



The MSDS format adheres to the standards and regulatory requirements of the United States and may not meet regulatory requirements in other countries.

DuPont
Material Safety Data Sheet

Page 1

"DuPont" "KOCIDE" 4.5LF FUNGICIDE/BACTERICIDE
M0000656 Revised 6-FEB-2007

CHEMICAL PRODUCT/COMPANY IDENTIFICATION

Material Identification

"KOCIDE" is a registered trademark of DuPont.

"DuPont" is a trademark of DuPont.

Tradenames and Synonyms

COPPER HYDROXIDE
CUPRIC HYDROXIDE

Tradenames and Synonyms (Remarks)

Inactive EPA Reg. No.: 1812-303 (Griffin)

Company Identification

MANUFACTURER/DISTRIBUTOR
DuPont
1007 Market Street
Wilmington, DE 19898

PHONE NUMBERS

Product Information : 1-800-441-7515 (outside the U.S.
302-774-1000)
Transport Emergency : CHEMTREC 1-800-424-9300(outside U.S.
703-527-3887)
Medical Emergency : 1-800-441-3637 (outside the U.S.
302-774-1000)

COMPOSITION/INFORMATION ON INGREDIENTS

Components

Material	CAS Number	%
COPPER HYDROXIDE*	20427-59-2	37.5
INERT INGREDIENTS		62.5

Components (Remarks)

(*Metallic Copper Equivalent 24.4% or 3 Pounds Metallic Copper Per Gallon)

(4.5 Pounds Copper Hydroxide Per Gallon)

Components not precisely identified are proprietary or not hazardous.

HAZARDS IDENTIFICATION

Emergency Overview

CAUTION. Causes moderate eye injury. Avoid breathing vapor or spray mist. Harmful if swallowed, or absorbed through the skin. Avoid contact with skin, eyes or clothing.

Potential Health Effects

Inhalation:

Slightly toxic by inhalation. Excessive exposure may cause cough, mucus production, shortness of breath, reflecting metal fume fever.

Eye Contact:

May cause mild irritation to the eyes.

Skin Contact:

Slight skin irritant. Excessive exposure, especially if prolonged, may produce skin irritation. Repeated exposure may cause allergic contact dermatitis.

Skin Absorption:

Not a skin absorption hazard.

Ingestion:

Slightly toxic by oral exposure. This material may produce toxicity if ingested in large quantities. Symptoms of over-exposure may include nausea and vomiting, abdominal pain, and central nervous system depression, which, if severe enough, may lead to death.

CHRONIC:

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.

Carcinogenicity Information

None of the components present in this material at concentrations equal to or greater than 0.1% are listed by IARC, NTP, OSHA or ACGIH as a carcinogen.

FIRST AID MEASURES

First Aid

IF IN 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 treatment advice.

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 INHALED: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible. Call a poison control center or doctor for further treatment advice.

IF ON SKIN OR CLOTHING: 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.

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. For medical emergencies involving this product, call toll free 1-800-441-3637. See Label for Additional Precautions and Directions for Use.

Notes to Physicians

Probable mucosal damage may contraindicate use of gastric lavage.

FIRE FIGHTING MEASURES

Flammable Properties

Flash Point & Method : Not determined
Flammable Limits : Not determined
Autoignition Temperature : Not determined

FIRE FIGHTING HAZARDS & PROCEDURES

General Hazard : Negligible fire hazard when exposed to heat or flame.
Extinguishing Media : Use dry chemical, carbon dioxide, water spray, or foam.
Fire Fighting Equipment : Wear protective clothing and self-contained breathing apparatus.

(FIRE FIGHTING MEASURES - Continued)

Hazardous Combustion
Products : Decomposes to CuO and H₂O above
140°C.

ACCIDENTAL RELEASE MEASURES

Safeguards (Personnel)

NOTE: Review FIRE FIGHTING MEASURES and HANDLING (PERSONNEL)
sections before proceeding with clean-up. Use appropriate
PERSONAL PROTECTIVE EQUIPMENT during clean-up.

Spill Clean Up

Land Spill: Cover spill with absorbent material such as
sweeping compound or lime. Sweep up and place in suitable
(fiberboard) containers for later disposal.

Water Spill: If feasible, copper may be precipitated/-
ultrafiltrated with caustics or other chemicals and
resulting sludge disposed of in a chemical landfill.

HANDLING AND STORAGE

Handling (Personnel)

USERS SHOULD: Wash hands before eating, drinking, chewing
gum, using tobacco or using the toilet. Remove clothing
immediately if pesticide gets inside. Then wash thoroughly
and put on clean clothing.

