

MATERIAL SAFETY DATA SHEET

CUPROXAT 345 SC FUNGICIDE

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION:

PRODUCT : CUPROXAT 345 SC
Pesticide classification : Fungicide
Chemical name : Copper hydroxide sulfate
Formula : $Cu_4-H_6-O_{10}-S$
Formulation type : Flowable
Synonyms : Copper oxysulfate
Tribasic copper sulfate

COMPANY IDENTIFICATION:

PT. Nufarm Indonesia
Plaza Aminta Suite 802, 8th Floor
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Email : plant.merak@id-nufarm.com

2. Hazards identification

Emergency Overview

Appearance and Odor : Pale blue-green liquid, odorless
Warning statements : Keep out of reach of children. CAUTION Harmful if swallowed or absorbed through skin. Causes moderate eye irritation. Avoid contact with skin, eye or clothing

Potential Health Effects

- Likely Route of Exposure** : Ingestion, eye and skin contact, inhalation
- Eye Contact** : Moderately irritating
- Skin Contact** : Cause skin irritation
- Ingestion** : Copper salts impart a metallic taste in the mouth. Burning Sensation in the throat and repeated vomiting are typical effects
- Inhalation** : Inhalation of dust may cause irritation to the upper respiration tract with possible burns. May cause ulceration and perforation of the nasal septum if inhaled in excessive quantities.
- Medical Conditions Aggravated by Exposure** : Inhalation of product may aggravate existing chronic respiratory problems such as asthma, emphysema or bronchitis. Skin contact may aggravate existing skin disease

See Section 11 : TOXICOLOGICAL INFORMATION for more information

Potential Environmental Effects

This pesticides is toxic to fish and aquatic invertebrates and may contaminate water through Runoff. This product has a potential for runoff for several months or more after application.

See Section 12 : ECOLOGICAL INFORMATION for more information

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient	Cas No	% by Weight
Basic copper sulfate	1344-73-6	27.1
Other Ingredient : Including Propylene Glycol	57-55-6	72.9

4. FIRST AID MEASURES

- If Swallowed** : Call a poison control centre 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 centre 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. Call a poison control centre or doctor for treatment advice.
- If Inhaled** : Move person to fresh air. If person is not breathing call Ambulance then give artificial respiration, preferably by mouth to mouth, if possible. Call a poison control center or doctor for further treatment advice.

5. FIRE FIGHTING MEASURES

- Flash Point** : Does not flash
- Autoignition Media** : Not applicable
- Flammability Limits** : Not applicable
- Extinguishing Media** : Recommended for large fires foam or water spray.
Recommended for small fire dry chemical or carbon dioxide
- Special Fire Fighting Procedure** : Firefighter 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 Hazard** : 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 material (Under Fire Condition)** : May produce gases such as hydrogen chloride, hydrogen fluoride, oxides and nitrogen

National Fire Protection Association (NFPA) Hazard Rating

Rating for this product : Health =1, Flammability = 1, Reactivity =0

Hazards Scala

Minimal	: 0
Slight	: 1
Moderate	: 2
Serious	: 3
Severe	: 4

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions : Wear appropriate protective gear for the solution, see section 8

Environmental Precautions : Prevent material from entering public sewer system 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.

Method 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.

Method for Cleanup and Disposal : Avoid creation of dusty condition. 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

7. HANDLING AND STORAGE

Handling : Avoid contact with skin, eyes or clothing. Wash thoroughly with soap and water handling and before eating or smoking. Remove and wash any contaminated clothing before reuse. User 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 Pesticides get 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, 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 Control : Where engineering controls are indicated by specific use condition or a potential for excessive exposure, use local exhaust ventilation at the point of generation

Personal Protective Equipment

Eye/Face Protective : 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 vapor or mist 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 measure should be taken working with or handling this material :

1. do not store, use and/or consume foods, beverages, tobacco products, or cosmetic in areas where this material is stored
2. wash hands and face carefully before eating, drinking, using tobacco, applying cosmetics or using the toilet

