

## **MATERIAL SAFETY DATA SHEET**

### **COPPER (II) NITRATE 99.5% AR (Trihydrate)**

**MSDS CAS: 10031-43-3**

#### **Section 1: Chemical Product and Company Identification**

##### **Section 1: Chemical Product**

**Product Name:** COPPER (II) NITRATE, Trihydrate AR

**CAS#:** 10031-43-3

**Synonym:** Cupric nitrate trihydrate, Nitric acid,  
copper (2+) salt, trihydrate; Copper nitrate trihydrate;  
Copper Dinitrate Trihydrate; Copper (II) Nitrate trihydrate (1:2:3)

**Chemical Name:** Copper (II) nitrate, trihydrate

**Chemical Formula:**  $\text{Cu}(\text{NO}_3)_2 \cdot 3\text{H}_2\text{O}$

**Brand:** OXFORD

##### **Details Of The Supplier Of The Safety Data Sheet :**

**Company identification:** **OXFORD LAB FINE CHEM LLP**  
Unit. No. 12, 1st Floor, Neminath Industrial Estate No. 6,  
Navghar, Vasai (East). Palghar - 401 210.  
Mumbai, Maharashtra, INDIA.  
Tel: 91-250-2390989  
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#### **Section 2: Composition and Information on Ingredients**

##### **Composition:**

Name	CAS #	% by Weight
Copper (II) nitrate, trihydrate AR	10031-43-3	99.5

**Toxicological Data on Ingredients:** Copper (II) nitrate, trihydrate ORAL (LD50): Acute: 940 mg/kg [Rat].

## Section 3: Hazards Identification

### Potential Acute Health Effects:

Hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation. Prolonged exposure may result in skin burns and ulcerations. Over-exposure by inhalation may cause respiratory irritation.

### Potential Chronic Health Effects:

Slightly hazardous in case of skin contact (sensitizer). CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance may be toxic to blood, kidneys, liver, cardiovascular system, central nervous system (CNS). Repeated or prolonged exposure to the substance can produce target organs damage.

## Section 4: First Aid Measures

### Eye Contact:

Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention.

### Skin Contact:

In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Cold water may be used. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

### Serious Skin Contact:

Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

### Inhalation:

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

### Serious Inhalation:

Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. Seek medical attention.

### Ingestion:

Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.

Serious Ingestion: Not available.

## Section 5: Fire and Explosion Data

**Flammability of the Product:** Non-flammable.

**Auto-Ignition Temperature:** Not available.

**Flash Points:** Not available.

**Flammable Limits:** Not available.

**Products of Combustion:** Not available.

**Fire Hazards in Presence of Various Substances:** Combustible Materials.

**Explosion Hazards in Presence of Various Substances:**

Risks of explosion of the product in presence of mechanical impact: Not available.

Risks of explosion of the product in presence of static discharge: Not available.

Slightly explosive in presence of heat.

**Fire Fighting Media and Instructions:** Not available.

**Special Remarks on Fire Hazards:**

Ignites paper spontaneously in the presence of moisture.

**Special Remarks on Explosion Hazards:** Not available.

## Section 6: Accidental Release Measures

**Small Spill:**

Use appropriate tools to put the spilled solid in a convenient waste disposal container.

**Large Spill:**

Oxidizing material. Stop leak if without risk. Avoid contact with a combustible material (wood, paper, oil, clothing...). Keep substance damp using water spray. Do not touch spilled material. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

## Section 7: Handling and Storage

### Precautions:

**Oxidizer.** Keep away from heat. Keep away from sources of ignition. Keep away from combustible material.. Do not ingest. Do not breathe dust. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents.

### Storage:

**Deliquescent.** Keep container tightly closed. Keep container in a cool, well-ventilated area. Separate from acids, alkalis, reducing agents and combustibles. See NFPA 43A, Code for the Storage of Liquid and Solid Oxidizers.

## Section 8: Exposure Controls/Personal Protection

### Engineering Controls:

Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

### Personal Protection:

Splash goggles. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

### Personal Protection in Case of a Large Spill:

Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self-contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

### Exposure Limits:

TWA: 1 CEIL: 2 from OSHA (PEL) [United States] Consult local authorities for acceptable exposure limits.