Storage

Do not contaminate water, food or feed by storage.

Store in a cool, dry place.

Storage Temperature : Store above 0°C and below 35°C
(95°F). Average shelf life under
proper storage conditions is 2 years.

Do not store near feed, food or within the reach of
children.

EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls

PESTICIDE APPLICATORS & WORKERS

These workers must refer to the Product Label and Directions For Use attached to the product for Agricultural Use Requirements in accordance with the EPA Worker Protection Standard 40 CFR part 170.

MANUFACTURING, COMMERCIAL BLENDING, & PACKAGING WORKERS

Ventilation : Control enclosed spaces with adequate ventilation to prevent exceedance of ACGIH TLV or OSHA PEL.

Respiratory Protection : In enclosed spaces where the TLV or PEL may be exceeded, wear NIOSH/OSHA approved dust or mist respirator.

Eye Protection : Wear protective eyewear to prevent contact with this substance.

Personal Protective Equipment

Some of the materials that are chemical-resistant to this product are listed below. If you want more options, follow the instructions for category A on an EPA chemical-resistant category selection chart.

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants.
- Chemical-resistant gloves made of any waterproof material, such as polyvinyl chloride, nitrile rubber, or butyl rubber.
- Shoes plus socks.
- Protective eyewear.

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is:

- Coveralls.
- Chemical-resistant gloves made of any waterproof material, such as polyvinyl chloride, nitrile rubber, or butyl rubber.
- Shoes plus socks.
- Protective eyewear.

Exposure Guidelines

Applicable Exposure Limits

COPPER HYDROXIDE*

PEL (OSHA)	: 1 mg/m ³ , dusts and mists, as Cu, 8 Hr. TWA
TLV (ACGIH)	: 1 mg/m ³ , dusts and mists, as Cu, 8 Hr. TWA
AEL * (DuPont)	: 1.5 mg/m ³ , 8 & 12 Hr. TWA (approximately 1 mg/m ³ , as Cu)

* AEL is DuPont's Acceptable Exposure Limit. Where governmentally imposed occupational exposure limits which are lower than the AEL are in effect, such limits shall take precedence.

PHYSICAL AND CHEMICAL PROPERTIES

Physical Data

Vapor Pressure	: Not determined
Density	: 1.45 g/mL
Solubility in Water	: Not determined
pH	: 9.5 (1% dispersion in water)
Viscosity	: 6640 cps
Boiling Point	: Not determined
Melting Point	: Decomposes at >140°C
Odor	: Slight characteristic copper odor
Color	: Blue-green
Physical State	: Opaque viscous Liquid

STABILITY AND REACTIVITY

Chemical Stability

General	: This material is stable under normal conditions.
Incompatible Materials	: Not determined
Conditions to Avoid	: Excessive heat
Hazardous Decomposition	: Decomposes to CuO and H ₂ O above 140°C
Hazardous Polymerization	: Material is not known to polymerize.

TOXICOLOGICAL INFORMATION

Animal Data

ACUTE

Inhalation:

Acute inhalation LC₅₀ > 2.15 mg/L (rat - 4 hour). May cause irritation of the mucous membranes. Exposure to copper fume may result in metallic taste, nausea, vomiting, and metal fume fever with chills, fever, aching muscles, dry throat and headache.

(TOXICOLOGICAL INFORMATION - Continued)

Eye Contact:

Considered to be mildly irritating to the eye of a rabbit.

Skin Contact:

Slightly irritating to the skin.

Skin Absorption:

Acute dermal LD50 > 5000 mg/kg. This product is slightly toxic by dermal exposure.

Ingestion:

Oral LD50 = 1630 mg/kg (rat). Ingestion of large doses of copper salts may result progressively in irritation of the gastrointestinal tract, nausea, vomiting, salivation, gastric pain, hemorrhagic gastritis, diarrhea, capillary damage, liver and kidney damage, and central nervous system stimulation followed by depression. Jaundice, pain in the liver, and hemolytic anemia have been reported following acute human poisonings.

CHRONIC:

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. Copper hydroxide which comprises 46% of this product governs the toxicity of the product. The remaining components have low to negligible toxicity.

Special Health Effects:

Copper-intolerant individuals should not be exposed to this material. No additional information is available on whether overexposure to this material would aggravate other existing special medical conditions.

ECOLOGICAL INFORMATION

Ecotoxicological Information

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 air is negligible due to the low vapor pressure of copper salts.

