



# Fisher Scientific

Part of Thermo Fisher Scientific

## Material Safety Data Sheet

Creation Date 19-Oct-2009

Revision Date 29-May-2013

Revision Number 3

### 1. PRODUCT AND COMPANY IDENTIFICATION

<b>Product Name</b>	<b>Cupric sulfate pentahydrate</b>
<b>Cat No.</b>	<b>BP346-500; C489-1; C489-10; C489-500; C490-3; C490-10; C493-3; C493-10; C493-500; C494-12; C494-212; C494-250LB; C494-500; C496-12; C496-212</b>
<b>Synonyms</b>	Copper(II) sulfate pentahydrate; Blue vitriol (Crystalline/Powder/Granular/Technical/USP/EP/BP/Certified ACS)
<b>Recommended Use</b>	Laboratory chemicals
<b>Company</b> Fisher Scientific One Reagent Lane Fair Lawn, NJ 07410 Tel: (201) 796-7100	<b>Emergency Telephone Number</b> CHEMTREC®, Inside the USA: 800-424-9300 CHEMTREC®, Outside the USA: 001-703-527-3887

### 2. HAZARDS IDENTIFICATION

#### WARNING!

#### Emergency Overview

Harmful if swallowed. Irritating to eyes and skin. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Hygroscopic.

**Appearance** Blue

**Physical State** Solid

**Odor** odorless

**Target Organs** Skin, Eyes, Kidney, Liver, Blood

#### Potential Health Effects

#### Acute Effects

#### Principle Routes of Exposure

##### **Eyes**

Irritating to eyes.

##### **Skin**

Irritating to skin. May be harmful in contact with skin.

##### **Inhalation**

May cause irritation of respiratory tract. May be harmful if inhaled.

##### **Ingestion**

Harmful if swallowed. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

#### **Chronic Effects**

May cause adverse liver effects. May cause adverse kidney effects.

See Section 11 for additional Toxicological information.

**Aggravated Medical Conditions** No information available.

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

#### Haz/Non-haz

Component	CAS-No	Weight %
Copper (II) sulfate pentahydrate (1:1:5)	7758-99-8	>95
Cupric sulfate	7758-98-7	-

### 4. FIRST AID MEASURES

<b>Eye Contact</b>	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention.
<b>Skin Contact</b>	Wash off immediately with plenty of water for at least 15 minutes. Obtain medical attention.
<b>Inhalation</b>	Move to fresh air. If breathing is difficult, give oxygen. Get medical attention immediately if symptoms occur.
<b>Ingestion</b>	Do not induce vomiting. Call a physician or Poison Control Center immediately.
<b>Notes to Physician</b>	Treat symptomatically.

### 5. FIRE-FIGHTING MEASURES

<b>Flash Point</b>	No information available.
<b>Method -</b>	No information available.
<b>Autoignition Temperature</b>	No information available.
<b>Explosion Limits</b>	
<b>Upper</b>	No data available
<b>Lower</b>	No data available
<b>Suitable Extinguishing Media</b>	Substance is nonflammable; use agent most appropriate to extinguish surrounding fire..
<b>Unsuitable Extinguishing Media</b>	No information available.
<b>Hazardous Combustion Products</b>	No information available.
<b>Sensitivity to mechanical impact</b>	No information available.
<b>Sensitivity to static discharge</b>	No information available.

#### Specific Hazards Arising from the Chemical

Thermal decomposition can lead to release of irritating gases and vapors. Containers may explode when heated.

#### Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

**NFPA** Health 2 Flammability 0 Instability 1 Physical hazards N/A

### 6. ACCIDENTAL RELEASE MEASURES

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

**Environmental Precautions** Should not be released into the environment.

**Methods for Containment and Clean Up** Sweep up or vacuum up spillage and collect in suitable container for disposal. Avoid dust formation.

## 7. HANDLING AND STORAGE

**Handling** Wear personal protective equipment. Ensure adequate ventilation. Avoid dust formation. Do not breathe dust. Do not get in eyes, on skin, or on clothing.

**Storage** Keep containers tightly closed in a dry, cool and well-ventilated place.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Engineering Measures** Ensure that eyewash stations and safety showers are close to the workstation location. Ensure adequate ventilation, especially in confined areas.

**Exposure Guidelines** This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH
Copper (II) sulfate pentahydrate (1:1:5)	TWA: 1 mg/m <sup>3</sup>		IDLH: 100 mg/m <sup>3</sup> TWA: 1 mg/m <sup>3</sup>
Cupric sulfate	TWA: 1 mg/m <sup>3</sup>		IDLH: 100 mg/m <sup>3</sup> TWA: 1 mg/m <sup>3</sup>

**NIOSH IDLH:** Immediately Dangerous to Life or Health

### Personal Protective Equipment

#### Eye/face Protection

Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

#### Skin and body protection

Wear appropriate protective gloves and clothing to prevent skin exposure.

#### Respiratory Protection

Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Physical State</b>	Solid
<b>Appearance</b>	Blue
<b>Odor</b>	odorless
<b>Odor Threshold</b>	No information available.
<b>pH</b>	3.5-4.5 5% aq. solution
<b>Vapor Pressure</b>	7.3 mmHg @ 25 °C
<b>Vapor Density</b>	No information available.
<b>Viscosity</b>	No information available.
<b>Boiling Point/Range</b>	No information available.
<b>Melting Point/Range</b>	110°C / 230°F
<b>Decomposition temperature</b>	No information available.
<b>Flash Point</b>	No information available.
<b>Evaporation Rate</b>	negligible
<b>Specific Gravity</b>	No information available.
<b>Solubility</b>	Soluble in water
<b>log Pow</b>	No data available
<b>Molecular Weight</b>	249.68
<b>Molecular Formula</b>	CuO4S.5H2O

## 10. STABILITY AND REACTIVITY

<b>Stability</b>	Hygroscopic.
<b>Conditions to Avoid</b>	Avoid dust formation. Incompatible products. Excess heat. Exposure to moist air or water.
<b>Incompatible Materials</b>	Strong oxidizing agents
<b>Hazardous Decomposition Products</b>	Sulfur oxides, Copper oxides
<b>Hazardous Polymerization</b>	Hazardous polymerization does not occur.
<b>Hazardous Reactions</b>	None under normal processing..

