

Issue Date: 23-May-2013

Revision Date: 10-Jul-2014

Version 1

1. IDENTIFICATION

Product Name	Copper Sulfate Pentahydrate
MSDS #	OBC-007-CA
UN/ID No	UN3077
Recommended Use	For industrial use.
Synonyms	Blue Vitrol, Bluestone, Cupric Sulfate
Supplier Address	
Old Bridge Chemicals, Inc. 554 Waterworks Rd. Old Bridge, NJ 08857	
Company Phone Number	(732) 727-2225 (normal business hours) (800) 275-3924 (24 hour number)
Emergency Telephone (24 hr)	Chemtrec 1-800-424-9300 (North America) 1-703-527-3887 (International)

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW:

Harmful if swallowed
Harmful in contact with skin
Severe eye irritation
Toxic to aquatic organisms

Appearance	Transparent blue crystals or blue powder	Physical State	Solid.	Odor	Odorless
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Potential Health Effects

Acute Toxicity
Eye Contact
Skin Contact
Inhalation
Ingestion

Severely irritating to eyes.
Harmful in contact with skin.
Avoid inhalation of dust.
Harmful if swallowed.

Chronic effects

May cause damage to the following organs: kidneys, liver.

Symptoms

Causes skin irritation. Repeated or prolonged contact may cause allergic dermatitis. May cause irritation or burns on wet skin. May cause eye irritation. Irritates the digestive tract. Abdominal discomfort. Inhalation of dust can result in irritation of nasal mucous membranes and sometimes of the pharynx. On occasion ulceration with perforation of the nasal septum.

Aggravated Medical Conditions

None known.

Environmental Hazard

Toxic to aquatic organisms

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS No	Weight-%
Copper sulfate pentahydrate	7758-99-8	100

4. FIRST-AID MEASURES

Eye Contact	Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.
Skin Contact	IF ON SKIN: Wash with plenty of soap and water. Take off contaminated clothing and wash it before reuse. Call a poison center or doctor/physician if you feel unwell.
Inhalation	Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.
Ingestion	IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. Rinse mouth. Do not induce vomiting. Promptly drink large quantities of milk, egg white, gelatin solution, or if these are not available, drink large quantities of water. Never give anything by mouth to an unconscious person. Avoid alcohol.
Notes to Physician	Treat symptomatically. Material may be corrosive. Possible mucosal damage may contraindicate the use of gastric lavage. Measures against circulatory shock, respiratory depression and convulsions may be necessary. Wilson's disease can be aggravated by excessive exposure. Symptoms include nausea, vomiting, epigastric pain, diarrhea, jaundice, and general debility.

5. FIRE-FIGHTING MEASURES

Flammable properties	Not flammable.
Flash Point	Not determined
Suitable Extinguishing Media	Dry chemical, CO ₂ or water spray. Copper Sulfate does not burn nor will it support combustion.
Unsuitable Extinguishing Media	If dry heated above 600 °C/ 1112 °F, SO ₂ is evolved. If water is used it will solubilize the Copper Sulfate and care should be taken to keep such water out of streams or other bodies of water.
Hazardous Combustion Products	If heated above 400°C/752°F product can decompose to emit toxic fumes of oxide and sulfur.
Explosion Data	
Sensitivity to Mechanical Impact	None.
Sensitivity to Static Discharge	None.
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.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions	Ensure adequate ventilation, especially in confined areas.
Methods for Containment	Prevent further leakage or spillage if safe to do so.

Methods for Clean-Up Avoid the generation of dusts during clean-up. Wear NIOSH or MSHA approved respirator if dust will be generated. Dry sweep up, using a sweeping compound. Shovel spill material into plastic bags and seal with tape. Place in appropriate containers for disposal. Dispose of contents/container to an approved waste disposal plant. Prevent run off to storm sewers and ditches leading to natural waterways.

7. HANDLING AND STORAGE

Advice on Safe Handling Use personal protection recommended in Section 8. Wash face, hands and any exposed skin thoroughly after handling. Do not eat, drink or smoke when using this product. Wash thoroughly after handling before eating, drinking, smoking, or using toilet facilities. Wear protective gloves/protective clothing. Wash outside of gloves before removing. Wash and change into clean clothing as soon as possible.

