1. PRODUCT AND COMPANY IDENTIFICATION

Product name: Copper(II) nitrate hydrate
Product Number: 229636
Brand: Aldrich
Supplier: Sigma-Aldrich Corporation
3050 Spruce Street
SAINT LOUIS MO 63103
USA
Telephone: +1 800-325-5832
Fax: +1 800-325-5052
Emergency Phone #: (314) 776-6555
Preparation Information: Sigma-Aldrich Corporation
Product Safety - Americas Region
1-800-521-8956

2. HAZARDS IDENTIFICATION

Emergency Overview

OSHA Hazards
Oxidizer, Target Organ Effect, Harmful by ingestion., Corrosive, Carcinogen

Target Organs
Blood, Kidney, Liver, Central nervous system, Vascular system.

GHS Classification
Oxidizing solids (Category 2)
Acute toxicity, Oral (Category 4)
Skin irritation (Category 2)
Serious eye damage (Category 1)

GHS Label elements, including precautionary statements

Pictogram

Signal word Danger

Hazard statement(s)
H272 May intensify fire; oxidiser.
H302 Harmful if swallowed.
H315 Causes skin irritation.
H318 Causes serious eye damage.

Precautionary statement(s)
P220 Keep/Store away from clothing/ combustible materials.
P280 Wear protective gloves/ eye protection/ face protection.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

HMIS Classification
Health hazard: 3
Chronic Health Hazard: *
Flammability: 0  
Physical hazards: 2

NFPA Rating  
| Health hazard | 3 |
| Fire          | 0 |
| Reactivity Hazard | 2 |
| Special hazard | OX |

Potential Health Effects  
**Inhalation**  May be harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.  
**Skin**  Harmful if absorbed through skin. Causes skin burns.  
**Eyes**  Causes eye burns.  
**Ingestion**  Harmful if swallowed.

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

**Synonyms:** Cupric nitrate hydrate  
**Formula:** CuN$_2$O$_6$·xH$_2$O  
**Molecular Weight:** 187.56 g/mol

<table>
<thead>
<tr>
<th>Component</th>
<th>Concentration</th>
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</thead>
<tbody>
<tr>
<td>Copper(II) nitrate hydrate</td>
<td></td>
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<tr>
<td>CAS-No.</td>
<td>13778-31-9</td>
</tr>
<tr>
<td>EC-No.</td>
<td>221-838-5</td>
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</tbody>
</table>

### 4. FIRST AID MEASURES

**General advice**  Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

**If inhaled**  If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

**In case of skin contact**  Wash off with soap and plenty of water. Consult a physician.

**In case of eye contact**  Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Continue rinsing eyes during transport to hospital.

**If swallowed**  Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

### 5. FIREFIGHTING MEASURES

**Suitable extinguishing media**  Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

**Special protective equipment for firefighters**  Wear self contained breathing apparatus for fire fighting if necessary.

**Hazardous combustion products**  Hazardous decomposition products formed under fire conditions. - nitrogen oxides (NOx), Copper oxides

**Further information**  Use water spray to cool unopened containers.

### 6. ACCIDENTAL RELEASE MEASURES

**Personal precautions**  Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
Environmental precautions
Do not let product enter drains.

Methods and materials for containment and cleaning up
Sweep up and shovel. Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.
Provide appropriate exhaust ventilation at places where dust is formed. Keep away from sources of ignition - No smoking. Keep away from heat and sources of ignition. Normal measures for preventive fire protection.

Conditions for safe storage
Keep container tightly closed in a dry and well-ventilated place.

Recommended storage temperature: 2 - 8 °C
Heat sensitive. Moisture sensitive.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value</th>
<th>Control parameters</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Copper(II) nitrate hydrate</td>
<td>13778-31-9</td>
<td>TWA</td>
<td>1 mg/m3</td>
<td>USA. NIOSH Recommended Exposure Limits</td>
</tr>
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</table>

Personal protective equipment

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove’s outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Eye protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin and body protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Hygiene measures
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance
   Form: Crystals with lumps
   Colour: no data available

Safety data
   pH: no data available
   Melting: Melting point/range: 114.5 °C (238.1 °F) - dec.
10. STABILITY AND REACTIVITY

**Chemical stability**
Stable under recommended storage conditions.

**Possibility of hazardous reactions**
no data available

**Conditions to avoid**
Heat. Avoid moisture.

**Materials to avoid**
Reducing agents, Organic materials, Powdered metals

**Hazardous decomposition products**
Hazardous decomposition products formed under fire conditions. - nitrogen oxides (NOx), Copper oxides
Other decomposition products - no data available

11. TOXICOLOGICAL INFORMATION

**Acute toxicity**

**Oral LD50**
LD50 Oral - rat - 794 mg/kg

**Inhalation LC50**
no data available

**Dermal LD50**
no data available

**Other information on acute toxicity**
no data available

**Skin corrosion/irritation**
Skin - rabbit - Severe skin irritation

**Serious eye damage/eye irritation**
Eyes - rabbit - Severe eye irritation
Respiratory or skin sensitization
no data available

Germ cell mutagenicity
no data available

Carcinogenicity
IARC: 2A - Group 2A: Probably carcinogenic to humans (Copper(II) nitrate hydrate)
ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
no data available

Teratogenicity
no data available

Specific target organ toxicity - single exposure (Globally Harmonized System)
no data available

Specific target organ toxicity - repeated exposure (Globally Harmonized System)
no data available

Aspiration hazard
no data available

Potential health effects

Inhalation May be harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.
Ingestion Harmful if swallowed.
Skin Harmful if absorbed through skin. Causes skin burns.
Eyes Causes eye burns.

Signs and Symptoms of Exposure
Symptoms of systemic copper poisoning may include: capillary damage, headache, cold sweat, weak pulse, and 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., Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., Cough, Shortness of breath, Headache

Synergistic effects
no data available

Additional Information
RTECS: QU7400000

12. ECOLOGICAL INFORMATION

Toxicity
no data available

Persistence and degradability
no data available
Bioaccumulative potential
no data available

Mobility in soil
no data available

PBT and vPvB assessment
no data available

Other adverse effects
no data available

13. DISPOSAL CONSIDERATIONS

Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. 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.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 3085  Class: 5.1 (8)  Packing group: II
Proper shipping name: Oxidizing solid, corrosive, n.o.s. (Copper(II) nitrate hydrate)
Reportable Quantity (RQ): 100 lbs
Marine pollutant: No
Poison Inhalation Hazard: No

IMDG
UN number: 3085  Class: 5.1 (8)  Packing group: II
Proper shipping name: OXIDIZING SOLID, CORROSIVE, N.O.S. (Copper(II) nitrate hydrate)
Marine pollutant: No

IATA
UN number: 3085  Class: 5.1 (8)  Packing group: II
Proper shipping name: Oxidizing solid, corrosive, n.o.s. (Copper(II) nitrate hydrate)

15. REGULATORY INFORMATION

OSHA Hazards
Oxidizer, Target Organ Effect, Harmful by ingestion., Corrosive, Carcinogen

SARA 302 Components
SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

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SARA 311/312 Hazards
Reactivity Hazard, Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

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Pennsylvania Right To Know Components

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New Jersey Right To Know Components

Copper(II) nitrate hydrate

CAS-No. 13778-31-9

Revision Date 1993-04-24

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Further information
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