Componen with workplace parameters

(according Autrian occupational exposure limits)

Components	Cas-No	Exposure Limits	Note
Tribasic copper sulfata	12527-76-3	1 mg/m ³	Inhalable fraction

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Physical state	: liquid
Form	: suspension
Colour	: greenish-blue
Odour	: characteristic
Boiling Point	: < 212°F (100°C)
Specific Gravity	: 1.283
pH	: 6.8 - 7.6
Viscosity	: 1.50×10^3 @20°C
Density	: 10.683 lb/gal
Solubility in water	: insoluble
Vapor Density	: Not available
Vapor Pressure	: Not available
Evaporation Rate	: Not available
Freezing Point	: Not available
Melting Point	: Not available
Start of crystallisation	: ca. -3°C

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

10. STABILITY AND REACTIVITY

Chemical Stability	: This material is stable under normal handling and store conditions
Condition to Avoid	: Excessive heat. Do not store near heat or flame
Hazardous Decomposition Product	: Under fire conditions may produce gases such as hydrogen chloride, hydrogen fluoride, oxides and nitrogen
Incompatible Materials	: Strong acid, aluminium and its alloys, iron
Hazardous Reactions	: Hazardous polymerization will not occur

11. TOXICOLOGI INFORMATION

Toxicologi Data

Data from laboratory studies on this product are summarized below

- Oral** : Rat LD₅₀ : 2521 mg/kg
Dermal : Rat LD₅₀ : > 2000 mg/kg
Inhalation : Rat 4-hr LC₅₀ : > 2558 mg/l
Eye Irritation : Rabbit : Moderately irritating
Skin Irritation : Rabbit : Slightly irritating
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 Carcinogenicity : None listed with ACGIH, IARC, NTP or OSHA

12. ECOLOGICAL INFORMATION

Ecotoxicity Effects

- Toxicity to Birds** : LC50 Conturnic japonica (Japanese quail)
Dose : 1.428 mg/kg
- Toxicity to Bees** : Not toxic to Bees
- Toxicity to fish** : NOEC Oncorhynchus mykiss (rainbow trout)
Dose : ca. 65 mg/l
Testing period : 21 d

- LC₅₀ Oncorhynchus mykiss (rainbow trout)
Dose : > 100 mg/l
Testing period : 96 h
- Toxicity to Daphnia** : Static test EC₅₀ daphnia magna (water flea)
Dose : > 0.72 mg/l
Testing period : 48 h
- Toxicity to Algae** : EC₅₀ Scenedesmus subspicatus
Dose : > 100 mg/l
Exposure time : 72 h
- Toxicity to Bacteria** : IC₅₀
Dose : > 100 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 CONSIDERATION

- Product** : In accordance with local and nation regulations
Do not dispose with house waste
Dispose at an approved waste disposal facility. Dispose the product and its packages as dangerous waste
- Contaminated packing** : Do not re-use empty containers
- 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

14. TRANSPORT INFORMATION

- UN-Number** : 3082

Description of the goods : UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S (copper(II)-ions)

ADR/RID

Class : 9
Packing group : III

IMDG

Class : 9
Packaging group : III
Marine pollutant : MP

IATA-DGR

Class : 9
Packaging group : III

15. REGULATION INFORMATION

Symbol(s) : N Dangerous for the environment

R-phrase(s) : R50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

S-phrase(s) : S 2 Keep out of the reach of children

S 13 Keep away from food, drink and animal feedingstuffs

S 20/21 When using do not eat, drink or smoke

S 35 This material and its container must be disposed of in a safe way

S 57 Use appropriate container to avoid environmental contamination

S 60 This material and its container must be disposed

Further information : Handle in accordance with good industrial hygiene and safety practice

16. OTHER INFORMATION

Full text of R-phrases referred to under sections 2 and 3
R22 - Harmful if swallowed

R50/53 - Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

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