

CUPRIC SULFATE, PENTAHYDRATE

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Revision date: 12/03/2014 Version: 1.0

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product form : Substance
 Trade name : CUPRIC SULFATE, PENTAHYDRATE
 CAS No : 7758-99-8
 Product code : AB00373
 Formula : CuSO₄.5H₂O

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture : Laboratory use/Manufacturing component/Research
 Use of the substance/mixture : Algicide
 Fungicide
 Molluscicide
 Germicide
 Insecticide
 Food industry: additive
 industrial use: component
 Chemical raw material

1.3. Details of the supplier of the safety data sheet

AmericanBio, Inc.
 15 Erie Dr.
 Natick, MA 01760 - USA
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1.4. Emergency telephone number

Emergency number : 855.835.2572 (U.S.) :: 760.602.8703 (Outside U.S.)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification (GHS-US)

Acute Tox. 3 (Oral) H301

2.2. Label elements

GHS-US labeling

Hazard pictograms (GHS-US) :



GHS06

Signal word (GHS-US) : Danger
 Hazard statements (GHS-US) : H301 - Toxic if swallowed
 Precautionary statements (GHS-US) : P264 - Wash hands, forearms and face thoroughly after handling
 P270 - Do not eat, drink or smoke when using this product
 P301+P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
 P321 - Specific treatment (see SECTION 4 on this label)
 P330 - If swallowed, rinse mouth
 P405 - Store locked up
 P501 - Dispose of contents/container to Local/Federal regulations

2.3. Other hazards

No additional information available

2.4. Unknown acute toxicity (GHS-US)

No data available

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SECTION 3: Composition/information on ingredients

3.1. Substance

Name	Product identifier	%	Classification (GHS-US)
CUPRIC SULFATE, PENTAHYDRATE (Main constituent)	(CAS No) 7758-99-8	100	Acute Tox. 3 (Oral), H301

Full text of H-phrases: see section 16

3.2. Mixture

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

- First-aid measures general : Check the vital functions. Unconscious: maintain adequate airway and respiration. Respiratory arrest: artificial respiration or oxygen. Cardiac arrest: perform resuscitation. Victim conscious with laboured breathing: half-seated. Victim in shock: on his back with legs slightly raised. Vomiting: prevent asphyxia/aspiration pneumonia. Prevent cooling by covering the victim (no warming up). Keep watching the victim. Give psychological aid. Keep the victim calm, avoid physical strain. Depending on the victim's condition: doctor/hospital. Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).
- First-aid measures after inhalation : Remove the victim into fresh air. Respiratory problems: consult a doctor/medical service. Assure fresh air breathing. Allow the victim to rest.
- First-aid measures after skin contact : Wash immediately with lots of water. Do not apply (chemical) neutralizing agents. Take victim to a doctor if irritation persists. Remove affected clothing and wash all exposed skin area with mild soap and water, followed by warm water rinse.
- First-aid measures after eye contact : Rinse immediately with plenty of water. Do not apply neutralizing agents. Take victim to an ophthalmologist if irritation persists. Rinse immediately with plenty of water. Obtain medical attention if pain, blinking or redness persist.
- First-aid measures after ingestion : Rinse mouth with water. Immediately after ingestion: give lots of water to drink. Call Poison Information Centre (www.big.be/antigif.htm). Consult a doctor/medical service if you feel unwell. Ingestion of large quantities: immediately to hospital. Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention. Immediately call a POISON CENTER or doctor/physician. Specific treatment (see Consult a doctor/medical service if you feel unwell on this label).

4.2. Most important symptoms and effects, both acute and delayed

- Symptoms/injuries after inhalation : AFTER INHALATION OF DUST: Dry/sore throat. Coughing. ON HEATING: Metal fume fever.
- Symptoms/injuries after skin contact : Tingling/irritation of the skin.
- Symptoms/injuries after eye contact : Irritation of the eye tissue.
- Symptoms/injuries after ingestion : Metal taste. Irritation of the oral mucous membranes. Nausea. Vomiting. Headache. Dizziness. Feeling of weakness. AFTER ABSORPTION OF HIGH QUANTITIES: Abdominal pain. Diarrhoea. Change in the haemogramme/blood composition. Change in urine composition. Disturbances of consciousness. Toxic if swallowed. Swallowing a small quantity of this material will result in serious health hazard.
- Chronic symptoms : ON CONTINUOUS/REPEATED EXPOSURE/CONTACT: Red skin. Itching. Skin rash/inflammation. Feeling of weakness. Loss of weight. Coughing. Possible inflammation of the respiratory tract. Risk of pneumonia. Enlargement/affection of the liver.

