Material Safety Data Sheet   Page 1 of 2

Copper (II) Sulfate Solution, 1M

Section 1:  Product and Company Identification

Copper (II) Sulfate Solution, 1M

Synonyms/General Names: Cupric sulfate, pentahydrate

Product Use: For educational use only

Manufacturer: Columbus Chemical Industries, Inc., Columbus, WI 53925,

24 Hour Emergency Information Telephone Numbers

CHEMTREC (USA): 800-424-9300  CANUTEC (Canada): 613-424-6666

ScholAR Chemistry; 5100 W. Henrietta Rd, Rochester, NY 14586; (866) 260-0501; www.Scholarchemistry.com

Section 2:  Hazards Identification

Clear pale blue liquid; no odor.

CAUTION! Moderately toxic by ingestion and body tissue irritant.

Target organs: Liver, kidneys, lungs, spleen

This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Section 3:  Composition / Information on Ingredients

Cupric Sulfate (7758-99-8), 23-25%.

Water (7732-18-5), 75-77%.

Section 4:  First Aid Measures

Always seek professional medical attention after first aid measures are provided.

Eyes: Immediately flush eyes with excess water for 15 minutes, lifting lower and upper eyelids occasionally.

Skin: Immediately flush skin with excess water for 15 minutes while removing contaminated clothing.

Ingestion: Call Poison Control immediately. Rinse mouth with cold water. Give victim 1-2 cups of water or milk to drink.

Induce vomiting immediately.

Inhalation: Remove to fresh air. If not breathing, give artificial respiration.

Section 5:  Fire Fighting Measures

Nonflammable solution. When heated to decomposition, emits acrid fumes.

Protective equipment and precautions for firefighters: Use foam or dry chemical to extinguish fire.

Firefighters should wear full fire fighting turn-out gear and respiratory protection (SCBA). Cool container with water spray. Material is not sensitive to mechanical impact or static discharge.

Section 6:  Accidental Release Measures

Use personal protection recommended in Section 8. Isolate the hazard area and deny entry to unnecessary and unprotected personnel. Contain spill with sand or absorbent material and place in sealed bag or container for disposal. Ventilate and wash spill area after pickup is complete. See Section 13 for disposal information.

Section 7:  Handling and Storage

Handling: Use with adequate ventilation and do not breathe dust or vapor. Avoid contact with skin, eyes, or clothing. Wash hands thoroughly after handling.

Storage: Store in General Storage Area [Green Storage] with other items with no specific storage hazards. Store in a cool, dry, well-ventilated, locked store room away from incompatible materials.

Section 8:  Exposure Controls / Personal Protection

Use ventilation to keep airborne concentrations below exposure limits. Have approved eyewash facility, safety shower, and fire extinguishers readily available. Wear chemical splash goggles and chemical resistant clothing such as gloves and aprons. Wash hands thoroughly after handling material and before eating or drinking. Exposure guidelines: Copper (II) Sulfate: OSHA PEL: Not Available, ACGIH: TLV: Not Available, STEL: Not Available.
Section 9: Physical and Chemical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Molecular formula</td>
<td>CuSO₄•5H₂O.</td>
</tr>
<tr>
<td>Molecular weight</td>
<td>249.68</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>1.19 g/mL @ 20°C</td>
</tr>
<tr>
<td>Vapor Density (air=1)</td>
<td>N/A</td>
</tr>
<tr>
<td>Melting Point</td>
<td>N/A</td>
</tr>
<tr>
<td>Boiling Point/Range</td>
<td>N/A</td>
</tr>
<tr>
<td>Vapor Pressure (20°C)</td>
<td>N/A</td>
</tr>
<tr>
<td>Flash Point</td>
<td>N/A</td>
</tr>
<tr>
<td>Autoignition Temp.</td>
<td>N/A</td>
</tr>
<tr>
<td>Appearance</td>
<td>Pale blue solution.</td>
</tr>
<tr>
<td>Odor</td>
<td>no odor</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>N/A</td>
</tr>
<tr>
<td>Solubility</td>
<td>Soluble in water and methanol.</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>N/A (Butyl acetate = 1)</td>
</tr>
<tr>
<td>Partition Coefficient</td>
<td>N/A (log Pow)</td>
</tr>
<tr>
<td>pH</td>
<td>N/A</td>
</tr>
<tr>
<td>Vapour Pressure (air=1)</td>
<td>N/A</td>
</tr>
<tr>
<td>Flash Point</td>
<td>N/A</td>
</tr>
<tr>
<td>LEL</td>
<td>N/A</td>
</tr>
<tr>
<td>UEL</td>
<td>N/A</td>
</tr>
</tbody>
</table>

N/A = Not available or applicable

Section 10: Stability and Reactivity

Avoid heat and moisture.

Stability: Stable under normal conditions of use and storage.

Incompatibility: Oxidizers, reducing agents.

Shelf life: Poor shelf life, protect from light and heat.

Section 11: Toxicology Information

Acute Symptoms/Signs of exposure:
- Eyes: Redness, tearing, itching, burning, conjunctivitis.
- Skin: Redness, itching.

Ingestion: Irritation and burning sensations of mouth and throat, nausea, vomiting and abdominal pain.

Inhalation: Irritation of mucous membranes, coughing, wheezing, shortness of breath.

Chronic Effects: No information found.

Sensitization: none expected

Copper (II) Sulfate: LD₅₀ [oral, rat]; 300 mg/kg; LC₅₀ [rat]; N/A; LD₅₀ Dermal [rabbit]; N/A

Material has not been found to be a carcinogen nor produce genetic, reproductive, or developmental effects.

Section 12: Ecological Information

Ecotoxicity (aquatic and terrestrial):
Copper (II) Sulfate LD₅₀; 0.80 mg/L (Salmo Gairdneri)

Marine pollutant. Contains a heavy metal – Toxic to terrestrial and aquatic plants and animals. Do not release to the environment.

Section 13: Disposal Considerations

Check with all applicable local, regional, and national laws and regulations. Local regulations may be more stringent than regional or national regulations. Small amounts of this material may be suitable for sanitary sewer or trash disposal.

Section 14: Transport Information

DOT Shipping Name: Not regulated by DOT.
DOT Hazard Class: Not regulated by TDG.
Identification Number: Hazard Class:
Identification Number: UN Number:

Section 15: Regulatory Information

EINECS: Not listed.
TSCA: All components are listed or are exempt.
WHMIS Canada: D2B: Toxic material causing toxic effects, eye irritation.
California Proposition 65: Not listed.

The product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

Section 16: Other Information

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