



SHANGHAI MINGDOU AGROCHEMICAL CO., LTD

Add: Rm 1210, Zhenyuan Building, No. 2052 North Zhongshan Rd, Shanghai, China

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MATERIAL SAFETY DATA SHEET OF

MANCOZEB 640 G/KG + METALAXYL 80 G/KG

72% WP

1. IDENTIFICATION OF THE CHEMICAL PRODUCT AND COMPANY

Supplier: SHANGHAI MINGDOU AGROCHEMICAL CO., LTD

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Product name: Mancozeb 640 g/kg + Metalaxyl 80 g/kg 72% WP

Product use: A wettable powder fungicide that consists of a contact- and systemic fungicide for the control of various diseases on the crops indicated on the label.

2. COMPOSITION/INFORMATION ON INGREDIENTS

Formulation Type: Wettable powder

Active Ingredients: Mancozeb, Metalaxyl

Chemical Abstracts name:

Mancozeb:

[[1,2-ethanediybis[carbomodithioato]](2-)]manganese mixture with
[[1,2-ethanediybis[carbomodithioato]](2-)]zinc

Metalaxyl:

methyl N-(2,6-dimethylphenyl)-N-(methoxyacetyl)-DL-alaninate

IUPAC name:

Mancozeb:

manganese ethylenebis(dithiocarbamate) (polymeric) complex with zinc salt

Metalaxyl:

methyl N-(methoxyacetyl)-N-(2,6-xyllyl)-DL-alaninate; methyl
2-[[[(2,6-dimethylphenyl)methoxyacetyl]amino}propionate

CAS NO.

Mancozeb: 8018-01-7

Metalaxyl: 57837-19-1

Molecular Formula:

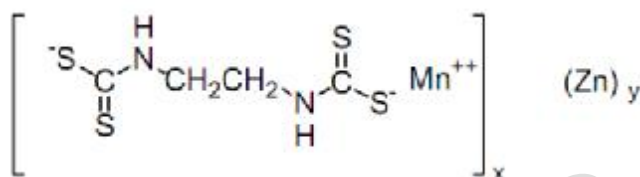
Mancozeb: $[C_4H_6MnN_2S_4]_xZn_y$ Metalaxyl: $C_{15}H_{21}NO_4$ **Molecular Weight:**

Mancozeb: 271.2 (based on composition)

Metalaxyl: 279.3

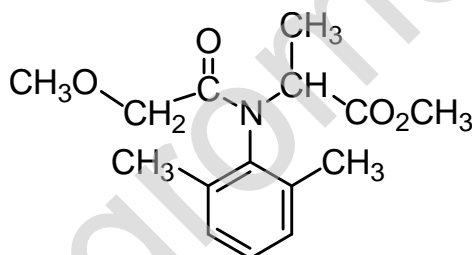
Structural Formula:

Mancozeb:



x:y=1:0.091

Metalaxyl:

**Other ingredients determined not to be hazardous**

INGREDIENT	CAS NO	PROPORTION
Mancozeb	8018-01-7	≥64%
Metalaxyl	57837-19-1	≥8%
Inerts	Not available	≤28%

3. HAZARDS IDENTIFICATION**Emergency overview:** Irritating to respiratory system. May cause sensitisation by skin contact. Toxic to aquatic organisms.**Routes of entry:** Ingestion, inhalation, eye and skin contact.**Health hazards:**

Eye contact: The product may cause moderate eye irritation.

Skin contact: Minimally toxic and not irritating.



Ingestion: Minimally toxic.

Inhalation: May be irritating to the respiratory system.

Environmental hazards: Toxic to aquatic organisms may cause long-term adverse effects in the aquatic environment.

4. FIRST AID MEASURES

General: Reactions are not likely to occur unless the absorbed dose is extraordinary. Symptoms of exposure to the product include: itching, scratchy throat, sneezing and coughing. Have the product container, label or Material Safety Data Sheet with you when going for treatment. Tell the person contacted the complete product name, and the type and amount of exposure. Describe any symptoms and follow the advice given.

Skin contact: Remove contaminated clothing, shoes and leather goods. Gently wipe off excess chemical. Wash skin gently and thoroughly with water and non-abrasive soap. Seek medical advice if necessary. Persons who become sensitised may require specialised medical management with antiinflammatory agents.

Eye contact: Immediately flush the eyes with gently flowing lukewarm water or saline solution for 20 minutes, occasionally lifting the upper and lower lids. Obtain medical attention if necessary.

Ingestion: Induce emesis, keeping head below hips to prevent aspiration. Following emesis, have victim drink a suspension of activated charcoal with water to bind toxicant remaining in the gastrointestinal tract. Follow charcoal with sodium or magnesium sulphate to induce catharsis. Seek medical advice if necessary.

Inhalation: Remove source of contamination or move victim to fresh air. Keep victim warm and at rest. Treat symptomatically and supportively. Obtain medical advice if necessary.

Note to physician: Treat symptomatically and supportively as and when required. Gastric lavage may be indicated. Administer charcoal slurry, aqueous or mixed with saline cathartic or sorbitol.

