



## NUFARM AGRICULTURE INC.

### 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**SUPPLIED BY:**

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**PRODUCT:****PARASOL WG Fungicide****PCP NUMBER:**

29063

**DATE PREPARED:**

November 14, 2011

**PREPARER:**

Nufarm Agriculture Inc.; Regulatory Affairs &amp; Research Department

**CHEMICAL FAMILY/USE:**

Copper Fungicide/Bactericide

**FORMULA:**Cu(OH)<sub>2</sub>**CHEMICAL SYNONYMS:**

Copper hydroxide, Copper (II) hydroxide, Cupric hydroxide

### 2. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Ingredients	Wt. %	CAS NO.
Copper Hydroxide	77	20427-59-2

### 3. HAZARDS IDENTIFICATION

**EMERGENCY OVERVIEW:** Direct contact may seriously damage eye tissue. Slightly to non-toxic orally, dermally, and by inhalation. See below for route specific details.

**EFFECTS OF ACUTE EXPOSURE:**

**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.

**SKIN CONTACT:** Slight skin irritant. Excessive exposure, especially if prolonged, may produce skin irritation. Repeated exposure may cause allergic contact dermatitis. Not a skin absorption hazard.

**INHALATION:** Slightly toxic by inhalation. Excessive exposure may cause cough, mucous production, shortness of breath, reflecting metal fume fever.

**EYE CONTACT:** Severely irritating to the eyes. Direct contact may cause destruction of eye tissue. May be corrosive to the eyes if not washed immediately.

**MEDICAL CONDITIONS AGGRAVATED:** 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.

**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. Copper hydroxide, which comprises 77% of this product, governs the toxicity of the product. The remaining components have low to negligible toxicity.

**CHRONIC EFFECTS/CARCINOGENICITY:** 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



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nasal septum after long periods of exposure.

**REPRODUCTIVE TOXICITY:** No information available.

**DEVELOPMENTAL TOXICITY:** No information available.

**GENOTOXICITY:** No information available.

**PRINCIPLE ROUTES OF EXPOSURE:** Inhalation, eye contact, skin absorption, oral ingestion.

**TOXICOLOGICALLY SYNERGISTIC MATERIALS:** None known.

**OTHER:** None known.

### 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 a 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 15–20 minutes. Call a poison control centre or doctor for treatment advice.

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

**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 centre or doctor for treatment advice.

**NOTE TO PHYSICIAN:** Treat symptomatically. Acute oral overexposure to copper hydroxide, a major component of this product, may cause hypotension, hemolysis, and, rarely, methemoglobinemia. Severe intoxication is associated with serum copper levels greater than 500 mcg/dl. Copper hydroxide is an emetic, however, dilution with fluids, adsorption with activated charcoal, or lavage may be indicated. Mucosal damage may contraindicate use of gastric lavage. Chelation therapy with BAL or D-penicillamine has proved useful in cases of acute overexposure.

### 5. FIRE FIGHTING MEASURES

**FLASH POINT:** .....Not determined

**CONDITIONS OF FLAMMABILITY:** .....Negligible fire hazard when exposed to heat or flame.

**FLAMMABLE LIMITS IN AIR - Upper (%):**.....Not determined

**FLAMMABLE LIMITS IN AIR - Lower (%):**.....Not determined

**AUTOIGNITION TEMPERATURE:** .....Not determined

**SENSITIVITY TO MECHANICAL IMPACT (Y/N):**.....N

**SENSITIVITY TO STATIC DISCHARGE:** .....Not determined

**EXTINGUISHING MEDIA:** Use dry chemical, carbon dioxide, water spray, or foam. No incompatible fire fighting media known.

**SPECIAL FIREFIGHTING PROCEDURES:** Firefighters should wear self-contained breathing apparatus and full protective clothing when fighting chemical fires. Minimize and contain water runoff. Avoid contact with molten product to prevent serious burns.

### 6. ACCIDENTAL RELEASE MEASURES

**ACTION TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED:** Use safety equipment and procedures appropriate to the size of the spill. Keep unnecessary people away. Sweep up and place in suitable container. Contain all affected material in a closed, labeled container for proper disposal. Isolate from other waste materials. Clean contaminated area such as hard surfaces with detergent and water, collecting cleaning solution for proper disposal.

In water, if feasible, copper may be precipitated/ultrafiltered with caustics or other chemicals, and resulting sludge collected.



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**7. HANDLING AND STORAGE**

**PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE:** Keep out of reach of children. Store in a clean, dry area, away from food and feed products. Store below 35°C. Average shelf life under proper storage conditions is 2 years.

