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

1.1. Product identifier

Product form : Substance
Name : Cupric sulphate pentahydrate
EC Index-No. : 029-023-00-4
EC-No. : 231-847-6
CAS-No. : 7758-99-8
Formula : CuSO₄ 5H₂O

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

1.2.1. Relevant identified uses
Use of the substance/mixture : Nutrient; Dietary Supplement

1.2.2. Uses advised against
No additional information available

1.3. Details of the supplier of the safety data sheet

Manufacturer
JOST CHEMICAL CO.
8150 Lackland Rd.
MO 63114 Saint Louis - USA
T +1 314-428-4300 - F +1 314-428-4366
sds@jostchemical.com - www.jostchemical.com

Distributor
JOST CHEMICAL EUROPE SPRL
Rue du Bois Portal 30/1-3
5300 Andenne - BELGIQUE
T +32 85 552 655 - F +32 85 552 654
info@jostchemical.com

1.4. Emergency telephone number

Emergency number : For Hazardous Materials [or Dangerous Goods] Incident Spill, Leak, Fire, Exposure, or Accident
Call CHEMTREC Day or Night
United States and Canada: 1-800-424-9300 / +1 703-527-3887
Global: +1 703-741-5970

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

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

Acute Tox. 4 (Oral) : H302
Eye Dam. 1 : H318
Aquatic Acute 1 : H400 (M=10)
Aquatic Chronic 1 : H410

Full text of hazard classes and H-statements : see section 16

Adverse physicochemical, human health and environmental effects
Harmful if swallowed. Causes serious eye damage. Very toxic to aquatic life with long lasting effects.

2.2. Label elements

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

Hazard pictograms (CLP)

Signal word (CLP) : Danger
Cupric sulphate pentahydrate
Safety Data Sheet
according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

Hazard statements (CLP):
- H302 - Harmful if swallowed.
- H318 - Causes serious eye damage.
- H410 - Very toxic to aquatic life with long lasting effects.

Precautionary statements (CLP):
- P264 - Wash hands, forearms and face thoroughly after handling.
- P280 - Wear eye protection, face protection, protective gloves, protective clothing.
- P301+P312 - IF SWALLOWED: Call doctor, a POISON CENTER if you feel unwell.
- P305+P351+P338+P310 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call doctor, a POISON CENTER.
- P391 - Collect spillage.
- P273 - Avoid release to the environment.

2.3. Other hazards
This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII
This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII

SECTION 3: Composition/information on ingredients

3.1. Substances
Substance type: Mono-constituent

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
<th>Classification according to Regulation (EC) No. 1272/2008 [CLP]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cupric sulphate pentahydrate</td>
<td>(CAS-No.) 7758-99-8 (EC-No.) 231-847-6 (EC Index-No.) 029-023-00-4</td>
<td>100</td>
<td>Acute Tox. 4 (Oral), H302 Eye Dam. 1, H318 Aquatic Acute 1, H400 (M=10) Aquatic Chronic 1, H410</td>
</tr>
</tbody>
</table>

Full text of H-statements: see section 16

3.2. Mixtures
Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures after inhalation: Remove person to fresh air and keep comfortable for breathing. Get medical advice/attention if you feel unwell.
First-aid measures after skin contact: Wash skin with plenty of water. Take off contaminated clothing. In case of redness or irritation, call a doctor.
First-aid measures after eye contact: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Consult an eye specialist immediately, even if there are no immediate symptoms.
First-aid measures after ingestion: Rinse mouth. Call a physician immediately.

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

Symptoms/effects after eye contact: Causes serious eye damage.

4.3. Indication of any immediate medical attention and special treatment needed
Treat symptomatically.
SECTION 5: Firefighting measures

5.1. Extinguishing media


5.2. Special hazards arising from the substance or mixture

Fire hazard: Not combustible.
Hazardous decomposition products in case of fire: Toxic fumes may be released. Sulphur oxides.

5.3. Advice for firefighters

Precautionary measures fire: Exposure to fire/heat: have neighbourhood close doors and windows. Keep upwind. Consider evacuation.

Firefighting instructions: Use water spray or fog for cooling exposed containers. Contain the extinguishing fluids by bunding (the product is hazardous for the environment). Use water moderately and if possible collect or contain it.

Protection during firefighting: Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Emergency procedures: Ventilate spillage area. Avoid creating or spreading dust. Avoid contact with eyes.
Measures in case of dust release: If dust are formed: Keep upwind. Have neighbourhood close doors and windows.

6.1.2. For emergency responders

Protective equipment: Do not attempt to take action without suitable protective equipment. For further information refer to section 8: “Exposure controls/personal protection”.

6.2. Environmental precautions

Do not allow product to spread into the environment. Do not discharge into drains or rivers.

