



MATERIAL SAFETY DATA SHEET

1. Product and Company Identification

Material name	CUPRIC SULFATE PENTAHYDRATE
Version #	01
Revision date	03-27-2012
CAS #	7758-99-8
Product Codes	J.T.Baker: 1841, 1843, 1844, 1846 Macron: 4752, 4756, 4840, 4844, 7790
Synonym(s)	Copper (II) Sulfate Pentahydrate (1:1:5); blue vitriol; Sulfuric acid copper (2+) salt (1:1), Pentahydrate
Manufacturer	Avantor Performance Materials, Inc.
Address	3477 Corporate Parkway Suite #200 Center Valley, PA 18034 US
Customer Service	855-282-6867
24 Hour Emergency	908-859-2151
Chemtrec	800-424-9300

2. Hazards Identification

Emergency overview	DANGER Harmful if swallowed. Causes eye burns. Irritating to respiratory system and skin. May cause reproductive effects. Prolonged exposure may cause chronic effects.
OSHA regulatory status	This product is considered hazardous under 29 CFR 1910.1200 (Hazard Communication).
Potential health effects	
Routes of exposure	Inhalation. Ingestion. Skin contact. Eye contact.
Eyes	Causes eye burns. Dust or splashes from the mixture may cause permanent eye damage.
Skin	Irritating to skin.
Inhalation	Dust irritates the respiratory system, and may cause coughing and difficulties in breathing. This product may cause metal fume fever with resulting flu-like symptoms.
Ingestion	Harmful if swallowed. May cause irritation of the gastrointestinal tract.
Target organs	Eyes. Skin. Respiratory system. Reproductive organs. Liver. Kidneys. Blood.
Chronic effects	May cause adverse reproductive effects - such as birth defects, miscarriages, or infertility based on animal data. May cause damage to the liver and kidneys. Risk of damage to blood system. Frequent or prolonged contact may defat and dry the skin, leading to discomfort and dermatitis.
Potential environmental effects	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

3. Composition / Information on Ingredients

Components	CAS #	Percent
CUPRIC SULFATE PENTAHYDRATE	7758-99-8	98 - 100

Composition comments CAS # 7758-99-8 can be described by the CAS # 7758-98-7.

4. First Aid Measures

First aid procedures	
Eye contact	Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Get medical attention.

Skin contact	In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention if irritation develops or persists. Wash contaminated clothing before reuse. Destroy or thoroughly clean contaminated shoes.
Inhalation	Move to fresh air. If breathing is difficult, give oxygen. If breathing stops, provide artificial respiration. Get medical attention immediately.
Ingestion	Call a physician or poison control center immediately. Only induce vomiting at the instruction of medical personnel. Never give anything by mouth to an unconscious person. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.
Notes to physician	Treat symptomatically. Symptoms may be delayed.
General advice	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance.

5. Fire Fighting Measures

Flammable properties	This product is not flammable.
Extinguishing media	
Suitable extinguishing media	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Unsuitable extinguishing media	None known.
Protection of firefighters	
Specific hazards arising from the chemical	Container may explode in heat of fire.
Protective equipment and precautions for firefighters	Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask. Wear self-contained breathing apparatus with a full facepiece operated in the positive pressure demand mode when fighting fires.
Special protective equipment for fire-fighters	As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.
Specific methods	In the event of fire and/or explosion do not breathe fumes. Use water spray to cool unopened containers. Move containers from fire area if you can do so without risk. Withdraw immediately in case of rising sound from venting safety devices or any discoloration of tanks due to fire. Cool containers exposed to flames with water until well after the fire is out.

6. Accidental Release Measures

Personal precautions	Keep unnecessary personnel away. Keep upwind. Ventilate the area. Do not inhale vapor, fumes, or dust from the spilled material. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.
Environmental precautions	Prevent further leakage or spillage if safe to do so. Do not discharge into drains, water courses or onto the ground.
Methods for containment	If sweeping of a contaminated area is necessary use a dust suppressant agent which does not react with the product. Prevent entry into waterways, sewer, basements or confined areas.
Methods for cleaning up	Avoid dust formation.
	Small Spills: Sweep up or vacuum up spillage and collect in suitable container for disposal.
	Large Spills: Collect dust or particulates using a vacuum cleaner with a HEPA filter. Reduce airborne dust and prevent scattering by moistening with water.
	Never return spills in original containers for re-use. Clean contaminated surface thoroughly. Clean up in accordance with all applicable regulations.