## Section 9: Physical and Chemical Properties

**Physical state and appearance:** Solid. (Deliquescent crystals solid.)

**Odor** : Not available.

**Taste** : Not available.

**Molecular Weight** : 241.6 g/mole

**Color** : Blue.

**pH (1% soln/water)** : Not available.

**Boiling Point** : Decomposition temperature: 170°C (338°F)

## Section 9: Physical and Chemical Properties (Continued)

<b>Melting Point</b>	: 114.5°C (238.1°F)
<b>Critical Temperature</b>	: Not available.
<b>Specific Gravity</b>	: 2.05 (Water = 1)
<b>Vapor Pressure</b>	: Not available.
<b>Vapor Density</b>	: 8.33 (Air = 1)
<b>Volatility</b>	: Not available.
<b>Odor Threshold</b>	: Not available.
<b>Water/Oil Dist. Coeff.</b>	: Not applicable.
<b>Ionicity (in Water)</b>	: Not available.
<b>Dispersion Properties</b>	: See solubility in water.
<b>Solubility</b>	: Soluble in cold water. Solubility in Water: 137.8 g/100 cc water @ 0 deg. C.; 1270 g/100 cc @ 100 deg. C. Solubility in alcohol: 100 g/100 cc alcohol @ 12.5 deg. C. Very slightly soluble in liquid ammonia. Practically insoluble in Ethyl acetate.

## Section 10: Stability and Reactivity Data

**Stability:** The product is stable.

**Instability Temperature:** Not available.

**Conditions of Instability:** Incompatible materials, moisture.

**Incompatibility with various substances:**

Reactive with reducing agents, combustible materials, organic materials, metals.

**Corrosivity:** Non-corrosive in presence of glass.

**Special Remarks on Reactivity:**

Incompatible with easily oxidizable materials, paper, wood, organic substances, acetylene, hydrazine, nitromethane, ammonia + potassium amide, acetic anhydride, sodium hypobromide, nitromethanes, potassium ferrocyanide, ether, tin. Reacts vigorously with ether.

**Special Remarks on Corrosivity:** Not available.

**Polymerization:** Will not occur.

## Section 11: Toxicological Information

**Routes of Entry:** Inhalation. Ingestion.

**Toxicity to Animals:** Acute oral toxicity (LD50): 940 mg/kg [Rat].

**Chronic Effects on Humans:**

May cause damage to the following organs: blood, kidneys, liver, cardiovascular system, central nervous system (CNS).

**Other Toxic Effects on Humans:** Hazardous in case of skin contact (irritant), of ingestion, of inhalation.

**Special Remarks on Toxicity to Animals:** Not Available.

**Special Remarks on Chronic Effects on Humans:** Not Available.

**Special Remarks on other Toxic Effects on Humans:**

**Acute Potential Health Effects:** Skin: May cause severe irritation with possible burns. May cause dermatitis, and skin discoloration. Eyes: May cause severe irritation and possible eye burns. May cause ulceration of the conjunctiva and cornea. Inhalation: May cause severe irritation of the respiratory tract (nose, throat, lungs) with coughing, wheezing, headache, pain, shortness of breath, inflammation, and possible burns. May cause ulceration and perforation of the nasal septum is inhaled in excessive amounts. Other symptoms may include spasm, inflammation and edema of the larynx and bronchi, chemical pneumonitis and pulmonary edema. Ingestion: May be harmful if swallowed. May cause severe gastrointestinal tract irritation with salivation, headache cold sweats, nausea, vomiting and abdominal pain, diarrhea, burning of the mouth, esophagus, or stomach, metallic taste, possible burns resulting in gastric bleeding, hemorrhaging of the digestive tract. Other symptoms of over exposure may include cramps in the calves, muscle rigor, prostration, convulsions, paralysis. May affect behaviour/ central nervous system (convulsions, somnolence, excitation followed by central nervous system depression). May cause liver (jaundice) and kidney damage/failure. This product is a nitrate. The toxicity of nitrates is due to in vivo conversion into nitrites. Nitrites can affect the blood and Produce methemoglobinemia which results in deficient oxygenation of the blood, causing difficulty breathing, and cyanosis (a bluish discoloration of the skin). Nitrites may also affect the cardiovascular system (hypotension, cardiac arrhythmias, vasodilation, decreased peripheral vascular resistance, hypotension, bradycardia, shock, cardiovascular collapse) which may result in death. Chronic Potential health effects: Repeated exposure by inhalation may cause shrinking of the inner lining of the nose and may cause ulcers and a hole (perforation) in the bone (septum) dividing the inner nose. Repeated ingestion may cause similar effects to those of acute ingestion. It may cause kidney and liver damage. Repeated exposure by skin contact may cause thickening of the skin, and may cause a greenish colour (discoloration) the skin and hair. May also cause dermatitis, a skin allergy. Medical Conditions Aggravated by Exposure: Persons with pre-existing skin disorders, impaired liver, kidney or pulmonary function, glucose-6-phosphate dehydrogenase deficiency, or pre-existing Wilson's disease. Individuals with Wilson's disease are unable to metabolize copper. Therefore, copper accumulates in various tissues and may result in liver, kidney, and brain damage.

