



## ISO 9001 Quality System Certified Organization

MANUFACTURER & EXPORTER OF LABORATORY CHEMICALS AND OILS

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### MATERIAL SAFETY DATA SHEET (MSDS) SDS/MSDS

## Copper (II) Citrate (Cupric Citrate) MSDS

### Section 1: Chemical Product and Company Identification

Product Name: Copper (II) Citrate (Cupric Citrate)

CAS#: 866-82-0

RTECS: Not applicable.

TSCA: TSCA 8(b) inventory: Water

CI#: Not applicable.

Synonym:

### Section 2: Composition and Information on Ingredients

Composition:

Name CAS # % by Weight

Sodium citrate dihydrate 6132-04-3 17.3

Sodium carbonate monohydrate 5968-11-6 11.7

Copper sulfate pentahydrate 7758-99-8 1.73

Water 7732-18-5 69.3

**Toxicological Data on Ingredients:** Sodium carbonate monohydrate: DUST (LC50): Acute: 468 mg/m 4 hours [Guinea pig].

Copper sulfate pentahydrate: ORAL (LD50): Acute: 300 mg/kg [Rat.]. DERMAL (LD50): Acute: >2000 mg/kg [Rat].

### Section 3: Hazards Identification

**Potential Acute Health Effects:** Slightly hazardous in case of skin contact (irritant, permeator), of eye contact (irritant), of ingestion.

**Potential Chronic Health Effects:**

CARCINOGENIC EFFECTS: Not available.

MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. [Copper sulfate pentahydrate].

TERATOGENIC EFFECTS: Not available.

DEVELOPMENTAL TOXICITY: Not available.

The substance is toxic to lungs, mucous membranes.

The substance may be toxic to kidneys, liver, upper respiratory tract, skin, eyes.

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 if irritation occurs.

**Skin Contact:**

Wash with soap and water. Cover the irritated skin with an emollient. Get medical attention if irritation develops.

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Cold water may be used.

**Serious Skin Contact:** Not available.

### **Inhalation:**

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

**Serious Inhalation:** Not available.

### **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 applicable.

**Flash Points:** Not applicable.

**Flammable Limits:** Not applicable.

**Products of Combustion:** Not available.

**Fire Hazards in Presence of Various Substances:** Not applicable.

**Explosion Hazards in Presence of Various Substances:** Non-explosive in presence of open flames and sparks, of shocks, of heat.

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

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

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

## **Section 6: Accidental Release Measures**

### **Small Spill:**

Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container. If necessary: Neutralize the residue with a dilute solution of acetic acid. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.

### **Large Spill:**

Absorb with an inert material and put the spilled material in an appropriate waste disposal. Neutralize the residue with a dilute solution of acetic acid. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system. 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:**

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Do not ingest. Do not breathe gas/fumes/ vapor/spray. Wear suitable protective clothing. If ingested, seek

medical advice immediately and show the container or the label.

**Storage:** Keep container tightly closed. Keep container in a cool, well-ventilated area.

### Section 8: Exposure Controls/Personal Protection

#### Engineering Controls:

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

#### Personal Protection:

Safety glasses. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent.

Gloves.

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

Splash goggles. Full suit. Vapor 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:

Copper sulfate pentahydrate

TWA: 1 (mg/m<sup>3</sup>) from ACGIH (TLV) [United States] Inhalation

TWA: 0.1 (mg/m<sup>3</sup>) from OSHA (PEL) [United States] Inhalation

TWA: 1 (mg/m<sup>3</sup>) from NIOSH Inhalation Consult local authorities for acceptable exposure limits.

### Section 9: Physical and Chemical Properties

**Physical state and appearance:** Liquid.

**Odor:** Not available.

**Taste:** Not available.

**Molecular Weight:** Not applicable.

**Color:** Clear Blue.

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

**Boiling Point:** The lowest known value is 100°C (212°F) (Water).

**Melting Point:** Not available.

**Critical Temperature:** Not available.

**Specific Gravity:** Weighted average: 1.1 (Water = 1)

**Vapor Pressure:** The highest known value is 2.3 kPa (@ 20°C) (Water).

**Vapor Density:** The highest known value is 0.62 (Air = 1) (Water).

**Volatility:** Not available.

**Odor Threshold:** Not available.

**Water/Oil Dist. Coeff.:** Not available.

**Ionicity (in Water):** Not available.

**Dispersion Properties:** See solubility in water, methanol.

#### Solubility:

Easily soluble in cold water, hot water.

Partially soluble in methanol.

