

SECTION 1: Identification

1.1. Identification

Product form : Substance
Substance name : Copper Citrate Hemitrihydrate
CAS-No. : 866-82-0
Formula : $\text{Cu}_2\text{C}_6\text{H}_4\text{O}_7 \cdot 1\frac{1}{2}\text{H}_2\text{O}$

1.2. Recommended use and restrictions on use

Use of the substance/mixture : Nutrient; Dietary Supplement

1.3. Supplier

Manufacturer

Jost Chemical Co.
8150 Lackland Rd.
Saint Louis, Missouri 63114
T 314-428-4300 - F 314-428-4366
sds@jostchemical.com - www.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: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS-US classification

Acute toxicity (oral) H302 Harmful if swallowed
Category 4

Full text of H statements : see section 16

2.2. GHS Label elements, including precautionary statements

GHS-US labeling

Hazard pictograms (GHS-US) :



Signal word (GHS-US) : Warning

Hazard statements (GHS-US) : H302 - Harmful 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+P312 - If swallowed: Call a poison center or doctor if you feel unwell
P330 - Rinse mouth.
P501 - Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation

2.3. Other hazards which do not result in classification

Other hazards not contributing to the classification : None to our knowledge.

2.4. Unknown acute toxicity (GHS US)

Not applicable

SECTION 3: Composition/Information on ingredients

3.1. Substances

Substance type : Mono-constituent

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Name	Product identifier	%	GHS-US classification
Copper Citrate Hemitrihydrate (Main constituent)	(CAS-No.) 866-82-0	100	Acute Tox. 4 (Oral), H302

Full text of hazard classes and 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/doctor/physician 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/doctor/physician if you feel unwell.

4.2. Most important symptoms and effects (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 diarrhea.
- Chronic symptoms : Skin rash/inflammation. Change in the haemogramme/blood composition. Enlargement/affection of the liver. Decreased renal function.

4.3. Immediate medical attention and special treatment, if necessary

Treat symptomatically.

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

- Suitable extinguishing media : Water spray. Dry powder. Foam.

5.2. Specific hazards arising from the chemical

- Fire hazard : Non combustible.
- Explosion hazard : No data available.
- Reactivity : Upon combustion CO and CO₂ are formed and: formation of metallic fumes.

5.3. Special protective equipment and precautions for fire-fighters

- 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 neighborhood 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.

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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.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

No additional information available

8.2. Appropriate engineering controls

Appropriate engineering controls : Ensure good ventilation of the work station.
Environmental exposure controls : Avoid release to the environment.

8.3. Individual protection measures/Personal protective equipment

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):



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.

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Color	: Blue
Odor	: odorless
Odor threshold	: No data available
pH	: No data available
Melting point	: 76.8 °C
Freezing point	: Not applicable
Boiling point	: Not applicable
Flash point	: Not applicable
Relative evaporation rate (butyl acetate=1)	: No data available
Flammability (solid, gas)	: Non flammable.
Vapor pressure	: No data available
Relative vapor density at 20 °C	: No data available
Relative density	: Not applicable
Molecular mass	: 342.18 g/mol
Solubility	: Insoluble in water. Substance sinks in water. Water: g/100ml (20 °C) 0.00016-0.00047
Log Pow	: No data available
Auto-ignition temperature	: Not applicable
Decomposition temperature	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosion limits	: Not applicable
Explosive properties	: No data available
Oxidizing properties	: No data available

9.2. Other information

VOC content : >= Not applicable (inorganic substance)

SECTION 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).