7. Handling and Storage

Handling	Wear appropriate personal protective equipment. Keep formation of airborne dusts to a minimum. Do not breathe fumes or dust from this material. Do not get in eyes and avoid contact with skin and clothing. Do not taste or swallow. Do not eat, drink or smoke when using the product. Use only with adequate ventilation. Wash thoroughly after handling. See Section 8 of the MSDS for Personal Protective Equipment.
Storage	Keep container tightly closed. Store in a well-ventilated place.

8. Exposure Controls / Personal Protection

Engineering controls	Ventilation should be sufficient to effectively remove and prevent buildup of any dusts or fumes that may be generated during handling or thermal processing. If engineering measures are not sufficient to maintain concentrations of dust particulates below the OEL, suitable respiratory protection must be worn.
Personal protective equipment	
Eye / face protection	Wear safety glasses with side shields (or goggles).
Skin protection	Wear appropriate chemical resistant clothing. Wear appropriate chemical resistant gloves.
Respiratory protection	If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. Respirator type: High-efficiency particulate respirator with full facepiece.
General hygiene considerations	Provide eyewash station and safety shower. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical & Chemical Properties

Appearance	Crystalline.
Color	Blue.
Odor	Odorless.
Odor threshold	Not available.
Physical state	Solid.
Form	Crystalline powder.
pH	4 (0.2 M Solution)
Melting point	230 °F (110 °C)
Flash point	Not available.
Flammability limits in air, upper, % by volume	Not available.
Flammability limits in air, lower, % by volume	Not available.
Vapor density	Not available.
Specific gravity	2.28 @ 15.6°C/4°C
Relative density	Not available.
Solubility (water)	Soluble
Partition coefficient (n-octanol/water)	Not available
Auto-ignition temperature	Not available.
Molecular weight	249.69 g/mol
Molecular formula	CuSO ₄ 5H ₂ O

10. Chemical Stability & Reactivity Information

Chemical stability	Stable under normal temperature conditions.
Conditions to avoid	Avoid dust formation. Excessive heat.

Incompatible materials	Strong oxidizing agents. Magnesium.
Hazardous decomposition products	May include oxides of copper. Sulfur oxides.
Possibility of hazardous reactions	Hazardous polymerization does not occur.

11. Toxicological Information

Toxicological data

Product	Test Results
CUPRIC SULFATE PENTAHYDRATE (7758-99-8)	Acute Oral LD50 Rat: 960 mg/kg
Acute effects	Harmful if swallowed.
Local effects	Causes skin irritation. Causes eye burns. Irritating to respiratory system.
Chronic effects	May cause damage to the liver and kidneys. Risk of damage to blood system. Frequent or prolonged contact may defat and dry the skin, leading to discomfort and dermatitis.
Carcinogenicity	This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.
Skin corrosion/irritation	Causes skin irritation.
Epidemiology	No epidemiological data is available for this product.
Mutagenicity	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.
Reproductive effects	Suspected of damaging fertility or the unborn child.
Symptoms and target organs	Irritant effects.

12. Ecological Information

Ecotoxicological data

Product	Test Results
CUPRIC SULFATE PENTAHYDRATE (7758-99-8)	EC50 Water flea (<i>Bosmina longirostris</i>): 0.0014 mg/l 48.00 hours LC50 Bluegill (<i>Lepomis macrochirus</i>): 0.66 mg/l 96.00 hours
Ecotoxicity	Expected to be very toxic to aquatic organisms. May cause long-term adverse effects in the environment.
Persistence and degradability	The product is not biodegradable.
Partition coefficient (n-octanol/water)	Not available

13. Disposal Considerations

14. Transport Information

DOT

Basic shipping requirements:

UN number	UN3288
Proper shipping name	TOXIC SOLID, INORGANIC, N.O.S. (CUPRIC SULFATE)
Hazard class	6.1
Packing group	III
Special precautions	IMDG Regulated Marine Pollutant.