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### Section 10: Stability and Reactivity Data

**Stability:** The product is stable.

**Instability Temperature:** Not available.

**Conditions of Instability:** Incompatible materials

**Incompatibility with various substances:** Slightly reactive to reactive with oxidizing agents, metals, acids, alkalis.

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

**Special Remarks on Reactivity:** Not available

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

**Polymerization:** Will not occur.

### Section 11: Toxicological Information

**Routes of Entry:** Absorbed through skin. Eye contact.

**Toxicity to Animals:**

Acute oral toxicity (LD50): 300 mg/kg [Rat.]. (Copper sulfate pentahydrate).

Acute dermal toxicity (LD50): >2000 mg/kg [Rat.]. (Copper sulfate pentahydrate).

**Chronic Effects on Humans:**

MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. [Copper sulfate pentahydrate].

Contains material which may cause damage to the following organs: kidneys, liver, upper respiratory tract, skin, eyes.

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

**Special Remarks on Toxicity to Animals:**

Lowest Published Lethal Dose:

LDL [Human] - Route: Oral; Dose: 1088 mg/kg (Copper sulfate pentahydrate)

**Special Remarks on Chronic Effects on Humans:** May cause adverse reproductive effects based on animal test data

(Sodium carbonate monohydrate)

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

Potential Health Effects:

Skin: Possible irritation on prolonged contact with moist or sensitive areas of the skin.

Eyes: No adverse effects expected, but dust may casue mechanical irritation.

Inhalation: Inhalation of large amounts of dust may cause irritation to the respiratory tract. Low hazard for usual industrial handling.

Ingestion: Ingestion of large amounts may cause gastrointestinal tract irritation/disturbances.

May affect behavior (convulsions), respiration (cyanosis). (Sodium citrate dihydrate)

### 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.



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**Toxicity of the Products of Biodegradation:** The products of degradation are less toxic than the product itself.

### **Special Remarks on the Products of Biodegradation:**

If released to soil, copper sulfate may leach to groundwater, be partly oxidized, or bind to humic materials, clay, or

hydrous of iron and manganese. In water, it will bind to carbonates as well as humic materials, clay and hydrous

oxides of iron and manganese. Copper is accumulated by plants and animals, but it does not appear to

biomagnify from plants to animals. This lack of biomagnification appears common with heavy metals. In air,

copper aerosols (in general) have a residence time of 2 to 10 days in an unpolluted atmosphere and 0.1 to >4 in a

polluted, urban areas. (Copper sulfate pentahydrate)

### **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**

**DOT Classification:** Not a DOT controlled material (United States).

**Identification:** Not applicable.

**Special Provisions for Transport:** Not applicable.

### **Section 15: Other Regulatory Information**

**Federal and State Regulations:** TSCA 8(b) inventory: Water

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

#### **Other Classifications:**

**WHMIS (Canada):** Not controlled under WHMIS (Canada).

#### **DSCL (EEC):**

This product is not classified according to the EU regulations.

S24/25- Avoid contact with skin and eyes.

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

**Health Hazard:** 1

**Fire Hazard:** 0

**Reactivity:** 0

**Personal Protection:** g

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

**Health:** 1

**Flammability:** 0

**Reactivity:** 0

**Specific hazard:**

**Protective Equipment:**

Gloves.



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Lab coat.

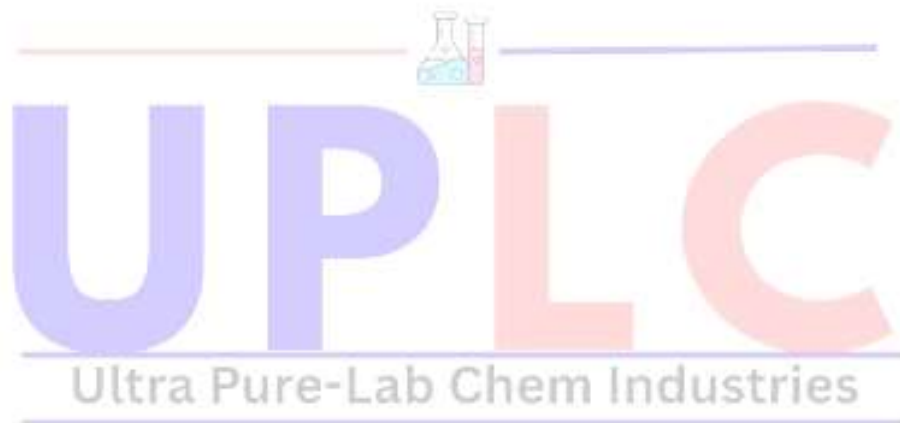
Vapor respirator. Be sure to use an approved/certified respirator or equivalent.

Safety glasses.

### Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.



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