MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name	:	Copper oxychloride Technical
CAS No	:	1332-40-7
Use	:	Herbicide
Company Info	:	M/s HPM Chemicals & Fertilizers Ltd 209-210, Anupam Bhawan, Commercial Complex Azadpur, Delhi-110033
Telephone	:	(011)-45071800, 899
Fax	:	(011)- 27681800
Website	:	www.hpmindia.com
E-mail	:	info@hpmindia.com

2. COMPOSITION/INFORMATION ON INGREDIENTS

Composition	**Concentration**
Copper Oxychloride a.i.	57.00% min.
Other associates impurities	43.00% max

3. HAZARDS IDENTIFICATION OF PREPARATION

Emergency Overview
Copper Oxychloride is a pale, green, corrosive, fine powder. Harmful or fatal if swallowed. Irritating or corrosive to skin, eyes, nose, throat and respiratory tract. Can cause permanent damage to eyes. Fire may produce irritating, corrosive and/or toxic vapors. Firefighters should use full protective equipment and clothing.
Hazard Statements
HARMFUL OR FATAL IF SWALLOWED. Can cause irritation of eyes, skin, and respiratory tract . Avoid contact with eyes and skin. Avoid breathing dusts. Wash thoroughly after handling. Keep c ontainer closed. Use with adequate ventilation. Keep from contact with clothing and other combustible materials. Solutions of this material may be flammable.
Potential Health Effects: Eyes Exposure to particulates or solution of this product may cause redness and pain. Prolonged contact may cause conjunctivitis, and corneal abnormalities.
Potential Health Effects: Skin This product can cause irritation of the skin with pain, itching and redness. Prolonged exposure may cause dermatitis, eczema and skin discoloration. Dermal exposure has not been associated with systemic toxicity but copper may induce allergic responses insensitive individuals.
Potential Health Effects: Ingestion Harmful or fatal if swallowed. May cause gastrointestinal irritation with symptoms such as nausea, vomiting, and diarrhea.
Copper Oxychloride is less toxic than more soluble copper salts, such as copper sulfates. Except for

occasional acute incidents of
copper poisoning, few effects ar
e noted in normal human populations. Effects of
single exposure following suicidal or accidental
oral exposure have been reported as metallic taste, epigastric pain, headache, nausea, dizziness, vomiting and diarrhea, tachycardia, respiratory difficulty, hemolytic anemia, hematuria, massive gastrointestinal bleeding, liver and kidney failure, and death. In cases of fatal ingestion, d
eath is preceded by gastric hemorrhage, tachycardia, hypotension, hemolytic crisis, convu
lsions and paralysis.
Potential Health Effects: Inhalation
May irritate the nose, throat and respiratory tract. Symptoms can include sore throat, coughing and shortness of breath. In severe cases, ulceration and perforation of the nasal septum can occur. If this material is heated, inhalation of fumes may lead to development of metal fume fever. This is a flu-like illness with symptoms of metallic taste, fever and chills, aches, chest tightness
and cough. Repeated inhalation exposure can cause shrinking of the lining of the inner nose

4. FIRST AID MEASURES

Skin:Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

Eyes : Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for further treatment advice.
Ingestion: No specific intervention is indicated asthe product is not likely to be hazardous by ingestion. Consult a physician if necessary.
Inhalation:No specific intervention is indicated as the product is not likely to be hazardous by inhalation. Consult a physician if necessary. Have the product container or label with you when calling a poison control center or doctor, or going for treatment.
Antidote: None reported.

5. ACCIDENTIAL RELEASE

Clean up spills immediately, using precautions described in Section 8. Isolate hazard area.
Keep unnecessary and unprotected personnel from entering.
SMALL SPILL: Absorb spill with inert material such as dry sand, vermiculite or fuller's earth, then place in a chemical waste container. Rinse area with dilute soda ash and place rinsate into chemical waste container.

LARGE SPILL: Same as for small spills; may neutralize with dilute alkaline solutions of soda and ash

and place into chemical waste container. Do not allow material to run off into soil, drainage systems, or bodies of water.
Notify and consult with proper regulatory authorities.

