

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

1.1. Product identifier

Product form : Mixture
Product name : Copper Sulfate, Sp. Gr. 1.186 @ 18.4°C
Product code : LC13445

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

Use of the substance/mixture : For laboratory and manufacturing use only.

1.3. Details of the supplier of the safety data sheet

LabChem Inc
Jackson's Pointe Commerce Park Building 1000, 1010 Jackson's Pointe Court
Zelienople, PA 16063 - USA
T 412-826-5230 - F 724-473-0647
info@labchem.com - www.labchem.com

1.4. Emergency telephone number

Emergency number : CHEMTREC: 1-800-424-9300 or 011-703-527-3887

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

GHS-US classification

Acute Tox. 4 (Oral) H302
Aquatic Acute 1 H400
Aquatic Chronic 1 H410

2.2. Label elements

GHS-US labelling

Hazard pictograms (GHS-US) :



Signal word (GHS-US) : Warning

Hazard statements (GHS-US) : H302 - Harmful if swallowed
H400 - Very toxic to aquatic life
H410 - Very toxic to aquatic life with long lasting effects

Precautionary statements (GHS-US) : P264 - Wash exposed skin thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P273 - Avoid release to the environment
P301+P312 - IF SWALLOWED: call a POISON CENTER or doctor/physician if you feel unwell
P330 - If swallowed, rinse mouth
P391 - Collect spillage
P501 - Dispose of contents/container to comply with local, state and federal regulations

2.3. Other hazards

Other hazards not contributing to the classification : None.

2.4. Unknown acute toxicity (GHS-US)

No data available

SECTION 3: Composition/information on ingredients

3.1. Substance

Not applicable
Full text of H-phrases: see section 16

3.2. Mixture

Copper Sulfate, Sp. Gr. 1.186 @ 18.4°C

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| Name | Product identifier | % | GHS-US classification |
|-----------------------------------|--------------------|-------|---|
| Water | (CAS No) 7732-18-5 | 70.48 | Not classified |
| Copper (II) Sulfate, Pentahydrate | (CAS No) 7758-99-8 | 29.52 | Acute Tox. 3 (Oral), H301 Aquatic Acute 1, H400 Aquatic Chronic 1, H410 |

SECTION 4: First aid measures

4.1. Description of first aid measures

- First-aid measures general : 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 : Assure fresh air breathing. Allow the victim to rest.
- First-aid measures after skin contact : 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. Obtain medical attention if pain, blinking or redness persist.
- First-aid measures after ingestion : Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention. Call a POISON CENTER/doctor/physician if you feel unwell.

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

- Symptoms/injuries after ingestion : Swallowing a small quantity of this material will result in serious health hazard.

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 : Foam. Dry powder. Carbon dioxide. Water spray. Sand.
- Unsuitable extinguishing media : Do not use a heavy water stream.

5.2. Special hazards arising from the substance or mixture

No additional information available

5.3. Advice for firefighters

- Firefighting instructions : Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire-fighting water from entering environment.
- Protection during firefighting : 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 : Safety glasses. Gloves.
- Emergency procedures : Evacuate unnecessary personnel.

6.1.2. For emergency responders

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

6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters. Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

- Methods for cleaning up : Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Collect spillage. 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 : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapour.
- Hygiene measures : Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Wash exposed skin thoroughly after handling.

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7.2. Conditions for safe storage, including any incompatibilities

| | |
|------------------------|--|
| Storage conditions | : Keep container closed when not in use. |
| Incompatible products | : Strong reducing agents. Strong bases. |
| Incompatible materials | : Sources of ignition. Direct sunlight. |

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

| | |
|----------------------------------|--|
| Appropriate engineering controls | : Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Provide adequate general and local exhaust ventilation. |
| Personal protective equipment | : Avoid all unnecessary exposure. |
| Hand protection | : Wear protective gloves. |
| Eye protection | : Chemical goggles or safety glasses. |
| Respiratory protection | : Wear appropriate mask. |
| Other information | : Do not eat, drink or smoke during use. |

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

| | |
|--|----------------------|
| Physical state | : Liquid |
| Colour | : Blue. |
| Odour | : None. |
| Odour threshold | : No data available |
| pH | : No data available |
| Relative evaporation rate (butylacetate=1) | : No data available |
| Melting point | : No data available |
| Freezing point | : No data available |
| Boiling point | : No data available |
| Flash point | : No data available |
| Self ignition temperature | : No data available |
| Decomposition temperature | : No data available |
| Flammability (solid, gas) | : No data available |
| Vapour pressure | : No data available |
| Relative vapour density at 20 °C | : No data available |
| Relative density | : No data available |
| Solubility | : Soluble in water. |
| Log Pow | : No data available |
| Log Kow | : No data available |
| Viscosity, kinematic | : No data available |
| Viscosity, dynamic | : No data available |
| Explosive properties | : Not applicable. |
| Oxidising properties | : No data available. |
| Explosive limits | : No data available |

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

No additional information available

10.2. Chemical stability

Stable under normal conditions.

