1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: **CUPROXAT® FLOWABLE COPPER FUNGICIDE**
EPA Reg. No.: 35935-3
Synonyms: Basic copper sulfate
Product Type: Fungicide

Company Name: Nufarm Limited
4020 Aerial Center Parkway
Morrisville, NC 27560
1-800-345-3330

Telephone Numbers: **For Chemical Emergency, Spill, Leak, Fire, Exposure, or Accident,**
Call CHEMTREC Day or Night: 1-800-424-9300
For Medical Emergencies Only, Call 1-877-325-1840

2. HAZARDS IDENTIFICATION

PHYSICAL HAZARDS
None

HEALTH HAZARDS:

Acute toxicity, inhalation	Category 4
Skin irritation	Category 2
Eye irritation	Category 2B
Specific target organ toxicity – Repeated exposure	Category 2

ENVIRONMENTAL HAZARDS:

Hazardous to aquatic environment, acute	Category 1
Hazardous to aquatic environment, chronic	Category 1

SIGNAL WORD:
WARNING

HAZARD STATEMENTS:
Harmful if inhaled. Causes skin irritation. Causes eye irritation. May cause damage to organs (liver and kidney) through prolonged or repeated exposure. Very toxic to aquatic life with long lasting effects.

PRECAUTIONARY STATEMENTS:
Do not breathe mist/vapor/spray. Use only outdoors or in well-ventilated area. Wear protective gloves/eye protection/face protection.

IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a poison center/doctor if you feel unwell.

IF ON SKIN: Wash with plenty of water. If skin irritation occurs: Get medical advice/attention. Take off contaminated clothing and wash it before reuse.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

Get medical advice/attention if you feel unwell.

Avoid unintended release to the environment. Collect spillage.

Dispose of contents/container in accordance with local/regional/national/international regulations.

3. COMPOSITION / INFORMATION ON INGREDIENTS

COMPONENT	CAS NO.	% BY WEIGHT
Basic copper sulfate	1344-73-6	26.31 – 27.91
Propylene glycol	57-55-6	5.94 – 6.56
Other Ingredients	Trade Secret	Trade Secret

Synonyms: Copper salt of sulfuric acid

Ingredients not precisely identified are proprietary or non-hazardous. Values are not product specifications.

4. FIRST AID MEASURES

If Swallowed: Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by the poison control center or doctor. Do not give anything by mouth to an unconscious person.
If on Skin or Clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15 to 20 minutes. Call a poison control center or doctor for treatment advice.
If in Eyes: Hold eye open and rinse slowly and gently with water for 15 to 20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.
If Inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control center or doctor for further treatment advice.
Most Important symptoms/effects, acute and delayed: May cause minimal eye irritation.
Indication of Immediate medical attention and special treatment if needed, if necessary: None expected.

5. FIRE FIGHTING MEASURES

Extinguishing Media: Recommended for large fires: foam or water spray. Recommended for small fires: dry chemical or carbon dioxide.
Special Fire Fighting Procedures: Firefighters should wear NIOSH/MSHA approved self-contained breathing apparatus and full fire-fighting turn out gear. Dike area to prevent runoff and contamination of water sources. Dispose of fire control water later.
Unusual Fire and Explosion Hazards: If water is used to fight fire, contain runoff, using dikes to prevent contamination of water supplies. Dispose of fire control water later.
Hazardous Decomposition Materials (Under Fire Conditions): May produce gases such as hydrogen chloride, hydrogen fluoride, oxides and nitrogen.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions: Wear appropriate protective gear for the situation. See Personal Protection information in Section 8.
Environmental Precautions: Prevent material from entering public sewer systems or any waterways. Do not flush to drain. Large spills to soil or similar surfaces may necessitate removal of topsoil. The affected area should be removed and placed in an appropriate container for disposal.
Methods for Containment: Dike spill using absorbent or impervious materials such as earth, sand or clay. Collect and contain contaminated absorbent and dike material for disposal.
Methods for Cleanup and Disposal: Avoid creation of dusty conditions. If dry, sweep or scoop up material and place into container for disposal. If wet, pump any free liquid into an appropriate closed container. Decontaminate tools and equipment following cleanup. See Section 13: DISPOSAL CONSIDERATIONS for more information.
Other Information: Large spills may be reportable to the National Response Center (800-424-8802) and to state and/or local agencies.

7. HANDLING AND STORAGE

Handling:
Avoid contact with skin, eyes, or clothing. Wash thoroughly with soap and water after handling and before eating or smoking. Remove and wash any contaminated clothing before reuse.

