

# MATERIAL SAFETY DATA SHEET

## Introductory Details

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Date of preparation : 12 September 2006  
Date revised : 27 December 2007

## SECTION 1 : CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

### 1.1 Product Details

Product Name : Copper (II) Hydroxide 40% DF  
Trade Name : BLUE SHIELD  
Chemical Name : Copper (II) hydroxide, Cupric hydroxide  
Chemical Formula :  $\text{Cu}(\text{OH})_2$   
Molar Mass : 97.56  
Chemical Family : Weak base of transition metal  
Manufacturer's Code : -  
Use : Fungicide  
Structural Formula :



*Copper Hydroxide*

### 1.2 Company Identification

**Manufacturer** : Available upon request

#### **Importer / Distributor**

Name and Address : Agricultural Chemicals (M) Sdn. Bhd.  
962, Lorong Perusahaan 8, Taman Perindustrian Perai,  
13600 Perai, Pulau Pinang, Malaysia.  
Telephone Number : 604-390 7988  
Emergency Telephone Number : 604-390 7988

### 1.3 Contact Point

Designation : Ms. Cheong Wai Ching, Product Support Manager /  
En. Ahmad Labib bin Yusof, Administrative Assistant  
Tel. No. : 604-390 7988

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## SECTION 2 : COMPOSITION/INFORMATION ON INGREDIENT

Chemical Name	CAS No.	Proportion	Exposure Limit	Toxicity Data
Copper Hydroxide	20427-59-2	61.54% (40% of Copper content)	Refer to Section 9	Refer to Section 11
Inert ingredients	-	Balance		

## SECTION 3 : PHYSICAL AND CHEMICAL PROPERTIES

Appearance	: Pale blue micro granules
Odour	: None
Solubility	: 2.9 mg/L at 25°C in water
Boiling Point	: Decomposes 140°C
Melting Point	: Decomposes 140°C
Vapour Pressure	: No data available
Percentage Volatiles (By Volume)	: 1 - 2% (Water)
Evaporation Rate	: No data available
Vapour Density	: No data available
Specific Gravity	: No data available
Flash Point	: No data available
Autoignition Temperature	: No data available
Flammable Limit	: No data available
Bulk Density	: 30 - 36 lb/ft <sup>3</sup>
pH	: 6.5 (1% w/w in water)
OSHA Permissible Exposure Limit (PEL)	: Copper dusts and mists -1 mg/m <sup>3</sup>
ACGIH Threshold Limit Value (TLV)	: Copper dusts and mists -1 mg/m <sup>3</sup>

## SECTION 4 : HAZARD IDENTIFICATION

### Emergency Overview:

- May be harmful if swallowed, inhaled or absorbed through skin.
- Causes severe eye irritation.
- Avoid breathing dusts or spray mist.
- Avoid contact with eyes, skin or clothing.

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- KEEP OUT OF REACH OF CHILDREN.

### Potential Health Hazards:

Skin : Mild temporary irritant. Prolonged or repeated contact may cause irritation.

Inhalation : Moderately irritating to respiratory tract. Prolonged inhalation may be harmful.

Ingestion : May be harmful if swallowed.

Eyes : Severely irritating to the eyes. If not removed promptly, will injure eye tissue, which may result in permanent damage.

Potential Physical Hazards : Can decompose at high temperatures forming toxic gases.

Environmental Hazards : Toxic to wild life and domestic animals.

## **SECTION 5 : FIRST AID MEASURES**

Ingestion : Do not induce vomiting. Drink large quantity of milk or if not available, large quantities of water. Avoid alcohol. Get immediate medical attention.

Eye contact : Hold eye lids open and flush with steady stream of water for 15 min. Get immediate medical attention.

Skin contact : Wash with plenty of soap and water. Get medical attention if irritation persists.

Inhalation : Remove victim to fresh air. If not breathing, give artificial respiration, preferably mouth to mouth. Get immediate medical attention.

Notes to physician : Probable mucosal damage may contraindicate use of gastric lavage.

Antidote : None known.

## **SECTION 6 : FIRE FIGHTING MEASURES**

Extinguishing Media : Proper to primary cause of fire. Use foam, dry chemical, carbon dioxide, or water spray.

Fire Fighting Instruction : Fire fighters should wear full-faced self contained breathing apparatus and protective clothing. Evacuate area and fight fire upwind from a safe distance to avoid hazardous vapors and decomposition products.

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Foam or dry chemical fire extinguishing system is preferred to prevent excessive water run off.

Special Fire Fighting Procedures : If Copper Hydroxide is involved in a fire, avoid breathing smoke. Use a positive-pressure, self contained breathing air supply. Avoid getting water from fire fighting into domestic or irrigation water supplies.

Hazardous Combustion Products : Oxides of Copper.

## **SECTION 7 : ACCIDENTAL RELEASE MEASURE**

Leak and/or Spill :

Wear protective clothing as indicated in Section 8. Evacuate non essential personnel. Collect the spill into waste container for disposal. Wash the contaminated area with a little water and detergent. Adsorb with inert material such as clay or earth. Collect into the same container for disposal. Prevent the spillage from entering local drainage system.

## **SECTION 8 : HANDLING AND STORAGE**

Handling : Read the label before use. Wear goggles, chemical resistant gloves and clothing while handling. Use only in a well-ventilated area. Minimize dust generation and accumulation.

Storage : Keep in original container, tightly closed, in a cool dry and well-ventilated place away from strong acids and ammonia. Keep out of reach of children. Keep away from foodstuffs and animal feeds.

