

## Copper (II) Sulfate, Anhydrous

### 1. PRODUCT AND COMPANY IDENTIFICATION

**Product Name:** Copper (II) Sulfate, Anhydrous

**Synonyms/Generic Names:** Copper (II) Sulfate

**SDS Number:** 227.00

**Product Use:** For Educational Use Only

**Manufacturer:** Columbus Chemical Industries, Inc.  
N4335 Temkin Rd.  
Columbus, WI. 53925

**For More Information Contact:** Ward's Science  
5100 West Henrietta Rd.  
PO Box 92912-9012  
Rochester, NY 14692  
(800) 962-2660 (Monday-Friday 7:30-7:00 Eastern Time)

**In Case of Emergency Call:** CHEMTREC – 800-424-9300 or 703-527-3887 (24 Hours/Day, 7Days/Week)

### 2. HAZARDS IDENTIFICATION

**OSHA Hazards:** Target organ effect, Toxic by ingestion, Irritant

**Target Organs:** Liver, Kidney, Blood

**Signal Words:** Warning

**Pictograms:**



**GHS Classification:**

Acute toxicity, Oral	Category 4
Skin irritation	Category 2
Eye irritation	Category 2A
Acute aquatic toxicity	Category 1

**GHS Label Elements, including precautionary statements:**

**Hazard Statements:**

H302	Harmful if swallowed.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H400	Very toxic to aquatic life.

**Precautionary Statements:**

P273	Avoid release to the environment
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do so. Continue rinsing.

**Potential Health Effects**

<b>Eyes</b>	Causes eye irritation.
<b>Inhalation</b>	Harmful if inhaled. Causes respiratory tract irritation.
<b>Skin</b>	Harmful if absorbed through skin. Causes skin irritation.
<b>Ingestion</b>	Toxic if swallowed.

**NFPA Ratings**

<b>Health</b>	2
<b>Flammability</b>	0
<b>Reactivity</b>	0
<b>Specific hazard</b>	Not Available

**HMIS Ratings**

<b>Health</b>	2
<b>Fire</b>	0
<b>Reactivity</b>	0
<b>Personal</b>	E

**3. COMPOSITION/INFORMATION ON INGREDIENTS**

Component	Weight %	CAS #	EINECS# / ELINCS#	Formula	Molecular Weight
Cupric Sulfate Anhydrous	100	7758-99-7	231-847-6	CuO <sub>4</sub> S	159.61 g/mol

**4. FIRST-AID MEASURES**

<b>Eyes</b>	In case of eye contact, rinse with plenty of water and seek medical attention.
<b>Inhalation</b>	Move casualty to fresh air and keep at rest. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Get medical attention.
<b>Skin</b>	Immediately flush with plenty of water for at least 15 minutes while removing contaminated clothing and wash using soap. Get medical attention.
<b>Ingestion</b>	<b>Do Not Induce Vomiting!</b> Never give anything by mouth to an unconscious person. If conscious, wash out mouth with water. Get medical attention.

**5. FIREFIGHTING MEASURES**

<b>Suitable (and unsuitable) extinguishing media</b>	Product is not flammable. Do not use water on product. Use appropriate media for adjacent fire. Use flooding quantities of water to cool containers.
<b>Special protective equipment and precautions for firefighters</b>	Wear self-contained, approved breathing apparatus and full protective clothing, including eye protection and boots.
<b>Specific hazards arising from the chemical</b>	Emits toxic fumes (sulfur oxides, copper oxides) under fire conditions. (See also Stability and Reactivity section).

**6. ACCIDENTAL RELEASE MEASURES**

<b>Personal precautions, protective equipment and emergency procedures</b>	See section 8 for recommendations on the use of personal protective equipment.
<b>Environmental precautions</b>	Do not disperse dust into the air during clean-up. Any release to the environment may require reporting to federal/national or local agencies.

<b>Methods and materials for containment and cleaning up</b>	Do not disperse dust into the air during clean-up. Use appropriate tools to pick up any spill. Pick up and arrange disposal without creating dust. Sweep up and shovel. Place in a closed container. Dispose of all waste or cleanup materials in accordance with local regulations.
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## 7. HANDLING AND STORAGE

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### Precautions for safe handling

See section 8 for recommendations on the use of personal protective equipment. Use with adequate ventilation. Wash thoroughly after using. Keep container closed when not in use.

### Conditions for safe storage, including any incompatibilities

Store in a tightly closed container. Store in a dry, cool, and well ventilated area. Isolate from oxidizing materials. Keep away from incompatible materials (see section 10 for incompatibilities).

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## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

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### Occupational Exposure Controls:

Component	Exposure Limits	Basis	Entity
Copper Sulfate	1 mg/m <sup>3</sup>	REL	NIOSH

TWA: Time Weighted Average over 8 hours of work.

TLV: Threshold Limit Value over 8 hours of work.

REL: Recommended Exposure Limit

PEL: Permissible Exposure Limit

STEL: Short Term Exposure Limit during x minutes.

