

COPPER HYDROXIDE 80% WP

Fungicide

A wettable powder contact fungicide and bactericide to control the listed diseases on potatoes, tomatoes and beans.

Reg. No.: 10-B-2-56

COMPOSITION	mass/ mass
Copper hydroxide.....	80%
(as copper equivalent).....	50%
Inert ingredients	20%

Chemical group: Inorganic copper compound

1 kg NET



KEEP OUT OF REACH OF CHILDREN

POISON

TO CAUSE A HAZARD IN THE USE, STORAGE OR DISPOSAL OF THIS SUBSTANCE IS AN OFFENCE.

1. Triple rinse clean container after use
2. Punctures holes in bottom
3. Return to Maguires Recycling Facilitator / Return to nearest recycling facility

Registration held by:
MAGCHEM (PVT) LIMITED
2274 TILBURY ROAD, WORKINGTON,
HARARE, ZIMBABWE

DIRECTIONS FOR USE: Use only as indicated

DOSAGE RATES:

CROP	DISEASE	APPLICATION RATE kg/ha or g/100ℓ water	TIME OF APPLICATION
POTATOES	EARLY BLIGHT (<i>Alternaria solani</i>)	2.5kg/ha High volume applications: 200g/100ℓ water	Spray before or just when first disease symptoms are noticed. Repeat at 10-14 day intervals and after rain. For the control of late blight add chlorothalonil, maneb or mancozeb to Copperhydroxide. Most spray applications will be necessary during the post flowering stage. Depending on plant size use 500-1500ℓ spray mixture/ha.
TOMATOES	EARLY BLIGHT (<i>Alternaria solani</i>) BACTERIAL SPOT (<i>Xanthomonas vesicatoria</i>) BACTERIAL SPECK (<i>Pseudomonas tomato</i>)	1 – 4kg/ha High volume applications: 200g/100ℓ water	Spray seedbeds weekly. Apply at first signs of disease in tomato fields. Repeat at 10-14 day intervals and after rain. For the control of late blight add chlorothalonil, maneb or mancozeb to Copperhydroxide. Depending on plant size, use 500-2000ℓ spray mixture/ha. Where mist blowers are used, apply 2-3kg Copper hydroxide in 500ℓ water/ha.
BEANS	BACTERIAL BLIGHT: HALO BLIGHT (<i>Pseudomonas phaseolicola</i>) COMMON BLIGHT (<i>Xanthomonas phaseoli</i>)	2.0kg/ha High volume applications: 200g/100ℓ water	Apply every 7-14 days depending on disease pressure. Add chlorothalonil for the control of bean rust. Spray immediately after heavy rains, hail or dust storms. GROUND APPLICATION: Depending on plant size, use 500-1000ℓ spray mixture/ha.

SAFETY PRECAUTIONS

1. Handle with care. Avoid contact/splashing.
2. Wear protective clothing – wear rubber gloves and face shield when handling the product and tank mix.
3. KEEP OUT OF THE REACH OF CHILDREN.
4. KEEP AWAY FROM FOOD AND FOODSTUFFS.
5. KEEP UNDER LOCK AND KEY.
6. DO NOT eat, drink or smoke whilst handling this product.
7. While spraying, avoid contact with the spray as much as you can since product may cause eye and skin irritation. Avoid spray drift onto other crops, grazing, rivers or dams.
8. Clean applicator thoroughly after use and dispose of wash water where it will not contaminate crops, grazing, rivers or dams. Toxic to fish and harmful to other aquatic life.
9. Change and wash your work clothes after use. Wash yourself.
10. Invert the empty container over the spray or mixing tank and allow to drain for at least 30 seconds after the flow has slowed down to a drip. Thereafter, rinse the container three times with a volume of water equal to a minimum of 10% of that container.
11. Destroy empty container and DO NOT use for any other purpose.

SYMPTOMS OF HUMAN POISONING

Symptoms of over-exposure may include nausea and vomiting, abdominal pain, and central nervous system depression.

FIRST AID MEASURES AND PRECAUTIONS

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, 5th 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.

WARRANTY
The excellent results which this product should normally yield are not however warranted or guaranteed as efficacy can be greatly influenced by factors outside the control of either the manufacturers or suppliers. No warranty whatsoever, express or implied, is therefore given concerning the performance or efficacy of this chemical and responsibility is specifically excluded for any damage, injury or loss of any kind during or resulting from its handling, use or storage. The product is warranted to consist of ingredients as shown on the label.

Date of Manufacture: AUG. 2019

Batch Number: 20190828

Manufactured by:
NOVA AGRO (HK) LTD.
6th FLOOR WYNDHAM PLACE
44 WYNDHAM STREET
CENTRAL HONG KONG

Registration held by:
MAGCHEM (PVT) LIMITED
2274 TILBURY ROAD, WORKINGTON,
HARARE, ZIMBABWE



NOVA AGRO (HK) LTD.
(Co. Reg. No. 1023146)
6th Floor Wyndham Place
44 Wyndham Street
CENTRAL HONG KONG

Material Safety Data Sheet (MSDS)

COPPER HYDROXIDE 80% WP

Section 1: Chemical Product and Company Identification

Product Name: COPPER HYDROXIDE 80% WP
CAS#: 20427-59-2
Chemical Name: Copper hydroxide
Chemical Formula: $\text{Cu}(\text{OH})_2$
Use: Fungicide/bactericide
Supplied by: NOVA AGRO (HK) LTD.
(Reg. No. 1023146)
6th Floor Wyndham Place
44 Wyndham Street
CENTRAL HONG KONG.

