Material Safety Data Sheet

Copper Sulphate CuSO4 x 5H2O (RXSOL-19-1277-050)

1. Product and Company Identifaction

Product Name	Copper Sulphate CuSO4 x 5H2O
Part Number	RXSOL-19-1277-050

Company Details:

RX MARINE INTERNATIONAL
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2. Composition / informationon ingredients

Chemical Name	Concentration	CAS Number
Copper Sulfate	90%	7758-99-8

*See Section 16

3. Hazards Identification

Odour	Odourless
Appearance	Crystline Granular Powder
Contact with eyes	Hazardous, Irritant
Contact with skin	Irritating to skin.
Inhalation	Repeated inhalation of dust can produce the varying degree of respiratory irritation or lung damage.
Potential Health Effect	The substance may be toxic to kidneys, liver. Repeated or prolonged exposure to the substance can produce target organs damage.

4. First Aid Measures

Contact with skin	In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Cold water may be used.Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

Contact with eyes	Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention.
Ingestion	Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.
Inhalation	If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.
General	In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible) .

5. Fire-fighting Measures

Flammability of the Product: Non-flammable.
Auto-Ignition Temperature: Not applicable.
Flash Points: Not applicable.
Flammable Limits: Not applicable.
Products of Combustion: Not available.
Fire Hazards in Presence of Various Substances: Not applicable.

Explosion Hazards in Presence of Various Substances:

Risks of explosion of the product in presence of mechanical impact: Not available.
Risks of explosion of the product in presence of static discharge: Not available. Slightly explosive in presence of heat.
Fire Fighting Media and Instructions: Not applicable.
Special Remarks on Fire Hazards: Not available.
Special Remarks on Explosion Hazards: When heated to decomposition it emits toxic fumes. Solutions are acidic and can react with magnesium to evolve flammable hydrogen gas

6. Accidental Release Measures

Personal Precautions	Wear protective clothing as per section 8.
Environmental Precautions	No special precautions are required for this product.
Small Spillage	Use appropriate tools to put the spilled solid in a convenient waste disposal container. If necessary: Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.
Large Spillage	Stop leak if without risk. Do not get water inside container. Do not touch spilled material. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities

7. Handling and Storage

Precaution	Keep container dry. Do not ingest. Do not breathe dust. Never add water to this product. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes.Keep away from incompatibles such as metals, alkalis

Storage	Keep only in the original container in a cool, well ventilated place.

8. Exposure controls and personal protection

Engineering Control	Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.
Personal Protection	Splash goggles. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.
Occupational exposure controls	Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.


Gloves


Suit


Gogle

9. Physical and chemical properties

Molecular Wight	249.69 g/mole
Odour	Odourless
Appearance	Light Blue Crystalline Granular / Powder
pH	Not Available
Boiling point	150°C (302°F)
Melting Point	110°C (230°F)
Specific Gravity	2.28 @ 15.6 deg. C(Water = 1)
Vapour pressure	NA
Freezing point	NA
Solubility in Water	Easly Soluble

Solubility in water: 31.6 g/100 ml @ 0 deg. C.; 203.3 g/100 ml @ 100 deg. C Solubility in methanol: 15.6 g/100 ml @ 18 deg. C. Insoluble in ethanol. It readily forms alkaline complexes at sufficiently high concentrations of amines or alkali cyanides. Practically insoluble in most organic solvents.

10. Stability and reactivity

Stability: The product is stable.
Instability Temperature: Not available.
Conditions of Instability: Excess heat (high temperatures), incompatible materials, exposure to air
Incompatibility with various substances: Reactive with metals, alkalis.
Corrosivity: Highly corrosive in presence of steel.
Special Remarks on Reactivity: Air Sensitive. Slowly efflorescent in air. Solutions of hypobromite are decomposed by powerful catalytic action of cupric ions, even as impurities. Incompatible with finely powdered metals.
Polymerization: Will not occur.