Storage Temperature : Below 115°F.

Average Life : Five years under normal storage conditions.

Special Sensitivity (Heat, Light, Moisture, etc) : None.

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## **SECTION 9 : EXPOSURE CONTROL AND PERSONAL PROTECTION**

Exposure Limit : No data available

Engineering Measures : Proper ventilation is required when handling or using this product to keep exposure to airborne contaminants below the exposure limit. Facilities storing or utilizing this material should be equipped with an eyewash facility and safety shower.

Personal Protection :

Eye Protection: Safety glasses, goggles or full face shield.

Respiratory Protection: If the OSHA permissible exposure limit is exceeded, wear NIOSH-approved respirator.

Gloves: Chemical resistant gloves.

Protective Clothing: Wear long sleeved shirt, long pants. Shoes plus socks.

## **SECTION 10 : STABILITY AND REACTIVITY**

Conditions to avoid : Temperatures over 125°F. Avoid exposure to high moisture conditions for prolonged periods.

Incompatible : Ammonia or acid vapors. Strong acids. Copper is corrosive to aluminum, especially when in a aqueous state and elevated temperatures.

Decomposition Products : Decomposes in high temperature to  $\text{CuO} + \text{H}_2\text{O}$ .

Hazardous polymerization : Does not polymerize.

Stability : Stable. However may decompose if heated.

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## SECTION 11 : TOXICOLOGICAL INFORMATION

### Acute Toxicity:

LD<sub>50</sub> Oral (Rats) : 1,625 mg/kg  
LD<sub>50</sub> Dermal (Rats) : > 3,250 mg/kg  
LC<sub>50</sub> Inhalation (Rabbit) : > 2,117 mg/m<sup>3</sup>  
Eye Irritation (Rabbit) : Severe, corrosive.  
Skin Irritation (Rabbit) : Slight.  
Sensitization (Guinea pig) : Non sensitizing.

Carcinogenicity : Not listed in OSHA, NTP, IARC  
Reproductive Effect : Not known to exhibit reproductive or teratogenic (birth defect) effects  
Effects of overexposure : No data available  
Chronic effects : No data available  
Target organs : No data available  
Mutagenic data : No evidence of effects during *in vivo* or *in vitro* studies.  
Medical Conditions Generally Aggravated by Exposure : Acute asthma and/or other chronic pulmonary disease due to inhalation of dust or spray mists.

## SECTION 12 : ECOLOGICAL INFORMATION

Mobility & Bioaccumulation : No data available  
Biodegradability : No data available  
Fish Toxicity (Technical) :  
LC<sub>50</sub> (as 100% active) : Blue Gill 180 ppm/96 hrs.  
LC<sub>50</sub> (as 100% active) : Rainbow Trout 25 ppm/96 hrs.  
Avian Toxicity (Technical) :  
Oral LC<sub>50</sub> (Bobwhite quail) : 3,400 mg/kg  
Oral LC<sub>50</sub> (Mallard duck) : > 5,000 mg/kg  
Bee Toxicity : Non toxic.  
Environmental Summary : This product is toxic to fish

## SECTION 13 : DISPOSAL INFORMATION

Product wastes are toxic. Dispose of according to local regulation.

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## **SECTION 14 : TRANSPORT INFORMATION**

Follow the precaution indicated in the storage and handling section. Follow all regulations in your country.

UN Number: None

DOT Hazard Class: Non hazardous material for transportation.

D.O.T. Labels / Placards Required: None required.

Freight Classification: Copper Hydroxide, solid, N.O.I. (NMFC Item 102120)

DOT Emergency Response Guide #: No data available

## **SECTION 15 : REGULATORY INFORMATION**

Pesticides Act: Class III

CPL Regulation: Class - Harmful, Irritant

Risk Phrases : R20 Harmful by inhalation  
R38 Irritating to skin  
R41 Risk of serious damage to eyes

Safety Phrases : S1 Keep locked up  
S13 Keep away from food, drink and animal feeding stuff  
S25 Avoid contact with eyes  
S51 Use only in well ventilated areas  
S56 Do not discharge into drains or the environment, dispose of to an authorised waste collection point

FIFRA: All pesticides are governed under the Federal Insecticide, Fungicide, and Rodenticide Act. The regulatory information presented below is pertinent only when this product is handled outside the normal use and application as a pesticide.

OSHA Hazard Communication Standard Status: Regulated.

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SARA Title III:

Sec. 302-304 (40 CFR 350): Not listed.

Extremely Hazardous Substance (EHS): Not applicable.

Reportable Quantity (RQ) (CERCLA): Copper -5,000 pounds.

Sec. 312 Reporting (40 CFR 370): SARA/OSHA Hazardous Chemical reporting Quantity is 10,000 pounds

Reporting Status: Mixture, solid.

Reporting Hazards: Acute.

Sec. 313 Reporting (40 CFR 372): Not listed.

RCRA Hazardous Waste: Not listed.

## **SECTION 16 : OTHER INFORMATION**

Reference : (a) Material Safety Data Sheet - Blue Shield 40% DF

Date: 06/06/02    Revision # 01/02

(b) Guidelines for The Classification of Hazardous Chemicals, DOSH 1997

(c) Guidelines for The Formulation of A Chemical Safety Data Sheet, DOSH 1997

(d) Guidelines for Labeling of Hazardous Chemicals, DOSH 1997

To the best of our knowledge, the information contained herein is accurate. However, we cannot assume any liability whatsoever for the accuracy or completeness of the information contained herein.