IDLH: Immediately Dangerous to Life or Health

WEEL: Workplace Environmental Exposure Levels

CEIL: Ceiling

### Personal Protection

<b>Eyes</b>	Chemical safety glasses.
<b>Inhalation</b>	Provide local exhaust, preferably mechanical. If exposure levels are excessive, use an approved respirator.
<b>Skin</b>	Wear neoprene or nitrile gloves, protective clothing appropriate to the risk of exposure.
<b>Other</b>	Not Available

### Other Recommendations

Provide eyewash stations, quick-drench showers and washing facilities accessible to areas of use and handling.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

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Appearance (physical state, color, etc.)	Light grey powder.
Odor	Pleasant.
Odor threshold	Not Available
pH	Not Available
Melting point/freezing point	590°C (1,202°F)
Initial boiling point and boiling range	Not Available
Flash point	Not Available
Evaporation rate	Not Available
Flammability (solid, gas)	Not Flammable

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Upper/lower flammability or explosive limit	Not Explosive
Vapor pressure	9.7 hPa (7.3 mmHg)
Vapor density	Not Available
Relative density	3.6 g/cm <sup>3</sup>
Solubility (ies)	Soluble in water and methanol.
Partition coefficient: n-octanol/water	Not Available
Auto-ignition temperature	Not Available
Decomposition temperature	650°C (1,094°F)

## 10. STABILITY AND REACTIVITY

<b>Chemical Stability</b>	Stable
<b>Possibility of Hazardous Reactions</b>	Will not occur.
<b>Conditions to Avoid</b>	Moisture, air.
<b>Incompatible Materials</b>	Powdered metals, hydroxylamine, magnesium, strong reducing agents.
<b>Hazardous Decomposition Products</b>	Sulfur oxides, copper oxides.

## 11. TOXICOLOGICAL INFORMATION

### Acute Toxicity

<b>Skin</b>	LD50 Dermal – rat - > 2000 mg/kg
<b>Eyes</b>	Not Available
<b>Respiratory</b>	Not Available
<b>Ingestion</b>	LD50 Oral – rat – 300 mg/kg
<b>Intraperitoneal</b>	LD50 – Rat – 20 mg/kg
<b>Subcutaneous</b>	LD50 – Rat – 43 mg/kg
<b>Intravenous</b>	LD50 – Rat – 48.9 mg/kg

### Carcinogenicity

<b>IARC</b>	No components of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
<b>ACGIH</b>	No components of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
<b>NTP</b>	No components of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
<b>OSHA</b>	No components of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

### Signs & Symptoms of Exposure

<b>Eyes</b>	May cause eye irritation. Symptoms include eye burns, pain, watering eyes
<b>Inhalation</b>	Causes irritation to the respiratory tract. Symptoms may include coughing, shortness of breath, burning, choking, coughing, wheezing, laryngitis, shortness of breath, headache or nausea.
<b>Skin</b>	Contact causes redness, irritation, itching and pain. Prolonged or repeated skin exposure may cause dermatitis
<b>Ingestion</b>	Repeated ingestion of small amounts may cause weakness, confusion, central nervous system effects, nausea and skin eruptions.

<b>Chronic Toxicity</b>	Not Available
<b>Teratogenicity</b>	Not Available
<b>Mutagenicity</b>	Not Available
<b>Embryotoxicity</b>	Not Available
<b>Specific Target Organ Toxicity</b>	Not Available

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## 12. ECOLOGICAL INFORMATION

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### Ecotoxicity

Aquatic Vertebrate	Not Available
Aquatic Invertebrate	EC50 – Daphnia magna – 0.024 mg/l – 48 hours
Terrestrial	Not Available

Persistence and Degradability	Not Available
Bioaccumulative Potential	Not Available
Mobility in Soil	Not Available
PBT and vPvB Assessment	Not Available
Other Adverse Effects	Very toxic to all aquatic organisms

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## 13. DISPOSAL CONSIDERATIONS

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Waste Residues	Users should review their operations in terms of the applicable federal/national or local regulations and consult with appropriate regulatory agencies if necessary before disposing of waste products or residues.
Product Containers	Users should review their operations in terms of the applicable federal/national or local regulations and consult with appropriate regulatory agencies if necessary before disposing of waste product container.

The information offered in section 13 is for the product as shipped. Use and/or alterations to the product may significantly change the characteristics of the material and alter the waste classification and proper disposal methods.

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## 14. TRANSPORT INFORMATION

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US DOT	UN3077, Environmentally hazardous substances, solid, n.o.s. (copper(II) sulfate), 9, pg III
TDG	UN3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCES, SOLID, N.O.S. (COPPER (II) SULFATE), 9, pg III
IMDG	UN3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCES, SOLID, N.O.S. (COPPER (II) SULFATE), 9, pg III
Marine Pollutant	Yes
IATA/ICAO	UN3077, Environmentally hazardous substances, solid, n.o.s. (copper(II) sulfate), 9, pg III

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## 15. REGULATORY INFORMATION

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TSCA Inventory Status	All ingredients are listed on the TSCA inventory.
DSCL (EEC)	All ingredients are listed on the DSCL inventory.
California Proposition 65	Not Listed
SARA 302	Not Listed
SARA 304	Not Listed
SARA 311	Cupric Sulfate
SARA 312	Cupric Sulfate
SARA 313	Listed: Cupric Sulfate
WHMIS Canada	Class D-2B: Toxic Material

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**16. OTHER INFORMATION**

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Revision	Date
Revision 1	01/07/2013

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