SECTION 1: Identification

1.1. Identification

Product form: Substance
Substance name: Copper Gluconate
CAS-No.: 527-09-3
Formula: Cu(C₆H₁₁O₇)₂

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
Not classified

2.2. GHS Label elements, including precautionary statements

GHS-US labeling
No labeling applicable

2.3. Other hazards which do not result in classification

Other hazards not contributing to the classification: None under normal conditions.

2.4. Unknown acute toxicity (GHS US)

Not applicable

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>GHS-US classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Copper Gluconate</td>
<td>(CAS-No.) 527-09-3</td>
<td>100</td>
<td>Not classified</td>
</tr>
</tbody>
</table>

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 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: Call a poison center/doctor/physician if you feel unwell.
**Copper Gluconate**

Safety Data Sheet

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

<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.3.</td>
<td>Immediate medical attention and special treatment, if necessary</td>
<td>Treat symptomatically.</td>
</tr>
<tr>
<td><strong>SECTION 5: Fire-fighting measures</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.2.</td>
<td>Specific hazards arising from the chemical</td>
<td>Fire hazard: Reactions involving a fire hazard: see &quot;Reactivity Hazard&quot;. Reactivity: Upon combustion: CO and CO2 are formed.</td>
</tr>
<tr>
<td>5.3.</td>
<td>Special protective equipment and precautions for fire-fighters</td>
<td>Firefighting instructions: Contain the extinguishing fluids by bunding. Protection during firefighting: Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.</td>
</tr>
<tr>
<td><strong>SECTION 6: Accidental release measures</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.1.</td>
<td>Personal precautions, protective equipment and emergency procedures</td>
<td></td>
</tr>
<tr>
<td>6.1.1.</td>
<td>For non-emergency personnel</td>
<td>Emergency procedures: Ventilate spillage area.</td>
</tr>
<tr>
<td>6.1.2.</td>
<td>For emergency responders</td>
<td>Protective equipment: Do not attempt to take action without suitable protective equipment. For further information refer to section 8: &quot;Exposure controls/personal protection&quot;.</td>
</tr>
<tr>
<td>6.2.</td>
<td>Environmental precautions</td>
<td>Avoid release to the environment.</td>
</tr>
<tr>
<td>6.3.</td>
<td>Methods and material for containment and cleaning up</td>
<td>For containment: Collect all waste in suitable and labeled containers and dispose according to local legislation. 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.</td>
</tr>
<tr>
<td>6.4.</td>
<td>Reference to other sections</td>
<td>For further information refer to section 13.</td>
</tr>
<tr>
<td><strong>SECTION 7: Handling and storage</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.1.</td>
<td>Precautions for safe handling</td>
<td>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.</td>
</tr>
<tr>
<td>7.2.</td>
<td>Conditions for safe storage, including any incompatibilities</td>
<td>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 a clean, dry warehouse in the original unopened containers. Store in a well-ventilated place. Keep cool. Incompatible materials: Strong oxidizers.</td>
</tr>
<tr>
<td><strong>SECTION 8: Exposure controls/personal protection</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.1.</td>
<td>Control parameters</td>
<td>No additional information available</td>
</tr>
<tr>
<td>8.2.</td>
<td>Appropriate engineering controls</td>
<td>Appropriate engineering controls: Ensure good ventilation of the work station.</td>
</tr>
</tbody>
</table>
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:
Wear suitable protective 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

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Solid</td>
</tr>
<tr>
<td>Appearance</td>
<td>Blue-green powder.</td>
</tr>
<tr>
<td>Color</td>
<td>Blue Green</td>
</tr>
<tr>
<td>Odor</td>
<td>characteristic</td>
</tr>
<tr>
<td>Odor threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>pH</td>
<td>No data available</td>
</tr>
<tr>
<td>Melting point</td>
<td>No data available</td>
</tr>
<tr>
<td>Freezing point</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Boiling point</td>
<td>No data available</td>
</tr>
<tr>
<td>Flash point</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Relative evaporation rate (butyl acetate=1)</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Non flammable</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative vapor density at 20 °C</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative density</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Molecular mass</td>
<td>453.85 g/mol</td>
</tr>
<tr>
<td>Solubility</td>
<td>Soluble in water.</td>
</tr>
<tr>
<td>Water: &gt; 500 g/l</td>
<td></td>
</tr>
<tr>
<td>Log Pow</td>
<td>No data available</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Decomposition temperature</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>Explosion limits</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>No data available</td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td>No data available</td>
</tr>
</tbody>
</table>
SECTION 10: Stability and reactivity

10.1. Reactivity
Upon combustion: CO and CO2 are formed.

10.2. Chemical stability
Stable under normal conditions.

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
No additional information available

10.6. Hazardous decomposition products
Thermal decomposition generates: Carbon dioxide. Carbon monoxide.

SECTION 11: Toxicological information

11.1. Information on toxicological effects
Acute toxicity (oral): Not classified (Inconclusive data. Based on available data, the classification criteria are not met)
Acute toxicity (dermal): Not classified
Acute toxicity (inhalation): Not classified
Skin corrosion/irritation: Not classified (Lack of data)
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 (Lack of data)
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 (Based on available data, the classification criteria are not met)
Viscosity, kinematic: No data available
Likely routes of exposure: Ingestion. Skin and eye contact. Inhalation.
Symptoms/effects after inhalation: Metal fume fever.

SECTION 12: Ecological information

12.1. Toxicity
Ecology - general: Dangerous for the environment. Very toxic to aquatic life.

**Copper Gluconate (527-09-3)**

<table>
<thead>
<tr>
<th>Test Method</th>
<th>LC50 Value (mg/l)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC50 fish</td>
<td>0.01 (Carassius auratus)</td>
</tr>
<tr>
<td>LC50 other aquatic organisms</td>
<td>0.55 (12 h; Shell)</td>
</tr>
</tbody>
</table>

12.2. Persistence and degradability
No additional information available

12.3. Bioaccumulative potential
No additional information available

12.4. Mobility in soil
No additional information available
Copper Gluconate
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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 : Dispose in a safe manner in accordance with local/national regulations.

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 Gluconate), 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

Air transport
Transport document description (IATA) : UN 3077 Environmentally hazardous substance, solid, n.o.s. (Copper Gluconate), 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 Gluconate | CAS-No. 527-09-3 | 100% |

15.2. International regulations

CANADA
No additional information available

EU-Regulations
No additional information available

National regulations
No additional information available

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
SECTION 16: Other information

Revision date : 06/11/2018

NFPA health hazard : 0 - Materials that, under emergency conditions, would offer no hazard beyond that of ordinary combustible materials.

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 : 0 Minimal Hazard - No significant risk to health
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.