5. FIRE FIGHTING MEASURES

Flash point: 146°C

Method used: Open Cup

Flammable limits: Not determined.

Autoignition temperature: Not determined.

Hazardous combustion products: Hydrogen sulfide, carbon, nitrogen and sulfur

Extinguishing media: Extinguish small fires with carbon dioxide, dry powder, or alcohol-resistant foam.

Water spray can be used for cooling of unaffected stock, but avoid water coming in contact with the



product.

Fire-fighting instructions: Fight fire from maximum distance. Remove container from fire area if possible. Contain fire control agents for later disposal. Use a recommended extinguishing agent for the type of surrounding fire. Water can be used to cool unaffected containers. Avoid inhaling hazardous vapours. Keep upwind.

Protective equipment for firefighters: Fire-fighters and others that may be exposed should wear full chemical protective clothing and self-contained breathing apparatus.

6. ACCIDENT RELEASE MEASURES

Personal precautions: Avoid contact with skin and eyes. Do not breathe in fumes. For personal protection see Section 8.

Environmental precautions: Do not allow entering drains or watercourses. When the product contaminates public waters, inform appropriate authorities immediately in accordance with local regulations.

Method for cleaning up: For small dry spills, sweep up with damp earth or sand or other suitable absorbents, such as sawdust, taking care not to raise a dust cloud. Place the material into a clean, dry container and cover for subsequent disposal. In situations where product comes in contact with water, contain contaminated water for later disposal. Do not flush spilled material into drains. For large spills contact the manufacturer. Contain liquid far ahead of spill. Contain spillage and contaminated water and soil for subsequent disposal. Do not flush spilled material into drains. Keep spectators away and upwind.

7. HANDLING AND STORAGE

Handling: Remove sources of naked flame or sparks. Avoid contact with eyes, prolonged contact with skin, and inhalation of dust and vapour. Use with adequate ventilation. Wash hands before eating, drinking, chewing gum, smoking, or using the toilet. Remove clothing immediately if the product gets inside. Then wash skin thoroughly using a non-abrasive soap and put on clean clothing. Do not apply directly to areas where surface water is present, or to intertidal areas below the mean high water mark. Water used to clean equipment must be disposed of correctly to avoid contamination.

Storage: Keep out of reach of unauthorised persons, children and animals. Store in its original labeled container in shaded, well-ventilated area, away from heat, sparks and other sources of ignition. Not to be stored next to foodstuffs and water supplies. Local regulations should be complied with.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering controls: It is essential to provide adequate ventilation. The measures appropriate for a particular work site depend on how this material is used and on the extent of exposure. Ensure that control



systems are properly designed and maintained. Only spark –resistant equipment should be used. Comply with occupational safety, environmental, fire and other applicable regulations.

Personal protective equipment (PPE):

Respiratory protection: An approved full-face respirator suitable for protection from dusts and mists of pesticides is required. Limitations of respirator use specified by the approving agency and the manufacturer must be observed. Comply with occupational safety, environmental, fire, and other applicable regulations.

Skin protection: Employee must wear appropriate protective (impervious) clothing, boots and equipment to prevent repeated or prolonged skin contact with this substance. Do not wear leather clothing.

Hand protection: Employee must wear appropriate chemical resistant protective gloves to prevent contact with this substance.

Eye protection: The use of safety goggles is recommended.

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.

User safety recommendations: 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. Remove PPE immediately after handling this product. Wash outside of gloves before removing. As soon as possible wash thoroughly and change into clean clothing. Deluge safety shower and eye wash station should be located in work area.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Pale yellow powder.

Odour: Musty.

Explosive properties: Dust-air mixtures may explode.

Flammability: Not flammable. Dust-air mixtures may ignite or explode.

Storage stability: Stable for 2 years under normal, dry storage conditions.

Solubility in water: This product will mix with water.

Solubility in organic solvents: Insoluble in most organic solvents.

10. STABILITY AND REACTIVITY

Chemical stability: Stable under normal, dry storage conditions. Slowly decomposed by heat and moisture.

Conditions to avoid: Keep dry and avoid excessive heat (< 49°C) and ignition sources.



Hazardous decomposition products: Formation of toxic oxides of carbon, nitrogen and sulphur on heating.

Incompatible materials: Incompatible with oxidising materials and acids. The product is compatible with many other pesticides when used at normal rates. However, a compatibility test is required before using with other products. Do not physically mix concentrate directly with other herbicides or pesticide concentrates; always dilute first.

Hazardous reactions: Hazardous polymerization will not occur.

11. TOXICOLOGICAL INFORMATION

Acute toxicity:

Oral: LD₅₀ >2000 mg/kg in rats.

Dermal: LD₅₀ >2000 mg/kg in rats and rabbits.

Inhalation: LC₅₀ >5 mg/l in rats.

Irritant properties:

Skin: Non-irritant to rabbit skin.

Eye: Moderate irritant to rabbit eye.

Allergenic and sensitizing effects: The product provokes dermal sensitisation (Guinea pigs).

Chronic toxicity/Carcinogenicity: No data available.

