1. PRODUCT AND COMPANY IDENTIFICATION

Product name: Copper(I) oxide
Product Number: 566284
Brand: Sigma-Aldrich
Company: Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO  63103
USA
Telephone: +1 800-325-5832
Fax: +1 800-325-5052
Emergency Phone #: (314) 776-6555

2. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms: Cuprous oxide
Formula: Cu₂O
Molecular Weight: 143.09 g/mol

<table>
<thead>
<tr>
<th>CAS-No.</th>
<th>EC-No.</th>
<th>Index-No.</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>1317-39-1</td>
<td>215-270-7</td>
<td>029-002-00-X</td>
<td>-</td>
</tr>
</tbody>
</table>

3. HAZARDS IDENTIFICATION

Emergency Overview
OSHA Hazards
Toxic by ingestion

HMIS Classification
Health Hazard: 2
Flammability: 0
Physical hazards: 0

NFPA Rating
Health Hazard: 0
Fire: 0
Reactivity Hazard: 0

Potential Health Effects
Inhalation: May be harmful if inhaled. May cause respiratory tract irritation.
Skin: May be harmful if absorbed through skin. May cause skin irritation.
Eyes: May cause eye irritation.
Ingestion: Toxic if swallowed.
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.

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

5. FIRE-FIGHTING MEASURES

**Flammable properties**
- **Flash point**: not applicable
- **Ignition temperature**: no data available

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

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

6. ACCIDENTAL RELEASE MEASURES

**Personal precautions**
Use personal protective equipment. Avoid dust formation. Avoid breathing dust. Ensure adequate ventilation.

**Environmental precautions**
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

**Methods for cleaning up**
Pick up and arrange disposal without creating dust. Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

**Handling**
Avoid formation of dust and aerosols.
Provide appropriate exhaust ventilation at places where dust is formed. Normal measures for preventive fire protection.

**Storage**
Keep container tightly closed in a dry and well-ventilated place.
Keep in a dry place. Air and moisture sensitive.
8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Contains no substances with occupational exposure limit values.

**Personal protective equipment**

**Respiratory protection**
Where risk assessment shows air-purifying respirators are appropriate use a dust mask type N95 (US) or type P1 (EN 143) respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

**Hand protection**
Handle with gloves.

**Eye protection**
Safety glasses

**Skin and body protection**
Choose body protection according to the amount and concentration of the dangerous substance at the work place.

**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: powder
- Colour: dark red

**Safety data**

- pH: no data available
- Melting point: 1,230 °C (2,246 °F)
- Boiling point: no data available
- Flash point: not applicable
- Ignition temperature: no data available
- Lower explosion limit: no data available
- Upper explosion limit: no data available
- Density: 6 g/mL at 25 °C (77 °F)
- Water solubility: no data available

10. STABILITY AND REACTIVITY

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

**Conditions to avoid**
Air Avoid moisture.

**Materials to avoid**
Oxidizing agents
11. TOXICOLOGICAL INFORMATION

Acute toxicity
LD50 Oral - rat - 470 mg/kg
LC50 Inhalation - rat - 4 h - > 50,000 mg/m3
LD50 Dermal - rat - > 2,000 mg/kg

Irritation and corrosion
Skin - rabbit - No skin irritation
Eyes - rabbit - Mild eye irritation

Sensitisation
no data available

Chronic exposure
IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
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 - rat - Inhalation
Effects on Fertility: Male fertility index (e.g., # males impregnating females per # males exposed to fertile nonpregnant females).

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.

Potential Health Effects
Inhalation May be harmful if inhaled. May cause respiratory tract irritation.
Skin May be harmful if absorbed through skin. May cause skin irritation.
Eyes May cause eye irritation.
Ingestion Toxic if swallowed.

Additional Information
RTECS: GL8050000

12. ECOLOGICAL INFORMATION

Elimination information (persistence and degradability)
no data available
Ecotoxicity effects

Toxicity to fish
LC50 - Cyprinodon variegatus (sheepshead minnow) - > 0.17 mg/l - 96 h

Toxicity to daphnia and other aquatic invertebrates.
EC50 - Daphnia magna (Water flea) - 0.5 mg/l - 48 h

Further information on ecology
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
Avoid release to the environment.

13. DISPOSAL CONSIDERATIONS

Product
Observe all federal, state, and local environmental regulations. 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)
Not dangerous goods

IMDG
UN-Number: 3077 Class: 9 Packing group: III EMS-No: F-A, S-F
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Dicopper oxide)
Marine pollutant: No

IATA
UN-Number: 3077 Class: 9 Packing group: III
Proper shipping name: Environmentally hazardous substance, solid n.o.s. (Dicopper oxide)

15. REGULATORY INFORMATION

OSHA Hazards
Toxic by ingestion

DSL Status
All components of this product are on the Canadian DSL list.

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

<table>
<thead>
<tr>
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SARA 311/312 Hazards
Acute Health Hazard

Massachusetts Right To Know Components
No components are subject to the Massachusetts Right to Know Act.
### Pennsylvania Right To Know Components

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### New Jersey Right To Know Components

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### California Prop. 65 Components

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

### 16. OTHER INFORMATION

**Further information**

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