

# Safety Data Sheet

## Copper (II) Sulfate, 5-Hydrate

**CAROLINA**<sup>®</sup>  
www.carolina.com

### Section 1

### Product Description

**Product Name:** Copper (II) Sulfate, 5-Hydrate  
**Recommended Use:** Science education applications  
**Synonyms:** Bluestone, Blue Vitriol, Calcanthite, Cupric Sulfate Pentahydrate, Sulfuric Acid, Copper (II) Salt, Pentahydrate, Roman Vitriol  
**Distributor:** Carolina Biological Supply Company  
2700 York Road, Burlington, NC 27215  
1-800-227-1150  
**Chemical Information:** 800-227-1150 (8am-5pm (ET) M-F)  
**Chemtrec:** 800-424-9300 (Transportation Spill Response 24 hours)

### Section 2

### Hazard Identification

Classification of the chemical in accordance with paragraph (d) of §1910.1200;

#### WARNING



Harmful if swallowed. Causes skin irritation. Causes serious eye irritation. Very toxic to aquatic life. Very toxic to aquatic life with long lasting effects.

#### GHS Classification:

Hazardous to the aquatic environment - Acute Category 1, Hazardous to the aquatic environment - Chronic Category 1, Skin Corrosion/Irritation Category 2, Serious Eye Damage/Eye Irritation Category 2A, Acute Toxicity - Oral Category 4

### Section 3

### Composition / Information on Ingredients

Chemical Name	CAS #	%
Copper (II) Sulfate, 5-Hydrate	7758-99-8	100

### Section 4

### First Aid Measures

#### Emergency and First Aid Procedures

**Inhalation:** In case of accident by inhalation: remove casualty to fresh air and keep at rest.  
**Eyes:** IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.  
**Skin Contact:** IF ON SKIN: Wash with plenty of soap and water. If skin irritation occurs: Get medical advice/attention. Take off contaminated clothing and wash before reuse.  
**Ingestion:** IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.

### Section 5

### Firefighting Procedures

**Extinguishing Media:** Use media suitable to extinguish surrounding fire.  
**Fire Fighting Methods and Protection:** Firefighters should wear full protective equipment and NIOSH approved self-contained breathing apparatus.  
**Fire and/or Explosion Hazards:** No data available  
**Hazardous Combustion Products:** No data available

# Safety Data Sheet

## Section 6

## Spill or Leak Procedures

### Steps to Take in Case Material Is Released or Spilled:

Exposure to the spilled material may be severely irritating or toxic. Follow personal protective equipment recommendations found in Section 8 of this SDS. Personal protective equipment needs must be evaluated based on information provided on this sheet and the special circumstances created by the spill including; the material spilled, the quantity of the spill, the area in which the spill occurred, and the expertise of employees in the area responding to the spill. Never exceed any occupational exposure limits.

### Methods for Clean-up

Prevent the spread of any spill to minimize harm to human health and the environment if safe to do so. Wear complete and proper personal protective equipment following the recommendation of Section 8 at a minimum. Dike with suitable absorbent material like granulated clay. Gather and store in a sealed container pending a waste disposal evaluation. Collect spillage.

## Section 7

## Handling and Storage

### Handling:

Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Avoid release to the environment. Wear protective gloves/protective clothing/eye protection/face protection. Avoid release to the environment. Refer to special instructions/safety data sheet. Do not breathe dust.

### Storage:

Keep container tightly closed in a cool, well-ventilated place.

### Storage Code:

Green - general chemical storage

## Section 8

## Protection Information

### Chemical Name

Copper (II) Sulfate, 5-Hydrate

### ACGIH

#### (TWA)

1 mg/m<sup>3</sup> TWA (dust and mist, as Cu)

#### (STEL)

N/A

### OSHA PEL

#### (TWA)

N/A

#### (STEL)

N/A

### Control Parameters

#### Engineering Measures:

Local exhaust ventilation or other engineering controls are normally required when handling or using this product to avoid overexposure.

#### Personal Protective Equipment (PPE):

Lab coat, apron, eye wash, safety shower.

#### Respiratory Protection:

Respiratory protection may be required to avoid overexposure when handling this product. General or local exhaust ventilation is the preferred means of protection. Use a respirator if general room ventilation is not available or sufficient to eliminate symptoms. NIOSH approved air purifying respirator with dust/mist filter.

#### Respirator Type(s):

#### Eye Protection:

Wear chemical splash goggles when handling this product. Have an eye wash station available.

#### Skin Protection:

Avoid skin contact by wearing chemically resistant gloves, an apron and other protective equipment depending upon conditions of use. Inspect gloves for chemical break-through and replace at regular intervals. Clean protective equipment regularly. Wash hands and other exposed areas with mild soap and water before eating, drinking, and when leaving work.