Storage Conditions Keep containers tightly closed in a dry, cool and well-ventilated place. Store locked up. Store away from reducing agents. Keep away from galvanized pipe, aluminum and nylon. Store in original containers. Place damaged containers in plastic bags. Iron and moisture should be avoided. With exposure to air it will oxidize and turn whitish.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH	Canada - Alberta - Occupational Exposure Limits - Ceilings	Canada - British Columbia - Occupational Exposure Limits - Ceilings	Canada - Manitoba - Occupational Exposure Limits - Ceilings	Canada - New Brunswick - Occupational Exposure Limits - Ceilings	Canada - Newfoundland & Labrador - Occupational Exposure Limits - Ceilings
Copper sulfate pentahydrate 7758-99-8 (100)	TWA: 1 mg/m ³ Cu dust and mist	TWA: 1 mg/m ³ Cu dust and mist	IDLH: 100 mg/m ³ Cu dust and mist TWA: 1 mg/m ³ Cu dust and mist	-	-	-	-	-

Engineering Controls Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Eyewash stations. Showers.

Personal protective equipment (PPE)

Skin and Body Protection Wear long-sleeved shirt, long pants, and shoes plus socks. Wear waterproof gloves. Discard clothing and other absorbent materials that have been drenched or heavily contaminated with product's concentrate. Do not reuse them. Keep and wash PPE separately from other laundry.

Eye/Face Protection Wear safety glasses with side shields (or goggles).

Respiratory Protection If necessary, wear an approved respirator for dusts or mists: MSHA/NIOSH approved number prefix TC-21C, or a NIOSH approved respirator with any R, P or HE filter. Alternatively, provide respiratory protection in accordance with Paragraph 1910.134 of Title 29 of the Code of Federal Regulations.

General Hygiene Considerations Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical State Appearance	Solid Transparent blue crystals or blue powder	Odour	Not determined
Odour Threshold	Not determined	Colour	Not determined

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
pH	Non Applicable	
Melting Point/Freezing Point	110 °C / 230 °F	
Boiling Point/Boiling Range	150 °C / 302 °F	
Flash Point	Not determined	
Evaporation Rate	Non Applicable	
Flammability (Solid, Gas)	Not determined	
Upper Flammability Limits	Not determined	
Lower Flammability Limit	Not determined	
Vapour Density	Not determined	
Relative Density	Not determined	
Vapour Pressure	Not determined	
Water Solubility	22.37%	@ 0 °C / 32 °F
Solubility in other solvents	Soluble in methanol, glycerol and slightly soluble in ethanol	
Partition Coefficient	Not determined	
Auto-ignition Temperature	Not determined	
Decomposition Temperature	Not determined	
Kinematic Viscosity	Not determined	
Dynamic Viscosity	Not determined	
Explosive Properties	Not determined	
Oxidising Properties	Not determined	

10. STABILITY AND REACTIVITY

Stability	Stable under recommended storage conditions.
Incompatible Materials	Aluminum powders, Acetylene, Hydroxylamine, Magnesium, Moisture, Contact with magnesium can generate dangerous levels of hydrogen gas.
Conditions to Avoid	Keep out of reach of children. Solutions are mildly corrosive to steel. Store in plastic or rubber or 304, 347 or 316 stainless steel.
Hazardous Decomposition Products	Under normal conditions of storage and use, hazardous decomposition products should not be produced. If dry heated above 600 °C / 1112 °F toxic sulfur may evolve.
Possibility of Hazardous Reactions	None under normal processing. Does not react with water.
Hazardous Polymerization	Hazardous polymerization does not occur.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity

Product Information

Oral LD50 352 mg/kg (male rat)

Inhalation Avoid inhalation of dust.

Eye Contact Severely irritating to eyes.

Skin Contact Harmful in contact with skin.

Ingestion Harmful if swallowed.

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Copper sulfate pentahydrate	= 472 mg/kg (Rat)	> 2 g/kg (Rat)	> 2.95 mg/L (Rat)

Chronic toxicity

Chronic toxicity May cause damage to the following organs: kidneys, liver.

Carcinogenicity This product does not contain any carcinogens or potential carcinogens as listed by OSHA, IARC or NTP.

Target organ effects None known.

12. ECOLOGICAL INFORMATION

This product contains a chemical which is listed as a severe marine pollutant according to DOT.

Ecotoxicity

Toxic to aquatic organisms.