Users should wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet. Remove clothing/Personal Protective Equipment (PPE) immediately if pesticide gets inside. Then wash thoroughly and put

on clean clothing. If pesticide gets on skin, wash immediately with soap and water. Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

Storage:
Store in a cool, dry place. Do not contaminate water, food, or feed by storage or disposal.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls:
Where engineering controls are indicated by specific use conditions or a potential for excessive exposure, use local exhaust ventilation at the point of generation.

Personal Protective Equipment:
Eye/Face Protection: To avoid contact with eyes, wear chemical goggles or shielded safety glasses. An emergency eyewash or water supply should be readily accessible to the work area.
Skin Protection: To avoid contact with skin, wear long-sleeved shirt and long pants, shoes plus socks, and chemical resistant gloves. An emergency shower or water supply should be readily accessible to the work area.
Respiratory Protection: Not normally required. If vapors or mists exceed acceptable levels, wear NIOSH approved air-purifying respirator with cartridges/canisters approved for use against pesticides.
General Hygiene Considerations: Personal hygiene is an important work practice exposure control measure and the following general measures should be taken when working with or handling this material: 1) do not store, use and/or consume foods, beverages, tobacco products, or cosmetics in areas where this material is stored; 2) wash hands and face carefully before eating, drinking, using tobacco, applying cosmetics or using the toilet.

Exposure Guidelines:

	OSHA		ACGIH		
Component	**TWA**	**STEL**	**TWA**	**STEL**	**Unit**
Copper Sulfate	1*	NE	1*	NE	mg/m^3
Propylene glycol	10 (WEEL)	NE	NE	NE	mg/m^3
Other ingredients	NE	NE	NE	NE	

*As copper dusts or mists (CAS No. 7440-50-8) NE = Not Established
WEEL = Workplace Environmental Exposure Levels

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Pale blue-green liquid
Odor:	Odorless
Odor threshold:	No data available
pH:	6.8 – 7.6
Melting point/freezing point:	No data available
Initial boiling point and boiling range	<212º F (100º C)
Flash point:	No data available
Evaporation rate:	No data available
Flammability (solid, gas):	No data available
Upper/lower flammability or explosive limits:	No data available
Vapor pressure:	No data available
Vapor density:	No data available
Relative density:	1.283 (10.683 lb/gal)
Solubility(ies):	Insoluble
Partition coefficient: n-octanol/water:	No data available
Autoignition temperature:	No data available
Decomposition temperature:	No data available
Viscosity:	1.50×10^3 @ 20º C

Note: Physical data are typical values, but may vary from sample to sample. A typical value should not be construed as a guaranteed analysis or as a specification.

10. STABILITY AND REACTIVITY

Reactivity: Not reactive.
Chemical Stability: This material is stable under normal handling and storage conditions.
Conditions to Avoid: Excessive heat. Do not store near heat or flame.
Possibility of Hazardous Reaction: Hazardous polymerization will not occur.
Incompatible Materials: Strong acids, aluminum and its alloys, iron.
Hazardous Decomposition Products: Under fire conditions may produce gases such as hydrogen chloride, hydrogen fluoride, oxides and nitrogen.

11. TOXICOLOGICAL INFORMATION

Likely Routes of Exposure: Skin contact, Eye contact
Symptoms of Exposure:
Eye Contact: Mildly irritating based on toxicity studies.
Skin Contact: Non-irritating based on toxicity studies.
Ingestion: Slightly toxic if ingested based on toxicity studies.
Inhalation: Low inhalation toxicity based on toxicity studies.
Delayed, immediate and chronic effects of exposure: None reported.

Toxicological Data:
Data from laboratory studies on this product are summarized below:
Oral: Rat LD_{50}: 3,129 mg/kg (females)
Dermal: Rat LD_{50}: >2,000 mg/kg
Inhalation: Rat 4-hr LC_{50}: > 2.12 mg/L (no mortalities at highest dose tested)
Eye Irritation: Rabbit: Moderately irritating (MMTS = 2.0)
Skin Irritation: Rabbit: Slightly irritating (PDII = 0.0)
Skin Sensitization: Not a contact sensitizer in guinea pigs following repeated skin exposure.

Subchronic (Target Organ) Effects: Repeated ingestion of copper salts may result in anemia, liver, and kidney damage. Chronic inhalation exposure may cause a metallic taste in the mouth, irritation of the upper respiratory tract such as the nasal mucosa that may progress to perforation of the nasal septum. Chronic cough may also occur.
Carcinogenicity / Chronic Health Effects: Low chronic toxicity unless excessive exposure is encountered. Excessive exposure to copper by inhalation may result in irritation of the upper respiratory tract which, if severe, may lead to perforation of the nasal septum after long periods of exposure.
Reproductive Toxicity: No information available.
Developmental Toxicity: No information available.
Genotoxicity: No information available.

