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DuPont
Material Safety Data Sheet

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"DuPont" "KOCIDE" 2000 FUNGICIDE/BACTERICIDE
M0000539 Revised 5-AUG-2005

CHEMICAL PRODUCT/COMPANY IDENTIFICATION

Material Identification

KOCIDE is a registered trademark of DuPont.

Tradenames and Synonyms

COPPER HYDROXIDE
DPX-GFJ52
KOCIDE WDG
KOCIDE WG
KOCIDE 53.8WG
KOCIDE BLUE EXTRA
KOCIDE 35DF
KOCIDE 35WG

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	53.8
INERT INGREDIENTS		46.2

Components (Remarks)

(*Metallic Copper Equivalent 35%)

Components not precisely identified are proprietary or not hazardous.

HAZARDS IDENTIFICATION

Emergency Overview

WARNING. Causes substantial but temporary eye injury.
Harmful if swallowed, absorbed through the skin or inhaled.
May cause skin sensitization reactions in certain individuals. Avoid contact with skin, eyes and clothing.
Avoid breathing dust.

Potential Health Effects

No adverse effects are expected from incidental skin contact. While there are no reports of human sensitization with Kocide 2000, there are inconclusive or unverified reports of human sensitization with the active ingredient, copper hydroxide.

Eye contact may cause substantial, but temporary eye injury.

Inhalation may cause irritation of the upper respiratory passages, with coughing.

Ingestion may cause nonspecific discomfort, such as nausea, or weakness, central nervous system depression, which, if severe enough, may lead to death.

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.

(FIRST AID MEASURES - Continued)

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. No incompatible fire fighting media known.
Fire Fighting Equipment : Wear protective clothing and self-contained breathing apparatus.
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.

(ACCIDENTAL RELEASE MEASURES - Continued)

Spill Clean Up

Land Spill: 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 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/MSHA approved dust or mist respirator.

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

(EXPOSURE CONTROLS/PERSONAL PROTECTION - Continued)

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.

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them.

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.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 24 hours without required PPE.

The following equipment and precautions must be followed for 7 days following the application of this product:

- An eye-flush container, designed specifically for flushing eyes, must be available at the WPS decontamination site for workers entering the area treated with copper hydroxide.
- Notify workers of the application by warning them orally that residues in the treated areas may be highly irritating to their eyes and to take precautions such as refraining from rubbing their eyes and if they get residues in their eyes they should immediately flush their eyes using the eye-flush container.

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.

(EXPOSURE CONTROLS/PERSONAL PROTECTION - Continued)

- 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	: 1.0417 g/mL
Solubility in Water	: 2.9 mg/L (copper hydroxide)
pH	: 8.61
Boiling Point	: Not determined
Melting Point	: Decomposes at >140°C
Odor	: Not determined
Color	: Medium blue
Physical State	: Granulated solid

STABILITY AND REACTIVITY

Chemical Stability

General	: This material is stable under normal conditions.
Incompatible Materials	: None known
Hazardous Decomposition	: Decomposes to CuO and H ₂ O above 140°C
Hazardous Polymerization	: Material is not known to polymerize.

TOXICOLOGICAL INFORMATION

Animal Data

Kocide 2000

Oral LD50: 1346 mg/kg in rats
Dermal LD50: > 5000 mg/kg in rabbits
4-Hour Inhalation LC50: 1311 mg/m3 in rats

Kocide 2000 caused substantial, but temporary eye injury. It was not a skin irritant or skin sensitizer in animals.

Kocide 2000 did not produce any adverse effects at 1000 mg/kg in a 28-day oral feeding study in rats.

No animal data are available to define the carcinogenic, mutagenic, developmental, or reproductive hazards of Kocide 2000.

COPPER HYDROXIDE

Repeated oral ingestion of copper hydroxide via gavage produced reduced body weights and food consumption at 15 mg/kg/day and mortality at 30 mg/kg/day in rabbits.

No animal data are available to define carcinogenic, reproductive, or mutagenic hazards of copper hydroxide. Animal data show developmental effects only at exposure levels producing other toxic effects in the adult animal.

ECOLOGICAL INFORMATION

Ecotoxicological Information

AQUATIC TOXICITY:

96 hour LC50 - Rainbow trout: 7.99 mg/L.
48 hour EC50 - Daphnia magna: 1.61 mg/L.
96 hour EC50 - Freshwater algae: 0.0157 mg/L.

AVIAN TOXICITY:

Acute Oral LD50 - Quail. 722 mg/kg.
Acute Oral LD50 - Honeybee: 8.15 ug/bee.

DISPOSAL CONSIDERATIONS

Waste Disposal

Do not contaminate water, food or feed by disposal.

Comply with appropriate disposal regulations. Landfill solids at permitted sites. Use registered transporters.

ENVIRONMENTAL HAZARDS:

This pesticide is toxic to fish and aquatic organisms. Do not apply directly to water, to areas where surface

(DISPOSAL CONSIDERATIONS - Continued)

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

Completely empty bag into application equipment. Then dispose of empty bag 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, Solid, n.o.s., (Copper Hydroxide).

Hazard Class : 9

UN/NA Number : UN 3077

Packing Group : III

Marine Pollutant : Yes

Reportable Quantity : No

IATA/ICAO:

Not Regulated

REGULATORY INFORMATION

U.S. Federal Regulations

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:

Reportable quantity under CERCLA is 5000 lbs. for copper (CAS No. 7440-50-8). No reportable quantities found for copper containing pesticide (CAS No. 10290-12-7) or copper hydroxide (CAS No. 20427-59-2). No reportable quantities found for other components of this product.

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.

SARA TITLE III

311/312 Hazard Categories: This product has been reviewed according to the EPA "Hazard Categories" and is categorized as an acute health hazard (40 CFR §370.41).

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.

STATE REGULATIONS

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.

(REGULATORY INFORMATION - Continued)

EPA Reg. No. 352-656

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-2 FIRE-1 REACTIVITY-0

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.

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