## Section 12: Ecological Information

**Ecotoxicity:** Not available.

**BOD5 and COD:** Not available.

**Products of Biodegradation:**

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

**Toxicity of the Products of Biodegradation:**

The products of degradation are less toxic than the product itself.

**Special Remarks on the Products of Biodegradation:** Not available.

## Section 13: Disposal Considerations

**Waste Disposal:**

Waste must be disposed of in accordance with federal, state and local environmental control regulations.

## Section 14: Transport Information

**Land transport (ADR-RID)**

Proper shipping name : NITRATES, INORGANIC, N.O.S.  
UN N° : 1477  
H.I. nr : 50  
ADR - Class : 5.1  
Labelling - Transport : 5.1 : Oxidizing substances.  
ADR - Group : II

**Sea transport (IMDG) [English only]**

Proper shipping name : NITRATES, INORGANIC, N.O.S.  
UN N° : 1477  
IMO-IMDG - Class or division: 5.1 : Oxidizing substances.  
IMO-IMDG - Packing group: II



## Section 14: Transport Information (Continued)

### Air transport (ICAO-IATA) [English only]

Proper shipping name : NITRATES, INORGANIC, N.O.S.

UN N° : 1477

IATA - Class or division : 5.1 : Oxidizing substances.

IATA - Packing group : II

## Section 15: Other Regulatory Information

### Federal and State Regulations:

Connecticut hazardous material survey.: Cupric nitrate (CAS no. 3251-23-8) Illinois chemical safety act: Cupric nitrate (CAS no. 3251-23-8) New York release reporting list: Cupric nitrate (CAS no. 3251-23-8) Rhode Island RTK hazardous substances: Cupric nitrate CAS no. 3251-23-8) Pennsylvania RTK: Cupric nitrate or Nitric Acid, Copper (2+) salt (CAS no. 3251-23-8) Massachusetts RTK: Cupric nitrate (CAS no. 3251-23-8) Massachusetts spill list: Cupric nitrate (CAS no. 3251-23-8) New Jersey: Cupric nitrate (CAS no. 3251-23-8) New Jersey spill list: Cupric nitrate CAS no. 3251-23-8) Louisiana spill reporting: Cupric nitrate (CAS no. 3251-23-8) SARA 313 toxic chemical notification and release reporting: Listed as Copper compounds CERCLA: Hazardous substances.: Cupric Nitrate (CAS no. 3251-23-8): 100 lbs. (45.36 kg) TSCA: Cupric Nitrate or Nitric Acid, Copper (II) salt (CAS no. 3251-23-8) is TSCA listed, but Cupric Nitrate trihydrate (CAS no. 10031-43-3) is exempt from TSCA listing (not TSCA listed) since it is a hydrate.

### Other Regulations:

OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

### Other Classifications:

WHMIS (Canada): CLASS C: Oxidizing material. CLASS D-2B: Material causing other toxic effects (TOXIC).

DSCL (EEC):

### HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 0

Reactivity: 0

Personal Protection: E



## Section 15: Other Regulatory Information (Continued)

### National Fire Protection Association (U.S.A.):

Health: 2

Flammability: 0

Reactivity: 0

Specific hazard:

### Protective Equipment:

Gloves. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Splash goggles.

## Section 16 - Additional Information

References: Not available.

Other Special Considerations: Not available.

### ***Disclaimer:***

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The information contained herein in good faith but makes no representations as to its comprehensiveness or accuracy. This document is intended only as a guide to the appropriate precautionary handling of the material by a properly trained person using this product. Individuals receiving the information must exercise their independent judgment in determining its appropriateness for a particular purpose.

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