

# MATERIAL SAFETY DATA SHEET

## SECTION 1. IDENTIFICATION OF PRODUCT

Common name: Copper Hydroxide 77% WP

IUPAC name: copper (II) hydroxide

CAS No.: 20427-59-2

Formula:  $\text{CuH}_2\text{O}_2$

Molecular weight: 97.6

Manufacturer: Zhejiang Xinan Chemical Industrial Group Co., Ltd

Address: Xinanjiang, Jiande, Zhejiang Province, China

## SECTION 2. COMPOSITION INFORMATION ON INGREDIENTS

Components	CAS No.	Content, %
Copper Hydroxide	20427-59-2	77
Inert ingredients	-	23

## SECTION 3. HAZARDS IDENTIFICATION

### Likely routes of exposure:

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

### POTENTIAL HEALTH EFFECTS:

Inhalation: Slightly toxic by inhalation.

Excessive exposure may cause cough, mucous production, shortness of breath, reflecting metal fume fever.

Eye irritation: Severely irritating to the eyes.

Direct contact may cause destruction of eye tissue. May be corrosive to the eyes if not washed immediately.

Skin irritation: 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.

#### **SECTION 4. FIRST AID MEASURES**

##### **Inhalation:**

Remove victim to fresh air. If not breathing, give artificial respiration preferably mouth-to-mouth. Get professional medical attention immediately.

##### **Skin contact:**

Remove contaminated clothing and shoes. Wash with plenty of soap and water for 15 to 20 minutes until no evidence of chemical remains. Get professional medical attention immediately.

##### **Eye contact:**

Hold eyelids open and flush with water for 15 to 20 minutes until no evidence of chemical remains. Get professional medical attention immediately.

##### **Ingestion:**

Drink promptly a large quantity of milk, egg white, gelatin solution or if these are not available, large quantities of water. Unless extensive vomiting has occurred, empty the stomach by gastric lavage with water, milk, sodium bicarbonate solution of a 0.1% solution of potassium ferrocyanide. (Gosselin, Clinical Toxicology of commercial Products, 5<sup>th</sup> edition.). Administration of gastric lavage should be performed by qualified medical personnel. Probable mucosal damage may contra-indicate use of gastric lavage.

##### **Emergency Medical Treatment:**

Treat symptomatically. Acute oral overexposure to copper hydroxide, a major component of this product, may cause hypertension, 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. Chelation therapy with BAL or D-penicillamine has proved useful in cases of acute overexposure.

#### **SECTION 5. FIRE FIGHTING MEASURES**

##### **Fire and explosion hazard:**

General Hazard: Negligible fire hazard when exposed to heat or flame.

Extinguishing agents: Use dry chemical, carbon dioxide, water spray or foam. No

incompatible firefighting media known.

Firefighting Instructions: Avoid contact with molten product to prevent serious burns.

Firefighting Equipment: Wear protective clothing and self-contained breathing apparatus.

Hazardous Combustion Products: Decomposes to CuO and H<sub>2</sub>O above 140 °F

## **SECTION 6. ACCIDENTAL RELEASE MEASURES**

### **Personal precautions:**

Avoid contact with skin and eyes. Do not breathe in fumes.

Land spill: Sweep up and place in suitable (fireboard) containers for later disposal.

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

### **Environmental precautions:**

Do not allow entering drains or watercourses. Spillage or uncontrolled discharges into water courses (or public waters) to be reported immediately to the Police and to the Department of Water/Environmental Affairs.

### **Occupational spill:**

Do not touch spilled material; stop leak if you can do it without risk. Keep out unprotected persons and animals.

## **SECTION 7. HANDLING AND STORAGE**

Storage temperature: Store below 35 °C. Average shelf life under proper storage conditions is 2 years.

Storage Pressure: Ambient pressure.

General Information: Store in a clean, dry area. Do not store near feed, food or within the reach of children.

## **SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

### **Pesticide Applicators & Workers:**

It is essential to provide adequate ventilation. The measures appropriate for a particular worksite depend on how this material is used and on the extent of exposure. Ensure that control systems are properly designed and maintained. Comply with occupational safety, environmental, fire, and other applicable regulations.

### **PERSONAL PROTECTIVE EQUIPMENT:**

If engineering controls and work practices are not effective in controlling exposure to this material, then wear suitable personal protective equipment including approved respiratory protection.

**Ventilation:**

Control enclosed spaces with adequate ventilation. Prevent exceeding of 1 mg/m<sup>3</sup> (ACGIH TLV or OSHA PEL).