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10.3. Possibility of hazardous reactions

Not established.

10.4. Conditions to avoid

Extremely high or low temperatures.

10.5. Incompatible materials

Strong reducing agents. Strong bases.

10.6. Hazardous decomposition products

Sulfur compounds. copper.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Harmful if swallowed.

| Copper Sulfate, Sp. Gr. 1.186 @ 18.4°C | |
|--|------------|
| LD50 oral rat | 1016 mg/kg |

| Copper (II) Sulfate, Pentahydrate (7758-99-8) | |
|---|---|
| LD50 oral rat | 300 mg/kg (482 mg/kg bodyweight; Rat; Rat; Experimental value,482 mg/kg bodyweight; Rat; Rat; Experimental value) |
| LD50 dermal rabbit | > 2000 mg/kg (Rabbit) |

| Water (7732-18-5) | |
|-------------------|---------------|
| LD50 oral rat | ≥ 90000 mg/kg |

Skin corrosion/irritation : Not classified

Serious eye damage/irritation : Not classified

Respiratory or skin sensitisation : 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. Harmful if swallowed.

Symptoms/injuries after ingestion : Swallowing a small quantity of this material will result in serious health hazard.

Likely routes of exposure : Skin and eye contact

SECTION 12: Ecological information

12.1. Toxicity

Ecology - water : Very toxic to aquatic life with long lasting effects.

| Copper Sulfate, Sp. Gr. 1.186 @ 18.4°C | |
|--|------------|
| LC50 fishes 1 | 0.339 mg/l |

| Copper (II) Sulfate, Pentahydrate (7758-99-8) | |
|---|---|
| LC50 fishes 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

| Copper Sulfate, Sp. Gr. 1.186 @ 18.4°C | |
|--|----------------------------|
| Persistence and degradability | Not readily biodegradable. |

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| Copper (II) Sulfate, Pentahydrate (7758-99-8) | |
|--|------------------|
| Persistence and degradability | Not established. |
| Biochemical oxygen demand (BOD) | Not applicable |
| Chemical oxygen demand (COD) | Not applicable |
| ThOD | Not applicable |
| BOD (% of ThOD) | Not applicable |

| Water (7732-18-5) | |
|-------------------------------|------------------|
| Persistence and degradability | Not established. |

12.3. Bioaccumulative potential

| Copper Sulfate, Sp. Gr. 1.186 @ 18.4°C | |
|---|------------------|
| Bioaccumulative potential | Not established. |

| Copper (II) Sulfate, Pentahydrate (7758-99-8) | |
|--|--------------------------------|
| Bioaccumulative potential | Bioaccumable. Not established. |

| Water (7732-18-5) | |
|---------------------------|------------------|
| Bioaccumulative potential | Not established. |

12.4. Mobility in soil

| Copper Sulfate, Sp. Gr. 1.186 @ 18.4°C | |
|---|---|
| Ecology - soil | May be harmful to plant growth, blooming and fruit formation. |

| Copper (II) 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 : Dispose in a safe manner in accordance with local/national regulations. Dispose of contents/container to comply with local, state and federal regulations.

Ecology - waste materials : Avoid release to the environment.

SECTION 14: Transport information

In accordance with DOT

Transport document description : UN3082 Environmentally hazardous substances, liquid, n.o.s. (Copper Sulfate), 9, III

UN-No.(DOT) : 3082

DOT NA no. : UN3082

DOT Proper Shipping Name : Environmentally hazardous substances, liquid, n.o.s.
Copper Sulfate

Department of Transportation (DOT) Hazard Classes : 9 - Class 9 - Miscellaneous hazardous material 49 CFR 173.140

Hazard labels (DOT) : 9 - Class 9 (Miscellaneous dangerous materials)