4.3. Indication of any immediate medical attention and special treatment needed

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media

- suitable extinguishing media : EXTINGUISHING MEDIA FOR SURROUNDING FIRES: Adapt extinguishing media to the environment. Foam. Dry powder. Carbon dioxide. Water spray. Sand.
- Unsuitable extinguishing media : No unsuitable extinguishing media known. Do not use a heavy water stream.

5.2. Special hazards arising from the substance or mixture

- Fire hazard : DIRECT FIRE HAZARD. Non combustible. INDIRECT FIRE HAZARD. Reactions involving a fire hazard: see "Reactivity Hazard".
- Explosion hazard : DIRECT EXPLOSION HAZARD. No data available on direct explosion hazard. INDIRECT EXPLOSION HAZARD. No data available on indirect explosion hazard.
- Reactivity : Reacts on exposure to water (moisture) with (some) metals. On burning: release of toxic and corrosive gases/vapours (sulphur oxides) and formation of metallic fumes. Reacts exothermically with (some) compounds: (increased) risk of fire. Reacts violently with (strong) reducers.

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5.3. Advice for firefighters

- Precautionary measures fire : Exposure to fire/heat: keep upwind. Exposure to fire/heat: consider evacuation. Exposure to fire/heat: have neighbourhood close doors and windows.
- Firefighting instructions : Dilute toxic gases with water spray. Take account of environmentally hazardous firefighting water. Use water moderately and if possible collect or contain it. Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Avoid (reject) fire-fighting water to enter environment.
- Protection during firefighting : Heat/fire exposure: compressed air/oxygen apparatus. Do not enter fire area without proper protective equipment, including respiratory protection.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

- Protective equipment : Gloves. Face-shield. Protective clothing. Dust cloud production: compressed air/oxygen apparatus. Dust cloud production: dust-tight suit. See "Material-Handling" to select protective clothing.
- Emergency procedures : Mark the danger area. Prevent dust cloud formation. No naked flames. Wash contaminated clothes. In case of reactivity hazard: consider evacuation. Evacuate unnecessary personnel.
- Measures in case of dust release : In case of dust production: keep upwind. Dust production: have neighbourhood close doors and windows.

6.1.2. For emergency responders

- Protective equipment : Equip cleanup crew with proper protection.
- Emergency procedures : Ventilate area.

6.2. Environmental precautions

Prevent soil and water pollution. Prevent spreading in sewers. Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

- For containment : Contain released substance, pump into suitable containers. Plug the leak, cut off the supply. Dam up the solid spill. Knock down/dilute dust cloud with water spray.
- Methods for cleaning up : Prevent dispersion by covering with dry sand/earth. Scoop solid spill into closing containers. Carefully collect the spill/leftovers. Clean contaminated surfaces with an excess of water. Wash clothing and equipment after handling. On land, sweep or shovel into suitable containers. Minimize generation of dust. Store away from other materials.

6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

- Precautions for safe handling : Comply with the legal requirements. Remove contaminated clothing immediately. Clean contaminated clothing. Thoroughly clean/dry the installation before use. Do not discharge the waste into the drain. Avoid raising dust. Keep away from naked flames/heat. Observe strict hygiene. Keep container tightly closed. Measure the concentration in the air regularly. Carry operations in the open/under local exhaust/ventilation or with respiratory protection. Wash hands and other exposed areas with mild soap and water before eat, drink or smoke and when leaving work. Provide good ventilation in process area to prevent formation of vapor.
- Hygiene measures : Wash hands and other exposed areas with mild soap and water before eat, drink or smoke and when leaving work.

7.2. Conditions for safe storage, including any incompatibilities

- Storage conditions : Keep only in the original container in a cool, well ventilated place away from : Direct sunlight. Keep container closed when not in use.
- Incompatible products : Strong bases. strong acids.
- Incompatible materials : Sources of ignition. Direct sunlight.
- Heat-ignition : KEEP SUBSTANCE AWAY FROM: heat sources.
- Prohibitions on mixed storage : KEEP SUBSTANCE AWAY FROM: reducing agents. (strong) bases. water/moisture.
- Storage area : Store in a dry area. Keep container in a well-ventilated place. Meet the legal requirements. Keep out of direct sunlight.
- Special rules on packaging : SPECIAL REQUIREMENTS: hermetical. watertight. dry. clean. correctly labelled. meet the legal requirements. Secure fragile packagings in solid containers.