Section 2: Composition and Information on Ingredients

Composition:	Name CAS #	% by Weight
Copper hydroxide	20427-59-2	80
[Copper equivalent		50]

Section 3: Hazards Identification

Emergency Overview

DANGER. CORROSIVE. Causes irreversible eye damage.
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

Skin contact may cause skin irritation with discomfort or rash, and discoloration of the skin. While there are no reports of human sensitization with Copper hydroxide WP, there are inconclusive or unverified reports of human sensitization with the active ingredient, copper hydroxide.



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Eye contact may cause corneal opacity or clouding of the eyes, eye corrosion or ulceration, blindness may occur.

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.

Section 4: 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 an ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible. Call a poison control center or doctor for further treatment advice.

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.

See Label for Additional Precautions and Directions for Use.

Notes to Physician

Probable mucosal damage may contraindicate use of gastric lavage.

Section 5: Fire Fighting Measures

Flammable Properties

Flash Point & Method: Not determined

Flammable Limits: Not determined

Auto-ignition 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.



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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°C.

Section 6: 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.

Spill Clean Up

Land Spill: Sweep up and place in suitable (fiberboard) 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.

Section 7: 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.

Storage Pressure: Ambient pressure.

Do not store near feed, food or within the reach of children

Section 8: 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.



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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.

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.
- Protective eyewear.

Section 9: Physical and Chemical Properties
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Physical Data

Vapour Pressure:	Negligible vapour pressure
Density:	0.4118 g/ml
Solubility in Water:	Disperses to form a suspension. Copper Hydroxide is insoluble in cold water and decomposes in hot water.
pH:	7.51
Boiling Point:	Not determined
Melting Point:	Decomposes at >140°C
Odour:	Characteristic copper odour
Colour:	Light blue
Physical State:	Powder



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Section 10: Stability and Reactivity

Chemical Stability

General: This material is stable under normal conditions.

Incompatible Materials: Not determined

Conditions to Avoid: Excessive heat

Hazardous Decomposition: Decomposes to CuO and H₂O above 140°C

Hazardous Polymerization: Material is not known to polymerize.

Section 11: Toxicological Information

Animal Data

Oral LD₅₀: 833 mg/kg in rats

Dermal LD₅₀: > 5000 mg/kg in rabbits

4-Hour Inhalation LC₅₀: > 0.51 and < 1.02 mg/l in rats

Copper hydroxide WP is severely irritating to the eyes and has produced corneal opacity in rabbits. The WP was corrosive to rabbit eyes if not washed out immediately. It is a slight skin irritant but not a skin sensitizer in animals.

Repeated dermal administration of Copper hydroxide WP produced atonia and skin effects (discoloration, epidermal thickening, hyperkeratosis, and ulceration) in rabbits.

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

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

Ecotoxicological Information

AQUATIC TOXICITY:

96-hour LC₅₀ - Bluegill sunfish: >180ppm.

96-hour LC₅₀ - Rainbow trout: 0.064ppm.

72-hour, EC₅₀, Freshwater algae: [50% formulation] 18.94-44.94ug/l.



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AVIAN TOXICITY:

LD₅₀ - Honeybee: [50% formulation] >114ug/bee.

Acute Oral LD₅₀ - Honeybee: [50% formulation] 98ug/bee

Section 13: Disposal Considerations

Waste Disposal

Do not contaminate water, food or feed by disposal.

ENVIRONMENTAL HAZARDS:

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

Container Disposal

Completely empty bag into application equipment. 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.

Section 14: Transportation Information

Shipping Information

DOT/IMDG/IATA:

Proper Shipping Name: Copper Based Pesticides, Solid, Toxic, (Copper Hydroxide)

Hazard Class: 6.1

UN/NA Number: 2775

Packaging Group: III

Marine Pollutant: Yes (When shipped by water or in bulk package).

Section 15: Regulatory Information

This product is considered hazardous under the OSHA Hazardous Communication Standard (29 CFR §1910.1200).



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TSCA:

All product components are on the TSCA Chemical Inventory.

CERCLA:

Releases of a component of this material (metallic copper) to air, land, or water are reportable to the National Response Center under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) or to the state and local emergency planning committees under the Superfund Amendments and Reauthorization Act (SARA) Title III Section 304.

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 IIIr

313 Reportable Ingredients: This product contains a percentage of metallic copper (CAS No. 7440-50-8) that is listed in Section 313 above the minimum concentrations.

Section 16: Other Information

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.

This information is based upon technical information believed to be reliable. It is subject to revision as additional knowledge and experience is gained.