**Respirator:**

An approved respirator suitable for protection from dusts and mists of pesticides is adequate. Limitations of respirator use specified by the approved agency and the manufacturer must be observed.

**Clothing:**

Employee must wear appropriate protective clothing and equipment to prevent repeated or prolonged skin contact with this substance. Wear long sleeved shirt, long pants, waterproof gloves and shoes plus socks.

**Eye protection:**

Wear protective eyewear to prevent contact with this substance.

Emergency eye wash: Where there is any possibility that an employee's eyes may be exposed to this substance, the employer should provide an eye wash fountain or appropriate alternative within the immediate work area for emergency use.

**SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**

Appearance: Light blue fine powder.

Odour: Characteristic copper odour.

pH: 8.9

Bulk Density: 0.19 to 0.26 g/cc

Solubility in water: Disperses to form a suspension. Copper hydroxide is insoluble in cold water and decomposes in hot water.

Flash point: None.

Melting point: Decomposes at 140 °C

**SECTION 10. STABILITY AND REACTIVITY**

Storage stability: Stable for up to 2 years under normal warehouse storage conditions.

Incompatible materials: Not determined.

Conditions to avoid: Excessive heat.

Hazardous decomposition: Decomposes to CuO and H<sub>2</sub>O above 140°C.

Hazardous polymerisation: Material is not known to polymerise.

## **SECTION 11. TOXICOLOGICAL INFORMATION**

### **Acute toxicity:**

Acute oral LD<sub>50</sub> for rats: 1250 mg/kg

Dermal LD<sub>50</sub> for rat: > 5000 mg/kg bw

Inhalation LC 50 = 1.46 mg/l for male rat (4 hour); LC 50 = 0.84 mg/l for female rat (4 hour)

Skin irritation: May cause slight irritation.

Eye irritation: Severely irritating to the eyes.

Skin absorption: This product is slightly toxic by dermal exposure.

Ingestion: LD 50 indicating slight toxicity. 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 haemolytic anemia have been reported following acute human poisonings.

Chronic: Repeated ingestion of copper salts may results 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.

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.

## **SECTION 12. ECOLOGICAL INFORMATION**

### **Data for active ingredient:**

**Birds** Acute oral LD<sub>50</sub> for mallard ducks 223 mg Cu/kg. Dietary LC<sub>50</sub> (8 d) for mallard ducks 219.7 mg Cu/kg b.w. daily.

**Fish** LC<sub>50</sub> (96 h) for rainbow trout 10 mg Cu/l.

**Daphnia** EC<sub>50</sub> (48 h) 0.0422 mg Cu/l.

**Algae** EC<sub>50</sub> 22.5 mg Cu/l.

**Bees** LD<sub>50</sub> (oral) 49.0 µg Cu/bee; (contact) 42.8 µg Cu/bee.

**Worms** LC<sub>50</sub> (14 d) >677.3 mg/kg soil.

### **SECTION 13. DISPOSAL EMPTY CONTAINERS**

#### **Disposal methods and containers:**

Instructions concerning the disposal of this product and its containers are given on the product label.

Dispose according to applicable local and state government regulations.

#### **Special precautions for landfill or incineration:**

Please consult your local Authority for more information.

### **SECTION 14. TRANSPORT INFORMATION**

UN NUMBER: NOT REGULATED

ADR/IRD: NOT REGULATED

IMDG/IMO: NOT REGULATED

ICAO/IATA: NOT REGULATED

DOT SHIPPING NAME: Agricultural Fungicide N.O.S.

DOT has determined that this material is not subject to hazardous materials in commerce transport regulations (HMR: 49 CFR Parts 171 – 180).

### **SECTION 15. REGULATORY INFORMATION**

Symbol: Xi, Irritant

Risk phrases:

R 22 harmful if swallow

R 36/38 Irritating to eyes and skin.

R 41 Risk of serious damage to eyes.

Safety phrases:

S 1/2 Keep locked up and out of the reach of children.

S 22 Do not breath dust.

S 24/25 Avoid contact with skin and eyes.

S 36/37/39 Wear suitable protective clothing, gloves and eye/face protection.

S 46 If swallowed, seek medical advice immediately and show this container and label.

## **SECTION 16. OTHER INFORMATION**

The information herein is to the best of our knowledge, correct and complete. It describes the safety requirements for this product and should not be construed as guaranteeing specific properties. Since methods and conditions are beyond our control, we do not accept liability for any damages resulting from the use of, or reliance on, this information in inappropriate contexts.