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Packaging materials : SUITABLE MATERIAL: No data available. MATERIAL TO AVOID: No data available.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

No additional information available

8.2. Exposure controls

Personal protective equipment : Avoid all unnecessary exposure.
Materials for protective clothing : GIVE GOOD RESISTANCE: butyl rubber. PVC. viton.
Hand protection : Gloves. Wear protective gloves.
Eye protection : Face shield. In case of dust production: protective goggles. Chemical goggles or safety glasses.
Skin and body protection : Protective clothing. In case of dust production: head/neck protection. In case of dust production: dustproof clothing.
Respiratory protection : Dust production: dust mask with filter type P2. Dust production: dust mask with filter type P3. Wear approved mask.
Other information : When using, do not eat, drink or smoke.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state : Solid
Appearance : Crystalline solid. Crystalline powder.
Molecular mass : 249.68 g/mol
Color : Blue.
Odor : Odourless.
Odor threshold : No data available
pH : 4.0 (3.2 %)
pH solution : 3.2 %
Relative evaporation rate (butyl acetate=1) : No data available
Melting point : No data available
Freezing point : No data available
Boiling point : Not applicable
Flash point : Not applicable
Self ignition temperature : No data available
Decomposition temperature : > 110 °C
Flammability (solid, gas) : No data available
Vapor pressure : No data available
Relative vapor density at 20 °C : No data available
Relative density : 2.3
Density : 2286 kg/m³
Solubility : Soluble in water. Soluble in methanol. Soluble in glycerol.
Water: 23 g/100ml
Ethanol: 16 g/100ml (18 °C)
Log Pow : No data available
Log Kow : No data available
Viscosity, kinematic : No data available
Viscosity, dynamic : No data available
Explosive properties : No data available
Oxidizing properties : No data available
Explosive limits : No data available

9.2. Other information

VOC content : Not applicable
Other properties : Hygroscopic. Substance has acid reaction.

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SECTION 10: Stability and reactivity

10.1. Reactivity

Reacts on exposure to water (moisture) with (some) metals. On burning: release of toxic and corrosive gases/vapours (sulphur oxides) and formation of metallic fumes. Reacts exothermically with (some) compounds: (increased) risk of fire. Reacts violently with (strong) reducers.

10.2. Chemical stability

Hygroscopic. Not established.

10.3. Possibility of hazardous reactions

Not established.

10.4. Conditions to avoid

Direct sunlight. Extremely high or low temperatures.

10.5. Incompatible materials

strong acids. Strong bases.

10.6. Hazardous decomposition products

fume. Carbon monoxide. Carbon dioxide.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Toxic if swallowed.

CUPRIC SULFATE, PENTAHYDRATE (f)7758-99-8	
LD50 oral rat	300 mg/kg (Rat; OECD 401: Acute Oral Toxicity; Experimental value; 482 mg/kg bodyweight; Rat)
LD50 dermal rabbit	> 2000 mg/kg (Rabbit; Literature study; OECD 402: Acute Dermal Toxicity)

Skin corrosion/irritation : Not classified
pH: 4.0 (3.2 %)

Serious eye damage/irritation : Not classified
pH: 4.0 (3.2 %)

Respiratory or skin sensitization : Not classified

Germ cell mutagenicity : Not classified

Carcinogenicity : Not classified

Reproductive toxicity : Not classified

Specific target organ toxicity (single exposure) : Not classified

Specific target organ toxicity (repeated exposure) : Not classified

Aspiration hazard : Not classified

Potential Adverse human health effects and symptoms : Based on available data, the classification criteria are not met. Toxic if swallowed.

Symptoms/injuries after inhalation : AFTER INHALATION OF DUST: Dry/sore throat. Coughing. ON HEATING: Metal fume fever.

Symptoms/injuries after skin contact : Tingling/irritation of the skin.

Symptoms/injuries after eye contact : Irritation of the eye tissue.

Symptoms/injuries after ingestion : Metal taste. Irritation of the oral mucous membranes. Nausea. Vomiting. Headache. Dizziness. Feeling of weakness. AFTER ABSORPTION OF HIGH QUANTITIES: Abdominal pain. Diarrhoea. Change in the haemogramme/blood composition. Change in urine composition. Disturbances of consciousness. Toxic if swallowed. Swallowing a small quantity of this material will result in serious health hazard.

Chronic symptoms : ON CONTINUOUS/REPEATED EXPOSURE/CONTACT: Red skin. Itching. Skin rash/inflammation. Feeling of weakness. Loss of weight. Coughing. Possible inflammation of the respiratory tract. Risk of pneumonia. Enlargement/affection of the liver.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : Dangerous for the environment.

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- Ecology - air : Not classified as dangerous for the ozone layer (Regulation (EC) No 1005/2009). Not included in the list of substances which may contribute to the greenhouse effect (Regulation (EC) No 842/2006). TA-Luft Klasse 5.2.1.
- Ecology - water : Ground water pollutant. Maximum concentration in drinking water: 2.0 mg/l (copper) (Directive 98/83/EC); 250 mg/l (sulfate) (Directive 98/83/EC). Highly toxic to fishes. Very toxic to invertebrates (Daphnia). Highly toxic to algae. pH shift.