ECOTOXICITY (copper hydroxide)

AQUATIC

Aquatic LC50: Bluegill, 180,000 ppb
Aquatic LC50 (96 hr): Fathead Minnow, 23 ppb
Aquatic LC50: Rainbow Trout, 23 ppb
Aquatic EC50: Daphnia magna, 6.5 ppb

(ECOLOGICAL INFORMATION - Continued)

AVIAN

Avian - acute oral LD50: Bobwhite Quail, >340 mg/kg
Avian - 8-day dietary LD50: Bobwhite Quail, >10,000 ppm
Avian - 8-day dietary LD50: Mallard Duck, >10,000 ppm

DISPOSAL CONSIDERATIONS

Waste Disposal

Do not contaminate water, food or feed by disposal.

ENVIRONMENTAL HAZARDS:

This pesticide is toxic to fish and aquatic organisms. Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Drift and runoff from treated areas may be hazardous to fish and aquatic organisms in adjacent aquatic sites. Do not contaminate water by disposal of equipment washwaters.

Container Disposal

Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

Pesticide Disposal:

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 EPA Regional Office for guidance.

TRANSPORTATION INFORMATION

Shipping Information

Department of Transportation (DOT):

Proper Shipping Name : Not Regulated by DOT unless shipped in bulk package or by water. See IMO/IMDG description.

IMO/IMDG:

Proper Shipping Name : Environmentally Hazardous Substances, Liquid, n.o.s., (Copper Hydroxide).

(TRANSPORTATION INFORMATION - Continued)

Hazard Class : 9
UN/NA Number : UN 3082
Packing Group : III
Marine Pollutant : Yes
Reportable Quantity : No

IATA/ICAO:
Not Regulated

REGULATORY INFORMATION

U.S. Federal Regulations

TITLE III HAZARD CLASSIFICATIONS SECTIONS 311, 312

Acute : Yes
Chronic : No
Fire : No
Reactivity : No

In the United States this product is regulated by the US Environmental Protection Agency under the Federal Insecticide, Fungicide and Rodenticide Act. It is a violation of federal law to use this product in a manner inconsistent with its labeling.

EPA Reg. No. 352-684

OSHA:
This product is considered hazardous under the OSHA Hazardous Communication Standard (29 CFR §1910.1200).

TSCA:
All product components are on the TSCA Chemical Inventory.

CERCLA:
Releases of a component of this material (metallic copper, CAS No. 7440-50-8, RQ = 5000 lbs) to air, land, or water are reportable to the National Response Center under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) or to the state and local emergency planning committees under the Superfund Amendments and Reauthorization Act (SARA) Title III Section 304 and 40 CFR Part 304.

RCRA:
When a decision is made to discard this material as supplied, it does not meet RCRA's characteristic definition of ignitability, corrosivity, or reactivity, and is not listed in 40 CFR §261.33.

(REGULATORY INFORMATION - Continued)

SARA TITLE III

313 Reportable Ingredients: This product contains a percentage of metallic copper (CAS No. 7440-50-8) that is listed in Section 313 above de minimis concentrations (40 CFR §372).

State Regulations (U.S.)

California:

Listed under copper (CAS No. 7440-50-8) with footnotes referencing above federal standards.

New Jersey:

Footnotes reference above federal standards plus listing of copper on the New Jersey Environmental Hazardous Substances List (NJ Department of Environmental Protection, Title 7 New Jersey Administrative Code (NJAC) Chapter 1G).

Massachusetts:

Listed as copper (CAS No. 7440-50-8) and copper based pesticide, solid, toxic (no CAS No. assigned).

Pennsylvania:

Listed as copper fume or dust (CAS No. 7440-50-8) as an environmental hazard.

OTHER INFORMATION

NFPA, NPCA-HMIS

HAZARDS CLASSIFICATION:

(0-minimal, 1-slight, 2-moderate, 3-serious, 4-severe)

NFPA: HEALTH-2 FIRE-1 REACTIVITY-0

HMIS: HEALTH-1 FIRE-1 REACTIVITY-0

Additional Information

Inactive EPA Reg. No.: 1812-303 (Griffin)

The data in this Material Safety Data Sheet relates only to the specific material designated herein and does not relate to use in combination with any other material or in any process.

Responsibility for MSDS: DuPont Crop Protection

Address : Wilmington, DE 19898

Telephone : 1-888-638-7668

Indicates updated section.

(Continued)

This information is based upon technical information believed to be reliable. It is subject to revision as additional knowledge and experience is gained.

End of MSDS