yes
DEMINIMIS: 1 %
NOTES: This product is subject to SARA section 313 reporting requirements.
TSCA INVENTORY ITEM: Yes

CANADA REGULATORY INFORMATION

WHMIS Classification: This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.
DSL: Yes
NDSL: No

Section 16 - Other Information

DISCLAIMER

For R&D use only. Not for drug, household or other uses.

WARRANTY

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. Copyright 2005 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.