Additional information:

Special provisions	IB8, IP3, T1, TP33
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Basic shipping requirements:

Labels required	6.1
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Additional information:

Packaging exceptions	153
Packaging non bulk	213
Packaging bulk	240
Reportable quantity	10
ERG number	151

Notes Depending on the quantity of material shipped, this product may be subject to the Hazardous Substances (RQ) requirements illustrated in the 49 CFR 172.101 Appendix A.

IATA

Basic shipping requirements:

UN number	3288
Proper shipping name	TOXIC SOLID, INORGANIC, N.O.S. (CUPRIC SULFATE)
Hazard class	6.1
Packing group	III
Environmental hazards	
Marine pollutant	Yes
Special precautions	IMDG Regulated Marine Pollutant.
Additional information:	
ERG code	6L

IMDG

Basic shipping requirements:

UN number	3288
Proper shipping name	TOXIC SOLID, INORGANIC, N.O.S. (CUPRIC SULFATE)
Hazard class	6.1
Packing group	III
Environmental hazards	
Marine pollutant	Yes
Special precautions	IMDG Regulated Marine Pollutant.



15. Regulatory Information

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

This product is not listed on the U.S. EPA TSCA Inventory. Under TSCA, hydrates are considered mixtures of their anhydrous salt and water. Accordingly, the anhydrous form is subject to TSCA reporting requirements.

US EPCRA (SARA Title III) Section 313 - Toxic Chemical: De minimis concentration

CUPRIC SULFATE PENTAHYDRATE (CAS 7758-99-8) 1.0 % N100

US EPCRA (SARA Title III) Section 313 - Toxic Chemical: Listed substance

CUPRIC SULFATE PENTAHYDRATE (CAS 7758-99-8) Listed. N100

CERCLA (Superfund) reportable quantity

CUPRIC SULFATE PENTAHYDRATE: 10.0000

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories	Immediate Hazard - Yes Delayed Hazard - Yes Fire Hazard - No Pressure Hazard - No Reactivity Hazard - No
Section 311 hazardous chemical	Yes

Clean Water Act (CWA)	Hazardous substance Priority pollutant Toxic pollutant
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Safe Drinking Water Act (SDWA)	1.3 mg/l 1.3 mg/l
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Food and Drug Administration (FDA)	Total food additive Direct food additive GRAS food additive
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Inventory status

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	No
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	No

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

State regulations	This product does not contain a chemical known to the State of California to cause cancer, birth defects or other reproductive harm.
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US - New Jersey Community RTK (EHS Survey): Reportable threshold

CUPRIC SULFATE PENTAHYDRATE (CAS 7758-99-8) 500 LBS

US - Pennsylvania RTK - Hazardous Substances: Listed substance

CUPRIC SULFATE PENTAHYDRATE (CAS 7758-99-8) Listed.

Saf-T-Data	Health: 2 - Moderate (Poison) Flammability: 0 - None Reactivity: 1 - Slight Contact: 3 - Severe Lab Protective Equip: B - GOGGLES; LAB COAT; VENT HOOD; PROPER GLOVES Storage Color Code: B - Blue (Health)
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16. Labeling Info

Label Hazard Warning	DANGER Harmful if swallowed. Causes eye burns. Irritating to respiratory system and skin. May cause reproductive effects. Prolonged exposure may cause chronic effects.
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Label Precautions	Do not breathe dust. Do not get in eyes and avoid contact with skin and clothing. Do not taste or swallow. Use only with adequate ventilation. Wash thoroughly after handling. Keep container closed.
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Label First Aid

Immediately flush eyes with plenty of water for at least 15 minutes. Immediately flush skin with plenty of water. If gas/fume/vapor/dust/mist from the material is inhaled, remove the affected person immediately to fresh air. Get medical attention immediately. IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. Do not induce vomiting without advice from poison control center.

17. Other Information

NFPA ratings

Health: 3
Flammability: 0
Instability: 0

Disclaimer

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Issue date

03-27-2012