#### Gloves:

No information available

## Section 9

## Physical Data

**Formula:** CuSO<sub>4</sub> \* 5H<sub>2</sub>O

**Molecular Weight:** 249.68

**Appearance:** Blue Crystalline Solid

**Odor:** None

**Odor Threshold:** No data available

**pH:** 4.0 (0.2 molar aq soln)

**Melting Point:** No data available

**Boiling Point:** No data available

**Flash Point:** No data available

**Flammable Limits in Air:** No data available

**Vapor Pressure:** No data available

**Evaporation Rate (BuAc=1):** No data available

**Vapor Density (Air=1):** No data available

**Specific Gravity:** 2.28 at 15.6 °C

**Solubility in Water:** Soluble

**Log Pow (calculated):** No data available

**Autoignition Temperature:** No data available

**Decomposition Temperature:** 110 °C

**Viscosity:** No data available

**Percent Volatile by Volume:** No data available

## Section 10

## Reactivity Data

# Safety Data Sheet

<b>Reactivity:</b>	Not generally reactive under normal conditions.
<b>Chemical Stability:</b>	Stable under normal conditions.
<b>Conditions to Avoid:</b>	None known.
<b>Incompatible Materials:</b>	Hydroxylamine, Hypobromite, Strong reducing agents, Magnesium
<b>Hazardous Decomposition Products:</b>	No data available
<b>Hazardous Polymerization:</b>	Will not occur

## Section 11 Toxicity Data

<b>Symptoms (Acute):</b>	No data available
<b>Delayed Effects:</b>	No data available

<b>Acute Toxicity:</b>				
<b>Chemical Name</b>	<b>CAS Number</b>	<b>Oral LD50</b>	<b>Dermal LD50</b>	<b>Inhalation LC50</b>
Copper (II) Sulfate, 5-Hydrate	7758-99-8	Oral LD50 Rat = 300 mg/kg	Dermal LD50 Rat > 2000 mg/kg	Not determined

<b>Carcinogenicity:</b>				
<b>Chemical Name</b>	<b>CAS Number</b>	<b>IARC</b>	<b>NTP</b>	<b>OSHA</b>
No data available				

<b>Chronic Effects:</b>	
<b>Mutagenicity:</b>	No evidence of a mutagenic effect.
<b>Teratogenicity:</b>	No evidence of a teratogenic effect (birth defect).
<b>Sensitization:</b>	No evidence of a sensitization effect.
<b>Reproductive:</b>	No evidence of negative reproductive effects.
<b>Target Organ Effects:</b>	
<b>Acute:</b>	No data available
<b>Chronic:</b>	No data available

## Section 12 Ecological Data

<b>Overview:</b>	Severe ecological hazard. This product may be toxic to plants and/or wildlife.
<b>Mobility:</b>	This material is expected to have only slight mobility in soil. It absorbs strongly to most soil types.
<b>Persistence:</b>	Dissolved into water, Adsorbs to soil., Chemically Transformed
<b>Bioaccumulation:</b>	Bioconcentration is expected to occur.
<b>Degradability:</b>	No data
<b>Other Adverse Effects:</b>	No data

<b>Chemical Name</b>	<b>CAS Number</b>	<b>Eco Toxicity</b>
Copper (II) Sulfate, 5-Hydrate	7758-99-8	96 HR LC50 LEPOMIS MACROCHIRUS 0.66 - 1.15 MG/L [SEMI-STATIC] 96 HR LC50 LEPOMIS MACROCHIRUS 0.96 - 1.8 MG/L [STATIC] 96 HR LC50 ONCORHYNCHUS MYKISS 0.1478 - 0.165 MG/L [FLOW-THROUGH] 96 HR LC50 ONCORHYNCHUS MYKISS 0.09 - 0.19 MG/L [STATIC] 96 HR LC50 PIMEPHALES PROMELAS 0.6752 MG/L [STATIC] 48 HR EC50 DAPHNIA MAGNA 0.147 - 0.227 MG/L [STATIC]

## Section 13 Disposal Information

<b>Disposal Methods:</b>	Dispose in accordance with all applicable Federal, State and Local regulations. Always contact a permitted waste disposer (TSD) to assure compliance.
<b>Waste Disposal Code(s):</b>	Not Determined

# Safety Data Sheet

## Section 14

## Transport Information

### Ground - DOT Proper Shipping Name:

UN3077, Environmentally Hazardous Substance, Solid,  
N.O.S.(Cupric Sulfate, Pentahydrate), Class 9, PG III

### Air - IATA Proper Shipping Name:

UN3077, Environmentally Hazardous Substance, Solid,  
N.O.S.(Cupric Sulfate, Pentahydrate), Class 9, PG III

## Section 15

## Regulatory Information

### TSCA Status:

All components in this product are on the TSCA Inventory.

Chemical Name	CAS Number	§ 313 Name	§ 304 RQ	CERCLA RQ	§ 302 TPQ	CAA 112(2) TQ
Copper (II) Sulfate, 5-hydrate	7758-99-8	No	No	No	No	No

### California Prop 65:

No California Proposition 65 ingredients

## Section 16

## Additional Information

Revised: 06/10/2024

Replaces: 06/10/2024

Printed: 01-17-2025

The information provided in this (Material) Safety Data Sheet represents a compilation of data drawn directly from various sources available to us. Carolina Biological Supply makes no representation or guarantee as to the suitability of this information to a particular application of the substance covered in the (Material) Safety Data Sheet.

### Glossary

ACGIH	American Conference of Governmental Industrial Hygienists	NTP	National Toxicology Program
CAS	Chemical Abstract Service Number	OSHA	Occupational Safety and Health Administration
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act	PEL	Permissible Exposure Limit
DOT	U.S. Department of Transportation	ppm	Parts per million
IARC	International Agency for Research on Cancer	RCRA	Resource Conservation and Recovery Act
N/A	Not Available	SARA	Superfund Amendments and Reauthorization Act
		TLV	Threshold Limit Value
		TSCA	Toxic Substances Control Act
		IDLH	Immediately dangerous to life and health