Copper Citrate Hemitrihydrate
Safety Data Sheet
According to Regulation (EU) 2015/830 (REACH Annex II)
Date of issue: 2/25/2016   Revision date: 6/11/2018   Supersedes: 6/12/2017   Version: 5.0

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

1.1. Product identifier
Product form: Substance
Substance name: Copper Citrate Hemitrihydrate
EC-No.: 235-113-6
CAS-No.: 866-82-0
Formula: \( \text{Cu}_2\text{C}_6\text{H}_4\text{O}_7 \cdot 1\text{1/2H}_2\text{O} \)

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.
63114 Saint Louis, Missouri
T 314-428-4366 - F 314-428-4366
sds@jostchemical.com - www.jostchemical.com

Distributor
JOST CHEMICAL EUROPE SPRL
rue du Bois Portal n° 30/1-3
B - 5300 Andenne - BELGIQUE
T +32 85-552655 - F +32 85-552654
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

Acute toxicity (oral), Category 4
H302
Hazardous to the aquatic environment — Acute Hazard, Category 1
H400
Hazardous to the aquatic environment — Chronic Hazard, Category 1
H410
Full text of H statements: see section 16

Adverse physicochemical, human health and environmental effects
No additional information available

2.2. Label elements

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

GHS07  GHS09

Signal word (CLP): Warning
Hazard statements (CLP):
H302 - Harmful if swallowed.
H400 - Very toxic to aquatic life.
H410 - Very toxic to aquatic life with long lasting effects.
Precautionary statements (CLP):
P264 - Wash hands, forearms and face thoroughly after handling.
P270 - Do not eat, drink or smoke when using this product.
P301+P312 - IF SWALLOWED: Call a doctor, a POISON CENTER if you feel unwell.

2.3. Other hazards
Other hazards not contributing to the classification: None to our knowledge.
PBT: not yet assessed
vPvB: not yet assessed

SECTION 3: Composition/information on ingredients

3.1. Substances
Substance type: Mono-constituent
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<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
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<tbody>
<tr>
<td>Copper Citrate Hemitrihydrate</td>
<td>(CAS-No.) 866-82-0 (EC-No.) 235-113-6</td>
<td>100</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 general: Call a poison center or a doctor if you feel unwell.
- First-aid measures after inhalation: Remove person to fresh air and keep comfortable for breathing.
- First-aid measures after skin contact: Wash skin with plenty of water.
- First-aid measures after eye contact: Rinse eyes with water as a precaution.
- First-aid measures after ingestion: Rinse mouth. Call a poison center or a doctor if you feel unwell.

4.2. Most important symptoms and effects, both acute and delayed
- Symptoms/effects after inhalation: Dry/sore throat. Irritation to the respiratory tract. Irritation of the nasal mucous membranes.
- Symptoms/effects after skin contact: No other effects known.
- Symptoms/effects after eye contact: Slight irritation.
- Symptoms/effects after ingestion: May cause gastrointestinal irritation, nausea, vomiting and diarrhoea.

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: Non combustible.
- Explosion hazard: No data available.
- Hazardous decomposition products in case of fire: Copper oxides. Carbon oxides (CO, CO2).

5.3. Advice for firefighters
- Precautionary measures fire: Exposure to fire/heat: keep upwind.
- Firefighting instructions: 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
- Protective equipment: Gloves. protective clothing. Dust cloud production: compressed air/oxygen apparatus. See "Material-Handling" to select protective clothing.
- Emergency procedures: Ventilate spillage area.
- 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: 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
Avoid release to the environment.

6.3. Methods and material for containment and cleaning up
- For containment: Plug the leak, cut off the supply. Dam up the solid spill. Knock down/dilute dust cloud with water spray. Collect spillage.
- 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
For further information refer to section 13.
SECTION 7: Handling and storage

7.1. Precautions for safe handling
Precautions for safe handling: Ensure good ventilation of the work station. Wear personal protective equipment.
Hygiene measures: Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities
Technical measures: Use appropriate container to avoid environmental contamination.
Storage conditions: Store in a clean, dry warehouse in the original unopened containers. Store in a well-ventilated place. Keep cool.
Incompatible materials: Strong oxidizing agents.
Information on mixed storage: Strong acids.
Storage area: Store in a dry area. Store in a dark area. Provide for a tub to collect spills. Meet the legal requirements.

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:
Ensure good ventilation of the work station.

Personal protective equipment:
Dust production: dust mask with filter type P2. Gloves. Safety glasses.

Materials for protective clothing:
Wear suitable protective clothing, gloves and eye/face protection

Hand protection:
Impermeable protective gloves

Eye protection:
Safety glasses

Skin and body protection:
Protective clothing. In case of dust production: dustproof clothing

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

Personal protective equipment symbol(s):

Environmental exposure controls:
Avoid release to the environment.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties
Physical state: Solid
Appearance: Bluish-green powder or fine granular.
Molecular mass: 342.18 g/mol
Colour: Blue.
Odour: Odorless.
Odour threshold: No data available
pH: No data available
Relative evaporation rate (butylacetate=1): No data available
Melting point: 76.8 °C
Freezing point: Not applicable
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### 9.2. Other information

VOC content: >= Not applicable (inorganic substance)

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### 10. Stability and reactivity

#### 10.1. Reactivity

Upon combustion CO and CO2 are formed and: formation of metallic fumes.