**8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

**EXPOSURE LIMITS:**

Hazardous Ingredients	TWA	ACGIH TLV	STEL	Units
Copper hydroxide	1 *	1 *	N/E	mg/m <sup>3</sup>

\* As copper dusts or mists (CAS # 7440-50-8).

**ENGINEERING CONTROLS:** Use in a well ventilated area. General ventilation with a good source of make-up air recommended as minimum for indoor situations. Ventilation should be adequate to maintain air concentrations below exposure limits.

**RESPIRATORY PROTECTION EQUIPMENT:** In enclosed spaces where the TLV may be exceeded, wear NIOSH/MSHA approved dust or mist respirator.

**PROTECTIVE GLOVES:** Wear chemical resistant gloves during mixing, loading, clean-up and repair activities.

**EYE AND FACE PROTECTION:** Wear protective eyewear to prevent contact with this substance.

**OTHER PROTECTIVE EQUIPMENT:** Applicators and other handlers must wear long-sleeved shirt and long pants, and shoes plus socks.

**VENTILATION:** Control enclosed spaces with adequate ventilation to prevent exceedance of ACGIH TLV (1 mg/m<sup>3</sup>).

**9. PHYSICAL AND CHEMICAL PROPERTIES**

**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.

- BOILING POINT:** .....Not applicable
- VAPOR PRESSURE:** .....Negligible
- VAPOR DENSITY (air = 1):** .....Not determined
- FREEZING POINT:** .....Not applicable
- MELTING POINT:** .....Decomposes above 140°C
- PHYSICAL STATE:** .....Solid granules
- ODOUR:** .....Characteristic copper odour
- COLOUR:** .....Light blue
- ODOR THRESHOLD (ppm):** .....Not determined
- EVAPORATION RATE (butyl acetate = 1):** .....Not determined
- SPECIFIC GRAVITY (water = 1):** .....1.09
- DENSITY @ 25°C:** .....0.72 – 0.76 g/ml
- pH:** .....8.9
- SOLUBILITY IN WATER (20°C):** .....Disperses to form a suspension. Copper hydroxide is insoluble in cold water and decomposes in hot water.
- COEFFICIENT OF WATER/OIL DISTRIBUTION:** .....Not determined

**10. STABILITY AND REACTIVITY**



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**STABILITY:** Stable under normal conditions.

**HAZARDOUS POLYMERIZATION:** Not known to polymerize.

**HAZARDOUS THERMAL DECOMPOSITION/COMBUSTION PRODUCTS:** Decomposes to CuO and H<sub>2</sub>O above 140°C.

**INCOMPATIBILITY (MATERIALS TO AVOID):** Acids and sulphur.

**CONDITIONS TO AVOID:** Excessive heat.

### 11. TOXICOLOGICAL INFORMATION

**ACUTE ORAL LD<sub>50</sub> (mg/kg):** ..... 846 (female) - 943 (male) 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.

**ACUTE DERMAL LD<sub>50</sub> (mg/kg):** ..... >2000 mg/kg (Rat).

This product is slightly toxic by dermal exposure.

**ACUTE INHALATION LC<sub>50</sub> (mg/l):** ..... 1.04 (female) - 1.53 (male) 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.

**OTHER:** Severely irritating to the eyes. May cause severe eye irritation including permanent corneal opacity. May be corrosive to the eyes if not washed immediately. May cause slight skin irritation. Many copper salts cause itching, eczema and rarely, sensitization reactions in previously exposed persons.

### 12. ECOLOGICAL INFORMATION

**ECOTOXICOLOGICAL INFORMATION:** (copper hydroxide)

**96-HOUR LC<sub>50</sub> (mg/L):** 0.023 (Rainbow Trout)

**96-HOUR LC<sub>50</sub> (mg/L):** 180 (Bluegill)

**48-HOUR EC<sub>50</sub> (mg/L):** 0.0065 (Daphnia)

**ORAL LC<sub>50</sub> (mg/kg):** >340 (Bobwhite Quail)

**DIETARY LD<sub>50</sub> (ppm):** >10,000 (Mallard Duck, 8 day)

**CHEMICAL FATE 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.

### 13. DISPOSAL CONSIDERATIONS

**DISPOSAL METHOD:** For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Disposal should be made in accordance with federal, provincial and local regulations. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean up of spills.

Do not reuse container for any purpose. If applicable, return container in accordance with return program. If a recyclable container, dispose of at a container collection site. Contact local distributor, dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site, triple or pressure rinse the empty container adding rinsings to spray tank, and make container unsuitable for further use. If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

### 14. TRANSPORT INFORMATION