DOT Symbols : G - Identifies PSN requiring a technical name

Packing group (DOT) : III - Minor Danger

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| | |
|--|---|
| DOT Special Provisions (49 CFR 172.102) | : 8 - A hazardous substance that is not a hazardous waste may be shipped under the shipping description "Other regulated substances, liquid or solid, n.o.s.", as appropriate. In addition, for solid materials, special provision B54 applies. 146 - This description may be used for a material that poses a hazard to the environment but does not meet the definition for a hazardous waste or a hazardous substance, as defined in 171.8 of this subchapter, or any hazard class as defined in Part 173 of this subchapter, if it is designated as environmentally hazardous by the Competent Authority of the country of origin, transit or destination. 173 - An appropriate generic entry may be used for this material. 335 - Mixtures of solids that are not subject to this subchapter and environmentally hazardous liquids or solids may be classified as "Environmentally hazardous substances, solid, n.o.s," UN3077 and may be transported under this entry, provided there is no free liquid visible at the time the material is loaded or at the time the packaging or transport unit is closed. Each transport unit must be leakproof when used as bulk packaging. IB3 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1 and 31HA2, 31HB2, 31HN2, 31HD2 and 31HH2). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 130 kPa at 55 C (1.3 bar at 131 F) are authorized, except for UN2672 (also see Special Provision IP8 in Table 2 for UN2672). T4 - 2.65 178.274(d)(2) Normal..... 178.275(d)(3) TP1 - The maximum degree of filling must not exceed the degree of filling determined by the following: Degree of filling = $97 / (1 + a (tr - tf))$ Where: tr is the maximum mean bulk temperature during transport, and tf is the temperature in degrees celsius of the liquid during filling. TP29 - A portable tank having a minimum test pressure of 1.5 bar (150.0 kPa) may be used provided the calculated test pressure is 1.5 bar or less based on the MAWP of the hazardous materials, as defined in 178.275 of this subchapter, where the test pressure is 1.5 times the MAWP. |
| DOT Packaging Exceptions (49 CFR 173.xxx) | : 155 |
| DOT Packaging Non Bulk (49 CFR 173.xxx) | : 203 |
| DOT Packaging Bulk (49 CFR 173.xxx) | : 241 |
| DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) | : No limit |
| DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) | : No limit |
| DOT Vessel Stowage Location | : A - The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel. |

Additional information

Other information : No supplementary information available.

ADR

Transport document description :

Transport by sea

No additional information available

Air transport

No additional information available

SECTION 15: Regulatory information

15.1. US Federal regulations

Copper (II) Sulfate, Pentahydrate (7758-99-8)

Listed on the United States TSCA (Toxic Substances Control Act) inventory
Listed on SARA Section 313 (Specific toxic chemical listings)

| | |
|--|-------|
| RQ (Reportable quantity, section 304 of EPA's List of Lists) : | 10 lb |
|--|-------|

Water (7732-18-5)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2. International regulations

CANADA

Copper Sulfate, Sp. Gr. 1.186 @ 18.4°C

| | |
|----------------------|---|
| WHMIS Classification | Uncontrolled product according to WHMIS classification criteria |
|----------------------|---|

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Copper (II) Sulfate, Pentahydrate (7758-99-8)

Listed on the Canadian DSL (Domestic Substances List) inventory.

WHMIS Classification

Class D Division 1 Subdivision B - Toxic material causing immediate and serious toxic effects

Water (7732-18-5)

Listed on the Canadian DSL (Domestic Substances List) inventory.

WHMIS Classification

Uncontrolled product according to WHMIS classification criteria

EU-Regulations

No additional information available

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

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

Not classified

15.2.2. National regulations

Copper (II) Sulfate, Pentahydrate (7758-99-8)

Listed on the Canadian Ingredient Disclosure List

Water (7732-18-5)

Not listed on the Canadian Ingredient Disclosure List

15.3. US State regulations

No additional information available

SECTION 16: Other information

Other information : None.

Full text of H-phrases: see section 16:

| | |
|---------------------|---|
| Acute Tox. 3 (Oral) | Acute toxicity (oral), Category 3 |
| Acute Tox. 4 (Oral) | Acute toxicity (oral), Category 4 |
| Aquatic Acute 1 | Hazardous to the aquatic environment — Acute Hazard, Category 1 |
| Aquatic Chronic 1 | Hazardous to the aquatic environment — Chronic Hazard, Category 1 |
| H301 | Toxic if swallowed |
| H302 | Harmful if swallowed |
| H400 | Very toxic to aquatic life |
| H410 | Very toxic to aquatic life with long lasting effects |

NFPA health hazard

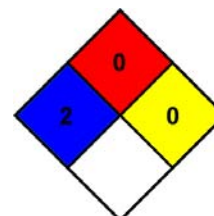
: 2 - Intense or continued exposure could cause temporary incapacitation or possible residual injury unless prompt medical attention is given.

NFPA fire hazard

: 0 - Materials that will not burn.

NFPA reactivity

: 0 - Normally stable, even under fire exposure conditions, and are not reactive with water.



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HMIS III Rating

| | |
|---------------------|---|
| Health | : 2 Moderate Hazard - Temporary or minor injury may occur |
| Flammability | : 0 Minimal Hazard |
| Physical | : 0 Minimal Hazard |
| Personal Protection | : B |

SDS US (GHS HazCom 2012)

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