6.3. Methods and material for containment and cleaning up

For containment: Dam up the solid spill. Knock down/dilute dust cloud with water spray.
Methods for cleaning up: Mechanically recover the product.
Other information: Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

Concerning disposal elimination after cleaning, see section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling: Ensure good ventilation of the work station. Avoid contact with eyes. Wear personal protective equipment.
Hygiene measures: Do not drink, eat or smoke in the workplace. Always wash hands after handling the product. Wash contaminated clothing before reuse.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures: Take all necessary measures to avoid accidental discharge of products into drains and waterways due to the rupture of containers or transfer systems.
Storage conditions: Store in dry, cool, well-ventilated area. Keep container tightly closed. Protect from heat and direct sunlight.
Heat and ignition sources: Keep away from sources of ignition.
7.3. Specific end use(s)
No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

<table>
<thead>
<tr>
<th>Cupric sulphate pentahydrate (7758-99-8)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EU - Occupational Exposure Limits</td>
</tr>
<tr>
<td>Local name</td>
</tr>
<tr>
<td>IOELV TWA (mg/m³)</td>
</tr>
<tr>
<td>Notes</td>
</tr>
<tr>
<td>Regulatory reference</td>
</tr>
</tbody>
</table>

8.2. Exposure controls

Appropriate engineering controls:
Ensure good ventilation of the work station.

Hand protection:
Nitrile-rubber protective gloves. Layer thickness : 0.11 mm. Breakthrough time : > 480 min. The protective gloves to be used must comply with the specifications of the regulation 2016/425 and the resultant standard EN 374

Eye protection:
Safety glasses

Skin and body protection:
Protective clothing

Respiratory protection:
Dust production: dust mask with filter type P3. Dust production: dust mask with filter type P2

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Solid</td>
</tr>
<tr>
<td>Appearance</td>
<td>Blue crystals, Blue powder.</td>
</tr>
<tr>
<td>Molecular mass</td>
<td>249.69 g/mol</td>
</tr>
<tr>
<td>Colour</td>
<td>Blue</td>
</tr>
<tr>
<td>Odour</td>
<td>Odourless</td>
</tr>
<tr>
<td>Odour threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>pH</td>
<td>No data available</td>
</tr>
<tr>
<td>pH solution</td>
<td>4 (3.2%)</td>
</tr>
<tr>
<td>Relative evaporation rate</td>
<td>No data available</td>
</tr>
<tr>
<td>Melting point</td>
<td>110 °C</td>
</tr>
<tr>
<td>Freezing point</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Boiling point</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Flash point</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Critical temperature</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>&gt; 110 °C</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Not flammable</td>
</tr>
</tbody>
</table>
Cupric sulphate pentahydrate
Safety Data Sheet
according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vapour pressure</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative vapour density at 20 °C</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative density</td>
<td>2.3</td>
</tr>
<tr>
<td>Density</td>
<td>2286 kg/m³</td>
</tr>
<tr>
<td>Solubility</td>
<td>Soluble in water. Soluble in methanol. Soluble in glycerol.</td>
</tr>
<tr>
<td>Water:</td>
<td>23 g/100ml</td>
</tr>
<tr>
<td>Ethanol:</td>
<td>16 g/100ml (18 °C)</td>
</tr>
<tr>
<td>Partition coefficient n-octanol/water (Log Pow)</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity, kinematic</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity, dynamic</td>
<td>No data available</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>Not explosive</td>
</tr>
<tr>
<td>Oxidising properties</td>
<td>Non oxidizing material according to EC criteria.</td>
</tr>
<tr>
<td>Explosive limits</td>
<td>No data available</td>
</tr>
</tbody>
</table>

9.2. Other information

VOC content: 0 %
Other properties: Hygroscopic product. Substance has acid reaction.

SECTION 10: Stability and reactivity

10.1. Reactivity
Reacts on exposure to water (moisture) with (some) metals.

10.2. Chemical stability
Stable at ambient temperature and under normal conditions of use. Hygroscopic product.

10.3. Possibility of hazardous reactions
No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid
None under recommended storage and handling conditions (see section 7).

10.5. Incompatible materials

10.6. Hazardous decomposition products
Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral): Harmful if swallowed.
Acute toxicity (dermal): Not classified (Based on available data, the classification criteria are not met)
Acute toxicity (inhalation): Not classified (Based on available data, the classification criteria are not met)

<table>
<thead>
<tr>
<th>Cupric sulphate pentahydrate (7758-99-8)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50 oral rat</td>
</tr>
<tr>
<td>LD50 dermal rat</td>
</tr>
</tbody>
</table>

Skin corrosion/irritation: Not classified (Based on available data, the classification criteria are not met)
Serious eye damage/irritation: Causes serious eye damage.
Respiratory or skin sensitisation: Not classified (Based on available data, the classification criteria are not met)
Germ cell mutagenicity: Not classified (Based on available data, the classification criteria are not met)
Carcinogenicity: Not classified (Based on available data, the classification criteria are not met)

Reproductive toxicity: Not classified (Based on available data, the classification criteria are not met)
SECTION 12: Ecological information

12.1. Toxicity
Hazardous to the aquatic environment, short-term (acute): Very toxic to aquatic life.
Hazardous to the aquatic environment, long-term (chronic): Very toxic to aquatic life with long lasting effects.