CUPRIC SULFATE, PENTAHYDRATE (7758-99-8)	
LC50 fish 1	1.5 mg/l (24 h; Lepomis macrochirus; Toxicity test)
EC50 Daphnia 1	0.109 - 0.798 mg/l (48 h; Daphnia magna; Anhydrous form)
LC50 fish 2	0.17 mg/l (24 h; Salmo gairdneri (Oncorhynchus mykiss); Anhydrous form)
TLM fish 1	3.8 ppm 24 h; Salmo gairdneri (Oncorhynchus mykiss)
Threshold limit algae 1	0.01 - 0.28,72 h; Selenastrum capricornutum; Anhydrous form
Threshold limit algae 2	0.368 mg/l (72 h; Pseudokirchneriella subcapitata; Anhydrous form)

12.2. Persistence and degradability

CUPRIC SULFATE, PENTAHYDRATE (7758-99-8)	
Persistence and degradability	Biodegradability: not applicable. No (test)data on mobility of the substance available. Not established.
Biochemical oxygen demand (BOD)	Not applicable
Chemical oxygen demand (COD)	Not applicable
ThOD	Not applicable
BOD (% of ThOD)	Not applicable

12.3. Bioaccumulative potential

CUPRIC SULFATE, PENTAHYDRATE (7758-99-8)	
Bioaccumulative potential	Bioaccumable. Not established.

12.4. Mobility in soil

CUPRIC SULFATE, PENTAHYDRATE (7758-99-8)	
Ecology - soil	Toxic to flora.

12.5. Other adverse effects

- Other information : Avoid release to the environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

- Waste disposal recommendations : Remove waste in accordance with local and/or national regulations. Hazardous waste shall not be mixed together with other waste. Different types of hazardous waste shall not be mixed together if this may entail a risk of pollution or create problems for the further management of the waste. Hazardous waste shall be managed responsibly. All entities that store, transport or handle hazardous waste shall take the necessary measures to prevent risks of pollution or damage to people or animals. Recycle/reuse. Precipitate/make insoluble. Remove to an authorized dump (Class I). Do not discharge into the sewer. Dispose in a safe manner in accordance with local/national regulations. Dispose of contents/container to Local/Federal regulations.
- Additional information : LWCA (the Netherlands); KGA category 05. Hazardous waste according to Directive 2008/98/EC.
- Ecology - waste materials : Avoid release to the environment. Hazardous waste due to toxicity.

SECTION 14: Transport information

In accordance with DOT
No dangerous good in sense of transport regulations

Additional information

- Other information : No supplementary information available.

ADR

- Transport document description : UN 3077, 9, III, (E)
Packing group (ADR) : III
Class (ADR) : 9 - Miscellaneous dangerous substances and articles
Hazard identification number (Kemler No.) : 90

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Classification code (ADR) : M7
Danger labels (ADR) : 9 - Miscellaneous dangerous compounds



Orange plates :

Tunnel restriction code : E

Transport by sea

UN-No. (IMDG) : 3077
Class (IMDG) : 9 - Miscellaneous dangerous compounds
EmS-No. (1) : F-A
EmS-No. (2) : S-F

Air transport

UN-No.(IATA) : 3077
Class (IATA) : 9 - Miscellaneous Dangerous Goods
Packing group (IATA) : III - Minor Danger

SECTION 15: Regulatory information

15.1. US Federal regulations

CUPRIC SULFATE, PENTAHYDRATE (7758-99-8)

Not listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2. International regulations

CANADA

No additional information available

EU-Regulations

No additional information available

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Acute Tox. 4 (Oral) H302
Eye Irrit. 2 H319
Skin Irrit. 2 H315
Aquatic Acute 1 H400
Aquatic Chronic 1 H410

Full text of H-phrases: see section 16

Classification according to Directive 67/548/EEC or 1999/45/EC

Xn; R22
Xi; R36/38
N; R50/53

Full text of R-phrases: see section 16

15.2.2. National regulations

No additional information available

15.3. US State regulations

No additional information available

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SECTION 16: Other information

Other information : None.

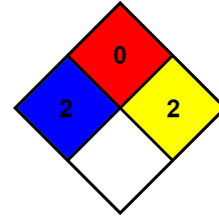
Full text of H-phrases: see section 16:

Acute Tox. 3 (Oral)	Acute toxicity (oral) Category 3
H301	Toxic if swallowed

NFPA health hazard : 2 - Intense or continued exposure could cause temporary incapacitation or possible residual injury unless prompt medical attention is given.

NFPA fire hazard : 0 - Materials that will not burn.

NFPA reactivity : 2 - Normally unstable and readily undergo violent decomposition but do not detonate. Also: may react violently with water or may form potentially explosive mixtures with water.



SDS US (GHS HazCom 2012)

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