11. Toxicological information

Routes of Entry	Inhalation. Ingestion
Acute oral toxicity (LD50)	350 mg/kg [Rat]
Acute dermal toxicity (LD50):	>2000 mg/kg [Rat]
Special Remarks on other Toxic Effects on Humans	Acute Potential Health Effects: Skin: Causes skin irritation. May cause skin burns. It may cause an itching allergic eczema. Eyes: Causes eye irritation. May cause eye burns. It may cause conjunctivitis, corneal discolouration, ulceration and turbidity of the cornea. Inhalation: Causes respiratory tract (nose, throat, lung) irritation with coughing and wheezing. May cause ulceration and perforation of the nasal septum if inhaled in excessive quantities. Burning copper sulfate may result in irritating and poisonous gases which may irritate the respiratory tract and lungs, and may cause fume metal fever which is characterized by flu-like symptoms such as fever, chills, muscle aches. Ingestion: Harmful if swallowed. May cause gastrointestinal tract irritation with nausea, vomiting, diarrhoea, metallic taste, burning sensation in the stomach or epigastrium, abdominal pain, and possible gastrointestinal tract bleeding. May affect metabolism(metabolic acidosis), liver (liver damage, jaundice), blood (Methemoglobin, hemolytic anemia), urinary system (kidney damage, hematuria, hemoglobinuria, albuminuria), behavior/nervous systems (somnolence, tremor, psychosis, muscle weakness, coma), cardiovascular system (lowering of blood pressure, dysrhythmia). Oral mucosa, vomitus, stools, and saliva may be stained blue or green following ingestion. Aspiration pneumonia may develop following emesis and CNS depression. Chronic Potential Health Effects: Skin: Repeated or prolonged skin contact may cause thickening of the skin.
Other Toxic Effects on Humans:	Hazardous in case of skin contact (irritant), of ingestion, of inhalation.
Carcinogenicity	MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. May cause damage to the following organs: kidneys, liver.

12. Ecological information

Ecotoxicity	Ecotoxicity in water (LC50): 0.1 ppm 48 hours [Goldfish]. 0.1 mg/l 96 hours [Rainbow Trout]. 2.5 mg/l 96 hours [Rainbow Trout].
Mobility	Completely soluble in water
BOD & COD	NA
Product of Biodegradation	Possibly hazardous short term degradation products is not likely. However, long-term degradation products may arise.

Special Remarks on biodegradation	If released to soil, copper sulfate may leach to groundwater, be partially oxidized, or bind to humic materials, clay, or hydrous of iron and manganese. In water, it will bind to carbonates as well as humic materials, clay and hydrous oxides of iron and manganese. Copper is accumulated by plants and animals, but it does not appear to biomagnify from plants to animals. This lack of biomagnification appears common with heavy metals. In air, copper aerosols (in general) have a residence time of 2 to 10 days in an unpolluted atmosphere and 0.1 to >4 in polluted, urban areas.

13. Disposal considerations

Copper dust or mist or copper compounds may be disposed of in Group III sealed containers in a secure sanitary landfill. Copper-containing soluble wastes can be concentrated through the use of ion exchange, reverse osmosis, or evaporators to the point where copper can be electrolytically removed and sent to a reclaiming firm. If recovery is not feasible, the copper can be precipitated through the use of caustics and the sludge deposited in a chemical waste landfill. Be sure to consult with authorities (waste regulators). Waste must be disposed of in accordance with federal, state and local environmental control regulations.

14. Transport information

- Not classified as hazardous for any mode of transport

15. Regulatory information

Federal and State Regulations:
SARA 313 toxic chemical notification and release reporting: Copper compounds CERCLA: Hazardous substances.: Copper sulfate pentahydrate: 10 lbs. (4.536 kg)

Other Regulations: OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

Other Classifications:

WHMIS (Canada): CLASS D-2B: Material causing other toxic effects (TOXIC).

DSCL (EEC):
R22- Harmful if swallowed. R36/38- Irritating to eyes and skin. R50/53- Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. S22- Do not breathe dust. S60- This material and its container must be disposed of as hazardous waste. S61- Avoid release to the environment. Refer to special instructions/Safety data sheets.

HMIS :
Health Hazard: 2
Fire Hazard: 0
Reactivity: 0
Personal Protection: E

16. Other information

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if RX Marine International has been advised of the possibility of such damages.