## 11. TOXICOLOGICAL INFORMATION

### Acute Toxicity

#### Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Copper (II) sulfate pentahydrate (1:1:5)	300 mg/kg ( Rat )	2 g/kg ( Rat )	Not listed
Cupric sulfate	481 mg/kg ( Rat )	> 1000 mg/kg ( Rabbit )	Not listed

<b>Irritation</b>	Irritating to eyes and skin
<b>Toxicologically Synergistic Products</b>	No information available.
<b>Chronic Toxicity</b>	
<b>Carcinogenicity</b>	There are no known carcinogenic chemicals in this product
<b>Sensitization</b>	No information available.
<b>Mutagenic Effects</b>	No information available.
<b>Reproductive Effects</b>	No information available.
<b>Developmental Effects</b>	No information available.
<b>Teratogenicity</b>	No information available.
<b>Other Adverse Effects</b>	See actual entry in RTECS for complete information.
<b>Endocrine Disruptor Information</b>	No information available

## 12. ECOLOGICAL INFORMATION

### Ecotoxicity

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Copper (II) sulfate pentahydrate (1:1:5)	Not listed	Onchorhynchus mykiss: LC50 = 0.1-2.5 mg/L/96h	Photobacterium phosphoreum: EC50 = 0.25 mg/L/30min as Cu++ Photobacterium phosphoreum EC50= 1.3 mg/L/5 min as Cu++	EC50 = 0.24 mg/L/48h
Cupric sulfate	Not listed	0.1 mg/L LC50 96 h	Not listed	EC50 = 0.024 mg/L/48h

**Persistence and Degradability** No information available

**Bioaccumulation/ Accumulation** No information available

**Mobility** No information available

### 13. DISPOSAL CONSIDERATIONS

**Waste Disposal Methods** Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

### 14. TRANSPORT INFORMATION

#### DOT

**UN-No** UN3077  
**Proper Shipping Name** Environmentally hazardous substance, solid, n.o.s  
**Hazard Class** 9  
**Packing Group** III

#### TDG

**UN-No** UN3077  
**Proper Shipping Name** Environmentally hazardous substance, solid, n.o.s.  
**Hazard Class** 9  
**Packing Group** III

#### IATA

**UN-No** UN3077  
**Proper Shipping Name** Environmentally hazardous substance, solid, n.o.s  
**Hazard Class** 9  
**Packing Group** III

#### IMDG/IMO

**UN-No** UN3077  
**Proper Shipping Name** Environmentally hazardous substance, solid, n.o.s  
**Hazard Class** 9  
**Packing Group** III

### 15. REGULATORY INFORMATION

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## International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	CHINA	KECL
Copper (II) sulfate pentahydrate (1:1:5)	-	-	-	-	-		X	X	X	X	-
Cupric sulfate	X	X	-	231-847-6	-		X	X	X	X	X

## Legend:

X - Listed

E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.

F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.

N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.

P - Indicates a commenced PMN substance

R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.

S - Indicates a substance that is identified in a proposed or final Significant New Use Rule

T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.

XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B)).

Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.

Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

## U.S. Federal Regulations

TSCA 12(b) Not applicable

## SARA 313

Not applicable

Component	CAS-No	Weight %	SARA 313 - Threshold Values %
Copper (II) sulfate pentahydrate (1:1:5)	7758-99-8	>95	1.0
Cupric sulfate	7758-98-7	-	1.0

## SARA 311/312 Hazardous Categorization

Acute Health Hazard	Yes
Chronic Health Hazard	No
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

## Clean Water Act

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Copper (II) sulfate pentahydrate (1:1:5)	-	-	X	-
Cupric sulfate	X	10 lb	X	-

## Clean Air Act

Not applicable

## OSHA

Not applicable

## CERCLA

Component	Hazardous Substances RQs	CERCLA EHS RQs
Cupric sulfate	10 lb	-

**California Proposition 65**

This product does not contain any Proposition 65 chemicals.

**State Right-to-Know**

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Copper (II) sulfate pentahydrate (1:1:5)	-	-	X	-	-
Cupric sulfate	X	X	X	-	-

**U.S. Department of Transportation**

Reportable Quantity (RQ): Y  
 DOT Marine Pollutant N  
 DOT Severe Marine Pollutant N

**U.S. Department of Homeland Security**

This product does not contain any DHS chemicals.

**Other International Regulations**

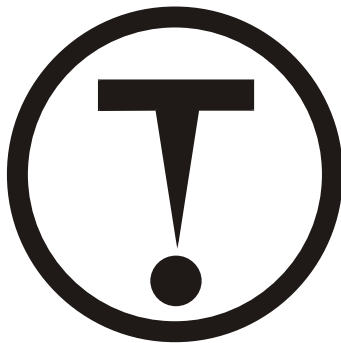
**Mexico - Grade** No information available

**Canada**

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

**WHMIS Hazard Class**

D2B Toxic materials



**16. OTHER INFORMATION**

Prepared By Regulatory Affairs

## 16. OTHER INFORMATION

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### Disclaimer

The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

**End of MSDS**