12.2. Persistence and degradability
Cupric sulphate pentahydrate (7758-99-8)
Persistence and degradability: Not applicable.

12.3. Bioaccumulative potential
Cupric sulphate pentahydrate (7758-99-8)
BCF: 13 mg/kg (Cyprinus carpio)
Bioaccumulative potential: Bioaccumulative.

12.4. Mobility in soil
No additional information available

12.5. Results of PBT and vPvB assessment
Cupric sulphate pentahydrate (7758-99-8)
This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII
This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII

12.6. Other adverse effects
No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods
Waste treatment methods: Dispose of contents/container in accordance with licensed collector’s sorting instructions.
Product/Packaging disposal recommendations: Dispose of in accordance with relevant local regulations. Do not discharge into drains or the environment.

SECTION 14: Transport information

In accordance with ADR / IMDG / IATA

<table>
<thead>
<tr>
<th>ADR</th>
<th>IMDG</th>
<th>IATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN 3077</td>
<td>UN 3077</td>
<td>UN 3077</td>
</tr>
</tbody>
</table>
14.2. UN proper shipping name

<table>
<thead>
<tr>
<th>ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (cupric sulphate)</th>
<th>ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (cupric sulphate)</th>
<th>Environmentally hazardous substance, solid, n.o.s. (cupric sulphate)</th>
</tr>
</thead>
</table>

14.3. Transport hazard class(es)

| 9 | 9 | 9 |

14.4. Packing group

| III | III | III |

14.5. Environmental hazards

Dangerous for the environment : Yes  
Marine pollutant : Yes

14.6. Special precautions for user

**Overland transport**
 Classification code (ADR) : M7  
Special provisions (ADR) : 274, 335, 375, 601  
Limited quantities (ADR) : 5kg  
Excepted quantities (ADR) : E1  
Packing instructions (ADR) : P002, IBC08, LP02, R001  
Special packing provisions (ADR) : PP12, B3  
Mixed packing provisions (ADR) : MP10  
Portable tank and bulk container instructions (ADR) : T1, BK1, BK2, BK3  
Portable tank and bulk container special provisions (ADR) : TP33  
Tank code (ADR) : SGAV, LGBV  
Vehicle for tank carriage : AT  
Transport category (ADR) : 3  
Special provisions for carriage - Packages (ADR) : V13  
Special provisions for carriage - Bulk (ADR) : VC1, VC2  
Special provisions for carriage - Loading, unloading and handling (ADR) : CV13  
Hazard identification number (Kemler No.) : 90  
Orange plates : 90  
Tunnel restriction code (ADR) : -

**Transport by sea**
 Special provisions (IMDG) : 274, 335, 966, 967, 969  
Limited quantities (IMDG) : 5 kg  
Excepted quantities (IMDG) : E1  
Packing instructions (IMDG) : LP02, P002  
Special packing provisions (IMDG) : PP12  
IBC packing instructions (IMDG) : IBC08  
IBC special provisions (IMDG) : B3  
Tank instructions (IMDG) : BK1, BK2, BK3, T1  
Tank special provisions (IMDG) : TP33  
EmS-No. (Fire) : F-A  
EmS-No. (Spillage) : S-F  
Stowage category (IMDG) : A  
Stowage and handling (IMDG) : SW23  
MFAG-No : 171
Cupric sulphate pentahydrate
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Air transport
PCA Excepted quantities (IATA) : E1
PCA Limited quantities (IATA) : Y956
PCA limited quantity max net quantity (IATA) : 30kgG
PCA packing instructions (IATA) : 956
PCA max net quantity (IATA) : 400kg
CAO packing instructions (IATA) : 956
CAO max net quantity (IATA) : 400kg
Special provisions (IATA) : A97, A158, A179, A197
ERG code (IATA) : 9L

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code
Not applicable

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

15.1.1. EU-Regulations
No REACH Annex XVII restrictions
Cupric sulphate pentahydrate is not on the REACH Candidate List
Cupric sulphate pentahydrate is not on the REACH Annex XIV List

VOC content : 0 %

15.1.2. National regulations
No additional information available

15.2. Chemical safety assessment
No chemical safety assessment has been carried out

SECTION 16: Other information

Indication of changes:
This sheet was updated (refer to the date at the top of this page). This sheet has been revised completely (changes were not marked).

Other information : Safety data sheet established by : LISAM TELEGIS
17 rue de la Couture F-60400 Passel

Full text of H- and EUH-statements:

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
Eye Dam. 1 : Serious eye damage/eye irritation, Category 1
H302 : Harmful if swallowed.
H318 : Causes serious eye damage.
H400 : Very toxic to aquatic life.
H410 : Very toxic to aquatic life with long lasting effects.
Cupric sulphate pentahydrate
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SDS EU (REACH Annex II)
This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.