Assessment of Carcinogenicity: None listed with ACGIH, IARC, NTP or OSHA.

12. ECOLOGICAL INFORMATION

Ecotoxicity:
Data from literature for Copper Sulfate:

96-hour LC_{50} Bluegill:	> 1250 mg/l	Bobwhite Quail Oral LC_{50}:	>340 mg/kg
96-hour LC_{50} Rainbow Trout:	> 100 mg/	Mallard Duck 8-day Dietary LD_{50}:	>10,000 ppm
48-hour EC_{50} Daphnia:	0.72 mg/l		

Environmental Fate:
The degree of mobility of copper in the environment depends upon the pH of ambient soils and waters. The higher the acidity, the more soluble copper salts are and, hence, the more mobile. Partitioning of copper into the air is negligible due to the low vapor pressure of copper salts.

13. DISPOSAL CONSIDERATIONS

Waste Disposal Method:
Pesticide wastes are acutely hazardous. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal Law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste Representative at the nearest Environmental Protection Agency Regional Office for guidance.

Container Handling and Disposal:

Nonrefillable Containers 5 Gallons or Less

Nonrefillable container. DO NOT reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying.

Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by State and local authorities. Plastic containers are also disposable by incineration, or, if allowed by State and local authorities, by burning. If burned stay out of smoke.

Nonrefillable containers larger than 5 gallons

Nonrefillable container. DO NOT reuse or refill this container. Triple rinse or pressure rinse container (or equivalent) promptly after emptying.

Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times.

Pressure rinse as follows: Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container, and rinse at about 40 psi for at least 30 seconds. Drain for 10 seconds after the flow begins to drip. Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by State and local authorities. Plastic containers are also disposable by incineration or, if allowed by State and local authorities, by burning. If burned stay out of smoke.

14. TRANSPORTATION INFORMATION

Follow the precautions indicated in Section 7: HANDLING AND STORAGE of this MSDS.

DOT

< 119 gallons per completed package:

Not regulated by DOT unless shipped by water. See IMO / IMDG description.

≥ 119 gallons per completed package:

UN3082, Environmentally hazardous substance, liquid, n.o.s.,
(Copper Sulfate), 9, III, Marine Pollutant

IMO / IMDG

UN3082, Environmentally hazardous substance, liquid, n.o.s.,
(Copper Sulfate), 9, III, Marine Pollutant

IATA

Not regulated

15. REGULATORY INFORMATION

EPA FIFRA INFORMATION

This chemical is a pesticide product registered by the United States Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets (SDS), and for workplace labels of non-pesticide chemicals. The hazard information required on the pesticide label is reproduced below. The pesticide label also includes other important information, including directions for use.

CAUTION. Harmful if swallowed or absorbed through skin. Causes moderate eye irritation. Avoid contact with skin, eyes, or clothing.

U.S. Federal Regulations:

TSCA Inventory: This product is exempted from TSCA because it is solely for FIFRA regulated use.

SARA Hazard Notification/Reporting:
Hazard Categories Under Criteria of SARA Title III Rules (40 CFR Part 370.66):
Immediate and delayed

Section 313 Toxic Chemical(s):
Copper compounds.

Reportable Quantity (RQ) under U.S. CERCLA:
No RQ is assigned to copper compounds, although the class is a CERCLA hazardous substance. See 50 Federal Register 13456 (April 4, 1985).

RCRA Waste Code:
Under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste.

State Information:
Other state regulations may apply. Check individual state requirements.

California Proposition 65: Not Listed

16. OTHER INFORMATION

National Fire Protection Association (NFPA) Hazard Rating:
Rating for this product: Health: 1 **Flammability:** 1 **Reactivity:** 0
Hazards Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

This Safety Data Sheet (SDS) serves different purposes than and DOES NOT REPLACE OR MODIFY THE EPA-ACCEPTED PRODUCT LABELING (attached to and accompanying the product container). This MSDS provides important health, safety and environmental information for employers, employees, emergency responders and others handling large quantities of the product in activities generally other than product use, while the labeling provides that information specifically for product use in the ordinary course.

Use, storage and disposal of pesticide products are regulated by the EPA under the authority of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) through the product labeling, and all necessary and appropriate precautionary, use, storage, and disposal information is set forth on that labeling. It is a violation of Federal law to use a pesticide product in any manner not prescribed on the EPA-accepted label.

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