SECTION 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)	
LD50 oral rat	1385 mg/kg (Rat; OECD 401: Acute Oral Toxicity; Experimental value)
LD50 dermal rat	> 2000 mg/kg body weight (Rat; Experimental value; OECD 402: Acute Dermal Toxicity)
ATE US (oral)	500 mg/kg body weight

Skin corrosion/irritation : Not classified (Lack of data)

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Serious eye damage/irritation	: Not classified (Lack of data)
Respiratory or skin sensitization	: Not classified (Lack of data)
Germ cell mutagenicity	: Not classified (Lack of data)
Carcinogenicity	: Not classified (Lack of data)
Reproductive toxicity	: Not classified
Specific target organ toxicity – single exposure	: Not classified (Lack of data)
Specific target organ toxicity – repeated exposure	: Not classified (Lack of data)
Aspiration hazard	: Not classified (Not applicable)
Viscosity, kinematic	: No data available
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 diarrhea.
Chronic symptoms	: Skin rash/inflammation. Change in the haemogramme/blood composition. Enlargement/affection of the liver. Decreased renal function.

SECTION 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).

Copper Citrate Hemitrihydrate (866-82-0)	
LC50 fish 1	810 µg/l (LC50; Other; 96 h; Cyprinus carpio; Fresh water)
EC50 Daphnia 1	33.8 - 792 µg/l (EC50; OECD 202: Daphnia sp. Acute Immobilisation Test; 48 h; Daphnia magna; Static system; Fresh water; Experimental value)
EC50 other aquatic organisms 1	0.55 mg/l / 12 hours / Shell () (Published data)
Threshold limit algae 1	5.7 µg/l (NOEC; ISO 10253; 72 h; Phaeodactylum; Static system; Salt water; Experimental value)
Threshold limit algae 2	30 µg/l (NOEC; Other; 7 days; Lemna minor; Static system; Fresh water; Experimental value)

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. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Disposal 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.

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

SECTION 14: Transport information

Department of Transportation (DOT)

In accordance with DOT

Not regulated

Transportation of Dangerous Goods

Transport by sea

Transport document description (IMDG) : UN 3077 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Copper Citrate Hemitrihydrate), 9, III, MARINE POLLUTANT

UN-No. (IMDG) : 3077

Proper Shipping Name (IMDG) : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.

Class (IMDG) : 9 - Miscellaneous dangerous substances and articles

Packing group (IMDG) : III - substances presenting low danger

Limited quantities (IMDG) : 5 kg

EmS-No. (1) : F-A

EmS-No. (2) : S-F

MFAG-No : 171

Air transport

Transport document description (IATA) : UN 3077 Environmentally hazardous substance, solid, n.o.s. (Copper Citrate Hemitrihydrate), 9, III

UN-No. (IATA) : 3077

Proper Shipping Name (IATA) : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.

Class (IATA) : 9 - Miscellaneous Dangerous Goods

Packing group (IATA) : III - Minor Danger

SECTION 15: Regulatory information

15.1. US Federal regulations

All components of this product are listed, or excluded from listing, on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory except for:

Copper Citrate Hemitrihydrate	CAS-No. 866-82-0	100%
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15.2. International regulations

CANADA

No additional information available

EU-Regulations

No additional information available

National regulations

Copper Citrate Hemitrihydrate (866-82-0)

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

15.3. US State regulations

California Proposition 65 - This product does not contain any substances known to the state of California to cause cancer, developmental and/or reproductive harm

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SECTION 16: Other information

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

Revision date : 06/07/2018

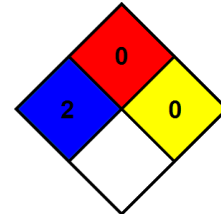
Full text of H-phrases:

H302	Harmful if swallowed
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NFPA health hazard : 2 - Materials that, under emergency conditions, can cause temporary incapacitation or residual injury.

NFPA fire hazard : 0 - Materials that will not burn under typical fire conditions, including intrinsically noncombustible materials such as concrete, stone, and sand.

NFPA reactivity : 0 - Material that in themselves are normally stable, even under fire conditions.



Hazard Rating

Health : 1 Slight Hazard - Irritation or minor reversible injury possible

Flammability : 0 Minimal Hazard - Materials that will not burn

Physical : 0 Minimal Hazard - Materials that are normally stable, even under fire conditions, and will NOT react with water, polymerize, decompose, condense, or self-react. Non-Explosives.

SDS US (HazCom 2012)

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