6. FIRE-FIGHTING MEASURES

FLASHPOINT(method):None
FIRE AND EXPLOSION HAZARD: Minimize use of water to prevent environmental contamination.
EXTINGUISHING MEDIA: Use carbon dioxide, foam, dry chemical or water spray when fighting fires involving this material.
FIREFIGHTING INSTRUCTIONS: Evacuate area and fight fire from a safe distance. Approach from upwind to avoid hazardous vapors and decomposition products. Fire exposed containers can build up pressure and should be kept cool with water spray if possible. Explosive vapor could form from ruptured containers. Foam fire extinguishing system is preferred to prevent environmental damage from excessive water run off. If water is used, avoid heavy hose streams. If possible,dike and collect water used to fight fire to prevent minimize run off.
FIREFIGHTING EQUIPMENT: Self-contained breathing apparatus with full face piece.Wear full firefighting turn-out gear (Bunker gear).
HAZARDOUS COMBUSTION PRODUCTS: CO, Phosphorus oxides and Nitrogen

7. HANDLING AND STORAGE

Handling	:	Use appropriate (impervious) clothing, gloves and closed foot ware to prevent the repeated contact with skin. Use flash proof and dust resistant goggles to prevent the contact with eyes.
Storage	:	Keep the product in original container tightly closed and correctly labeled. Store in suitable, cool, dry, well ventilated place under lock and key; away from the reach of the children, animals, food and animal feeding stuffs. Store away from the incompatible substances and source of ignition

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Technical protective measures	**:**	None
Exposure controls limits	**:**	Not Established
Respiratory protection	**:**	Wear suitable mask
Hand protection	**:**	Wear impervious gloves
Eye protection	**:**	Wear flash proof and dust resistant goggles.
Skin protection	**:**	Wear impervious clothing and closed foot ware.

9. PHYSICAL AND CHEMICAL PROTERITES

Physical Properties: Additional Information The data provided in this section are to be used for product safety handling purposes. Please refer to Product Data Sheets, Certificates of Conformity or Certificates of Analysis for chemical and physical data for determinations of quality and for formulation purposes.
Appearance: Pale green powder
Odor: Odorless
Physical State: Solid
pH: Not available
Vapor Pressure: Practically zero
Vapor Density: Not applicable
Boiling Point: Decomposes
Freezing/Melting Point: 140 deg C (at 760 mm Hg)
Solubility (H2O): Insoluble
Specific Gravity: 3.76-3.78 (H2O = 1)
Softening Point: Not available
Particle Size: Not available
Molecular Weight: 427.16
Bulk Density: 45 lb/ft3
Chemical Formula: 3Cu(OH)2•CuCl2

10. STABILITY AND REACTIVITY

Stability: Stable under normal temperatures and pressures.
Stability conditions to avoid:Excess heat, and incompatible materials.
Incompatibilities with other material:None reasonably foreseeable
Hazardous Decomposition products:Under fire conditions may produce gases such as oxides of carbon, hydrogen, nitrogen and sulfur.