#### 10.2. Chemical stability

No data available.

#### 10.3. Possibility of hazardous reactions

None under normal conditions.

#### 10.4. Conditions to avoid

None, to our knowledge.

#### 10.5. Incompatible materials

Strong oxidizing agents.

#### 10.6. Hazardous decomposition products

On thermal decomposition (pyrolysis), releases: Carbon oxides (CO, CO2), Copper oxides.

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### 11. Toxicological information

#### 11.1. Information on toxicological effects

- **Acute toxicity (oral)**: Oral: Harmful if swallowed.
- **Acute toxicity (dermal)**: Not classified
- **Acute toxicity (inhalation)**: Not classified

**Copper Citrate Hemitrihydrate (866-82-0)**

<table>
<thead>
<tr>
<th>Test</th>
<th>Value</th>
</tr>
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<tbody>
<tr>
<td>LD50 oral rat</td>
<td>1385 mg/kg (Rat; OECD 401: Acute Oral Toxicity; Experimental value)</td>
</tr>
<tr>
<td>LD50 dermal rat</td>
<td>&gt; 2000 mg/kg bodyweight (Rat; Experimental value; OECD 402: Acute Dermal Toxicity)</td>
</tr>
</tbody>
</table>

Causes serious eye damage.

**Carcinogenicity**: Not classified (Lack of data)

**Reproductive toxicity**: Not classified (Conclusive but not sufficient for classification)

**STOT-single exposure**: Not classified

**STOT-repeated exposure**: Not classified (Lack of data)

**Aspiration hazard**: Not classified (Not applicable)

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### 12. Ecological information

#### 12.1. Toxicity

**Ecology - general**: Dangerous for the environment. Very toxic to aquatic life with long lasting effects.

**Ecology - air**: Not dangerous for the ozone layer.

**Ecology - water**: Highly toxic to fishes. Toxic to invertebrates (Daphnia).

**Dangerous for the environment**: Very toxic to aquatic life.

**Chronic aquatic toxicity**: Very toxic to aquatic life with long lasting effects.
Copper Citrate Hemitrihydrate (866-82-0)

12.2. Persistence and degradability
Copper Citrate Hemitrihydrate (866-82-0)
Persistence and degradability: Not applicable. Adsorbs into the soil.

Biochemical oxygen demand (BOD): Not applicable
Chemical oxygen demand (COD): Not applicable
ThOD: Not applicable

12.3. Bioaccumulative potential
Copper Citrate Hemitrihydrate (866-82-0)
Bioaccumulative potential: Bioaccumulative.

12.4. Mobility in soil
No additional information available

12.5. Results of PBT and vPvB assessment
Copper Citrate Hemitrihydrate (866-82-0)
PBT: not yet assessed
vPvB: not yet assessed

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: To be disposed of as hazardous waste. Avoid release to the environment.

Additional information: LWCA (the Netherlands): KGA category 05. Hazardous waste according to Directive 2008/98/EC.

SECTION 14: Transport information
In accordance with ADR / IMDG / IATA

<table>
<thead>
<tr>
<th>ADR</th>
<th>IMDG</th>
<th>IATA</th>
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</thead>
<tbody>
<tr>
<td>14.1. UN number</td>
<td>3077</td>
<td>3077</td>
</tr>
<tr>
<td>14.2. UN proper shipping name</td>
<td>ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.</td>
<td>ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.</td>
</tr>
</tbody>
</table>

Transport document description:
UN 3077 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Copper Citrate Hemitrihydrate), 9, III, (E) | UN 3077 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Copper Citrate Hemitrihydrate), 9, III, MARINE POLLUTANT | UN 3077 Environmentally hazardous substance, solid, n.o.s. (Copper Citrate Hemitrihydrate), 9, III |

14.3. Transport hazard class(es)

9 | 9 | 9
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14.4. Packing group

<table>
<thead>
<tr>
<th>III</th>
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</tr>
</thead>
</table>

14.5. Environmental hazards

Dangerous for the environment : Yes
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, 601, 375
Limited quantities (ADR) : 5kg
Excepted quantities (ADR) : E1
Packing instructions (ADR) : P002, IBC08, LP02, R001
Mixed packing provisions (ADR) : MP10
Portable tank and bulk container instructions (ADR) : T1, BK1, BK2
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

Tunnel restriction code (ADR) : E

Transport by sea
Transport regulations (IMDG) : Subject
Special provisions (IMDG) : 274, 335, 966, 967, 969
Limited quantities (IMDG) : 5 kg
Excepted quantities (IMDG) : E1
Packing instructions (IMDG) : P002, LP02
Special packing provisions (IMDG) : PP12
IBC packing instructions (IMDG) : IBC08
IBC special provisions (IMDG) : B3
Tank instructions (IMDG) : T1, BK1, BK2, BK3
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

Air transport
Transport regulations (IATA) : Subject to the provisions
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
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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
Copper Citrate Hemitrihydrate is not on the REACH Candidate List
Copper Citrate Hemitrihydrate is not on the REACH Annex XIV List

VOC content: >= Not applicable (inorganic substance)
Directive 2012/18/EU (SEVESO III)

15.1.2. National regulations
The anhydrous form of this material is listed on the United States TSCA (Toxic Substance Control Act) inventory

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).

Full text of H- and EUH-statements:

<table>
<thead>
<tr>
<th>Acute Tox. 4 (Oral)</th>
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<tbody>
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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.