Chemical Name	Algae/aquatic plants	Fish	Crustacea
Copper sulfate pentahydrate		0.66 - 1.15: 96 h Lepomis macrochirus mg/L LC50 semi-static 0.96 - 1.8: 96 h Lepomis macrochirus mg/L LC50 static 0.1478 - 0.165: 96 h Oncorhynchus mykiss mg/L LC50 flow-through 0.09 - 0.19: 96 h Oncorhynchus mykiss mg/L LC50 static 0.6752: 96 h Pimephales promelas mg/L LC50 static	0.147 - 0.227: 48 h Daphnia magna mg/L EC50 Static

13. DISPOSAL CONSIDERATIONS

Disposal of Wastes Disposal should be in accordance with applicable regional, national and local laws and regulations. With prior approval the material can be returned to the manufacturer.

Contaminated Packaging Dispose of in accordance with federal, state and local regulations. Do not reuse container.

California Hazardous Waste Status

Chemical Name	California Hazardous Waste Status
Copper sulfate pentahydrate	Toxic

14. TRANSPORT INFORMATION

DOT

When shipped domestically in non-bulk packages weighing less than 10 lbs., product is NOT REGULATED for ground transportation. The following DOT description for shipping as REGULATED only applies when shipping in packages containing more than 10 lbs. of product. When this is the case, drivers are required to have Hazmat Certification

UN/ID No UN3077
Proper Shipping Name Environmentally Hazardous Substance, solid, n.o.s. (Cupric Sulfate)
Hazard Class 9
Packing Group III

Reportable Quantity (RQ)	10 lbs
Marine Pollutant	This product contains a chemical which is listed as a severe marine pollutant according to DOT.
Emergency Response Guide Number	171

IATA

UN/ID No	UN3077
Proper Shipping Name	Environmentally Hazardous Substance, solid, n.o.s. (Cupric Sulfate)
Hazard Class	9
Packing Group	III

IMDG

UN/ID No	UN3077
Proper Shipping Name	Environmentally Hazardous Substance, solid, n.o.s. (Cupric Sulfate)
Hazard Class	9
Packing Group	III
Marine Pollutant	This product contains a chemical which is listed as a severe marine pollutant according to IMDG/IMO

TDG

UN/ID No	UN3077
Proper Shipping Name	Environmentally Hazardous Substance, solid, n.o.s. (Cupric Sulfate)
Hazard Class	9
Packing Group	III

15. REGULATORY INFORMATION

International Inventories

TSCA	Listed
DSL	Listed

Chemical Name	TSCA	DSL	NDSL	EINECS	ELINCS	ENCS	IECSC	KECL	PICCS	AICS
Copper sulfate pentahydrate						Present	X		X	X

- DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List
- EINECS/ELINCS** - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
- ENCS** - Japan Existing and New Chemical Substances
- IECSC** - China Inventory of Existing Chemical Substances
- KECL** - Korean Existing and Evaluated Chemical Substances
- PICCS** - Philippines Inventory of Chemicals and Chemical Substances
- AICS** - Australian Inventory of Chemical Substances

US Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

SARA 311/312 Hazard Categories

Acute Health Hazard	Yes
Chronic Health Hazard	Not determined
Fire Hazard	Not determined
Sudden Release of Pressure Hazard	Not determined
Reactive Hazard	Not determined

CWA (Clean Water Act)

Chemical Name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Copper sulfate pentahydrate		X		

CERCLA

Chemical Name	Hazardous Substances RQs	CERCLA/SARA RQ	Reportable Quantity (RQ)
Copper sulfate pentahydrate	10 lbs	10 lbs	10 lbs

US State Regulations**California Proposition 65**

This product does not contain any Proposition 65 chemicals

U.S. State Right-to-Know Regulations

Chemical Name	Massachusetts	New Jersey	Pennsylvania
Copper sulfate pentahydrate		X	X

International Regulations**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

Class D2

**Canadian Provincial OEL****16. OTHER INFORMATION**

NFPA	Health Hazards 3	Flammability 0	Stability 0	Special Hazards -
HMIS	Health Hazards 3	Flammability 0	Physical Hazards 0	Personal Protection -

Issue Date: 23-May-2013

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Revision Note: New format

Disclaimer

The information provided in this Material 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 guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered 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 materials or in any process, unless specified in the text.

End of Safety Data Sheet