11. TOXICOLOGICAL INFORMATION

Acute and Chronic Toxicity
A: General Product Information Acute toxicity is largely due to its caustic properties. Harmful or fatal if swallowed. Product is an eye and skin irritant, and can cause burns. Product is a respiratory tract irritant, and inhalation may cause nose irritation, sore throat, coughing, and chest tightness and possibly, ulceration and perforation of the nasal septum. Acute oral toxicity of Copper Oxychloride in male gall us domesticus was studied. The median lethal dose was determined
to be 1263 mg/kg body weight. Severe diarrhea and delayed mortality (3 to 6 days) was characteristic of Copper Oxychloride. Liver weight were nearly doubled and marked dose dependent testicular atrophy was noted.
Chronic: Long term skin overexposure to this product may lead to dermatitis and eczema and may result in discoloration of skin.
Prolonged or repeated eye contact may cause conjunctivitis and possibly corneal abnormalities. Chronic overexposure to this product may cause liver and kidney damage, anemia and other blood cell abnormalities.
B: Component Analysis - LD50/LC50
Copper Oxychloride (1332-65-6)LD50
(Oral-Rat) 812 mg/kg; LD50
(Oral-Mouse) 470 mg/kg; LD50
(Oral-Chicken) 1263 mg/kg
B: Component Analysis - TDLo/LDLo
Copper Oxychloride (1332-65-6)
No data available.
Carcinogenicity
A: General Product Information
No information available.
B: Component Carcinogenicity
Copper dusts and mists, as Cu (7440-50-8)
EPA: EPA-D (Not Classifiable as to Human Carcinogenicity - inadequate human and animal evidence of carcinogenicity or no data available).
Epidemiology No information available.
Neurotoxicity Has not been identified.
Mutagenicity No data available.
Teratogenicity No data available.
Other Toxicological Information
Individuals with Wilson’s disease are unable to metabolize copper. Thus, persons with pre-existing Wilson’s disease may be more susceptible to the effects of overexposure to this product. Persons with pre-existing skin disorders, impaired liver, kidney or pulmonary function may also be more susceptible to the effects of this product.

12. ECOLOGICAL INFORMATION

Ecotoxicity
A: General Product Information
Harmful to aquatic life in very low concentrations. Copper Oxychloride is toxic to fish and marine organisms when applied to streams, rivers, ponds or lakes.
B: Ecotoxicity
Copper Oxychloride (1332-65-64)
No specific data available. Copper Oxychloride is designated as a marine pollutant.
Environmental Fate
Copper Oxychloride:
Terrestrial Fate: Factors affecting the balance between copper inthe parent rock and in the derivative soil include the degree e of weathering, the nature and intensity of the soil formation, drainage, pH, oxidation-reduction potential, & the amount of organic matter in the soil. Since copper inrocks is likely to be more mobile under acidic than alkaline conditions, the relation of pH to copper in the environ has been of great concern to agriculturalists & biologists. Alkaline conditions in the soil and
& the surface water favor precipitation of copper. Acid conditions promote solubility of copper, increase the concentration of ionic copper, and thereby change the microorganism and other aquatic animal populations, depending on tolerance for various levels of copper in solution. The reports of acid rain in variousparts of the world are of serious concern. Due to the variety of conditions which influence the metal's availability, the total copper content of the soils is not an accurate indication of deficiencies or excess of copper in soil rooted plants.
Aquatic Fate: During bio-transformation, some copper complexes may be metabolized, however, there is no evidence that bio-transformation processes have a significant bearing on the aquatic fate of copper.

13. DISPOSAL CONSIDERATION

Disposal Instructions
All wastes must be handled in accordance with local, state and federal regulations. Ma
terial can be converted to a less hazardous material by weak reducing agents followed by neutralization.
US EPA Waste Number & Descriptions A: General Product Information
Not applicable.
B: Component Waste Numbers No EPA Waste Numbers are applicable for this compound.

14. TRANSPORT INFORMATION

NOTE: The shipping classification information in this section (Section 14) is meant as a guide to the overall classification of the product. However, transportation classifications may be subject to change with changes in package size. Consult shipper requirements under I.M.O., I.C.A.O. (I.A.T.A.) and 49 CFR to assure regulatory compliance.

US DOT Information
Shipping Name: Non-regulated.
Hazard Class: Not Applicable
UN/NA #: Not Applicable
Packing Group: Not Applicable
Required Label(s): None
Additional Info.: None

15. REGULATORY INFORMATION

Not Applicable

16. OTHER INFORMATION

All information and instructions provided in this Material Safety Data Sheet (MSDS) are based on the current state of scientific and technical knowledge at the date indicated on the present MSDS and are presented in good faith and believed to be correct. This information applies to the product as such. In case of new formulations or mixes, it is necessary to ascertain that a new danger will not appear. It is the responsibility of persons on receipt of this MSDS to ensure that the information contained herein is properly read and understood by all people who may use, handle, dispose or in any way come in contact with the product. If the recipient subsequently produce formulations containing this product, it is the recipients sole responsibility to ensure the transfer of all relevant information from this MSDS to their own MSDS.