Genetic effects/Mutagenicity: Results taken from animal studies suggest that the product is not mutagenic.

Reproductive effects: No data available.

12. ECOLOGICAL INFORMATION

THE FOLLOWING INFORMATION IS FOR THE ACTIVE INGREDIENT, MANCOZEB.

Ecotoxicity:

Birds Acute oral LD₅₀: for Mallard duck and Japanese quail > 5000 mg/kg

Dietary LC₅₀ (5 days): for bobwhite quail and mallard ducks >5200 mg/kg diet.

Chronic reproduction NOEL for mallard ducks 125, bobwhite quail 300 mg/kg diet.

Fish This product is very toxic to fish.

LC₅₀ (96h flow-through): for rainbow trout 1.0, bluegill sunfish >3.6 mg/l

LC₅₀ (96h static-renewal): for rainbow trout 0.15, bluegill sunfish 0.083, common carp 4.0 mg/l

LC₅₀ (96 h, static sediment/water microcosm): for rainbow trout 0.073, fathead minnow 0.57, bluegill sunfish 0.84, common carp 1.7 mg/l.



Daphnia EC₅₀ (48 h): (48 h, flow-through) 3.8 mg/l; (48 h static-renewal) 0.073 mg/l; (24 h, static) 0.011 mg/l; (48 h, static) 0.39 mg/l.

Algae EC₅₀: for *Selenastrum capricornutum* 0.044 mg/l.

Bees LD₅₀ (oral): >209 µg/bee

LD₅₀ (contact): >400 µg/bee

Earthworm: LC₅₀ (14 days): for *Eisenia foetida* >1000 mg/kg soil

Persistence and degradability: Rapidly degrades in the environment by hydrolysis, oxidation, photolysis, volatilization and bio-degradation.

Bioaccumulative potential: Because mancozeb hydrolyses rapidly, it does not bioconcentrate in aquatic organisms.

Mobility in soil: Mancozeb adsorbs into soil and therefore leaching should not occur.

THE FOLLOWING INFORMATION IS FOR THE ACTIVE INGREDIENT, METALAXYL.

Ecotoxicity:

Birds Acute oral LD₅₀: for Japanese quail (7 d) 923, mallard ducks (8 d) 1466 mg/kg.

Dietary LC₅₀ (5 days): for Japanese quail, bobwhite quail, mallard ducks >10000 mg/kg.

Fish LC₅₀ (96 h):

Daphnia EC₅₀ (48 h): for mysid shrimp (*Mysidopsis bahia*) 25, Eastern oyster (*Crassostrea virginica*) 4.6 mg/l.

Algae EC₅₀: for *Scenedesmus subspicatus* 33 mg/l.

Bees Not toxic to bees.

LD₅₀ (oral): >200µg/bee.

LD₅₀ (contact): >200 µg/bee

Earthworm: LC₅₀ (14 days): for *Eisenia foetida* >1000 mg/kg soil.

Persistence and degradability: Under field conditions, metalaxyl has a half-life of 7 to 170 days in the soil environment. A representative half-life in moist soils is about 70 days. Increased sunlight may increase the rate of breakdown in the soil. At pH levels of 5 to 9 and temperatures of 20 to 30 C, the half-life in water was greater than 4 weeks. However, exposure to sunlight reduced the half-life to 1 week

Bioaccumulative potential: There is little tendency for metalaxyl to accumulate in fish.

Mobility in soil: It is poorly sorbed by soils and highly soluble in water; these properties in combination with its long persistence pose a threat of contamination to groundwater. It readily leaches in sandy soil, although increased organic matter may decrease the rate of leaching.

13. DISPOSAL CONSIDERATION



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Pesticide disposal: Contaminated absorbents, used containers, surplus product, etc., should be burnt in an incinerator, preferably designed for pesticide disposal, or buried in an approved landfill. Comply with local legislation applying to waste disposal.

Package product wastes: Emptied containers retain product residues. Observe all labelled safeguards until container is cleaned, reconditioned, or destroyed. Combustible containers should be disposed of in pesticide incinerators or buried in an approved landfill. Noncombustible containers must first be triple-rinsed with water. Containers that are not to be reused and should be punctured and transported to a scrap metal facility for recycling or disposal.

14. TRANSPORT INFORMATION

UN Number: 3077

UN Proper shipping name: Environmentally hazardous substance, solid, n.o.s (Mancozeb/Metalaxyl)

Transport hazard class: 9

Packing group: III

Marine pollutant: Yes

15. REGULATORY INFORMATION

Hazard symbols: Xi Irritant.

Risk phrases:

R 37 Irritating to respiratory system.

R 43 May cause sensitisation by skin contact.

Safety phrases:

S 2 Keep out of the reach of children

S 8 Keep container dry.

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

This MSDS summarizes our best knowledge of the health and safety hazard information of the product and how to safely handle and use the product in the workplace. Each user should read this MSDS and consider the information in the context of the how the product will be handled and used in the workplace including in conjunction with other products.

If clarification or further information is needed to ensure that an appropriate risk assessment can be made the user should contact the company.



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END OF MSDS

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