



MATERIAL SAFETY DATA SHEET

Manufacturer/information service:

ZHEJIANG RAYFULL CHEMICALS CO., LTD

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1. Chemical Product Identification

Product Name: Copper Hydroxide 77% WP

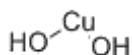
Molecular Formula: $\text{Cu}(\text{OH})_2$

Molecular Weight: 97.56 g/mol

Chemical Name: Copper *II* hydroxide

CAS number: 20427-59-2

Structural name:



Form: Power

Colour: Blue

Odour: Odorless

2. Composition / Information On Ingredients

Composition	CAS No.	Content %
Copper hydroxide	20427-59-2	77
Other ingredients	--	23

3. Hazards Identification

Potential Acute Health Effects:

Hazardous in case of eye contact (irritant). Slightly hazardous in case of skin contact (irritant), of ingestion, of inhalation (lung irritant);



Potential chronic health effects: The substance maybe toxic to upper respiratory tract, skin.

Repeated or prolonged exposure to the substance can produce target organs damage.

4. First Aid Measures

Eye Contact: Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at Least 15 minutes. Get medical attention.

Skin Contact: In case of contact immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before use. Get medical attention.

Serious Skin Contact: Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.

Inhalation: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Serious Inhalation: Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.

Ingestion: Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms appear.

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 fire fighting media known.

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

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

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

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.



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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.

7. Handling And Storage

Precautions: Keep away from heat Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe dust. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents, metals.

Storage temperature: Store below 35 OC. 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.

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/m³ (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.

9. Physical and Chemical Properties

Color: Blue;

Physical state: Powder;

Odor: Odorless;

pH: 6.0-10.0;

Wettability: ≤90s;

Suspensibility: ≥65%;

Fineness (through 44 μm sieve): ≥98.0%.

10. Stability And Reactivity

Stability: The product is stable.

Conditions of instability: Heat, ignition sources, incompatible materials.

Incompatibility: Ammonia or acid vapors. Strong acids, oxidizing agents.

Corrosivity: Copper is corrosive to aluminum, especially when in aqueous state and elevated temperatures.

Special remarks on reactivity: Incompatible with acids, dicloran or calcium polysulfide.

11. Toxicological Information

Oral LD₅₀ (rat): 681 mg/kg;



Dermal LD₅₀ (rat): >2000 mg/kg;

Inhalation (LC₅₀): 0.65 mg/L;

Contact with the skin: moderate irritant to skin;

Contact with the eyes: Slight irritant to eye;

Sensitization: Not a skin sensitizer (guinea pigs).

12. Ecological And Ecotoxicological Information

Effects on bees:

Contact acute 48 hour LD₅₀: >44.46 a.i.µg/bee. Oral acute 48 hour LD₅₀: 49.0 a.i.µg/bee.

Effects on fish:

The Acute 96-hour LC₅₀ for Rainbow trout: 0.017 a.i.mg/L.

Effect on aquatic invertebrates:

Acute 48 hour EC₅₀ for Daphnia magna: 0.038 a.i.mg/L.

Effect on algae:

Acute 72 hour EC₅₀ for Pseudokirchneriella subcapitata: 0.009 a.i.mg/L.

Effects on birds:

Acute oral LD₅₀ for Bobwhite quail: 223 a.i.mg/kg.

13. Disposal Considerations

Pesticide disposal:

Open dumping or burning of this pesticide is prohibited. Waste resulting from the use of this product that cannot be reused or reprocessed should be disposed of in a landfill approved for pesticide disposal. Do not contaminate rivers, dams or any other water sources with the product or used containers.

Package product wastes:

Emptied containers retain vapour and product residues. Observe all labelled safeguards.

Empty containers in the following manner: Invert the empty container over the spray or mixing tank and ensure bag is emptied over the tank. Destroying the container.

Destroy the emptied containers by perforation and flattening. Bury in an approved dump site.

Do not re-use the empty container for any other purpose.

Contaminated absorbents, surplus product (in diluted form), etc., should be buried in approved landfill.



14. Transport Information

Class: 6.1

Racking group: III.

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.

16. Other Information

All information and instructions provided in this Material Safety Data Sheet (MSDS) are based on the current state of scientific and technical knowledge at the date indicated on the present MSDS and are presented in good faith and believed to be correct. This information applies to the PRODUCT AS SUCH. In case of new formulations or mixes, it is necessary to ascertain that a new danger will not appear. It is the responsibility of persons on receipt of this MSDS to ensure that the information contained herein is properly read and understood by all people who may use, handle, dispose or in any way come in contact with the product. If the recipient subsequently produce formulations containing this product, it is the recipients sole responsibility to ensure the transfer of all relevant information from this MSDS to their own MSDS.