

Material Safety Data Sheet

CHECKMATE 72 WP

Cymoxanil 8% + Mancozeb 64% WP

1. Chemical product and Company identification

- Trade name of the product:
- Product type: Wettable powder (WP)
- Manufacturer: Hebei Shuangji Chemical Co., Ltd

2. Composition, Information on ingredients

- Common name: Cymoxanil (BSI, ANSI, draft E-ISO, (m) draft F-ISO)
- Chemical name: 1-(2-cyano-2-methoxyiminoacetyl)-3-ethylurea (IUPAC)
- CAS N°: 57966-95-7
- Hazardous ingredients: Cymoxanil
- Concentration (% , p/p, p/vol): 8.0% min
- Common name: Mancozeb (BSI, E-ISO); mancozèbe ((m) F-ISO); manzeb (JMAF)
- Chemical name: Manganese ethylenebis(dithiocarbamate) (polymeric) complex with zinc salt (IUPAC)
- CAS N°: 8018-01-7
- Hazardous ingredients: Mancozeb
- Concentration (% , p/p, p/vol): 64.0% min

Hazards identification

- Most important hazards: Hazardous
- Human health hazards - skin: Contact can cause skin irritation.
- Human health hazards - ingestion: Ingestion can cause temporary CNS depression, drowsiness, and changes in the liver and weight loss.
- Human health hazard - inhalation: Inhalation can cause irritation of nose and throat.

3. First aids measures

- First aid - eyes: Flush with plenty of water for 15 minutes. Call a physician immediately.
- First aid - skin: Wash affected area with soap and water. If irritation persists, see a physician.
- First aid - ingestion: Call a physician or the poison control center immediately. Drink one or two glasses of water and induce vomiting by touching the back of the throat with finger. Repeat until vomit fluid is clear. Do not induce vomiting or give anything by mouth to an unconscious person.
- First aid - inhalation: Remove victim to fresh air. If not breathing, give artificial respiration, preferable mouth to mouth. Get medical attention.
- Note to physician: No specific antidote.

□ Fire-fighting measures

- Suitable extinguishing media: Foam, CO₂ or dry chemical
- Unsuitable extinguishing media: No data available

- Special fire-fighting procedures: Fire fighters should wear full protective gear, including self-contained breathing apparatus. Keep unnecessary people away. If it can be done safely, remove intact containers from the fire. Otherwise spray unopened containers with water to cool. Bund area with sand or earth to prevent contamination of drains or waterways. Dispose of extinguishing agent and spillage safely later.
- Protection of fire-fighters: Wear positive pressure self-contained breathing apparatus.

4. Accidental release measure

- Personal precautions: Do not enter the accidental place without authorizing, must wear protective clothing when disposed the product.
- Environmental precautions: Prevent the contamination of the floor and of beds of water.
- Methods for cleaning: Sweep up spilled material to avoid dusting. Prevent materials from entering floor drains. Place in suitable, labeled container for disposal. Scrub contaminated area with water and detergent. Collect rinsate and place in a suitable labeled container for disposal.

5. Handling and storage

- Handling precautions: Do not contaminate water, food or feed by storage or disposal. Keep container closed when not in use. Do not contaminate water, food or feed by storage, disposal or by cleaning of equipment. Do not reuse empty bag. Open dumping is prohibited.
- Storage precautions: Store in cool, dry location. Do not store in direct, hot sunlight.

6. Exposure controls and personal protection

- Occupational exposure limits (optional): No occupational limits are established.
- Respiratory protection: Ensure good ventilation. If not adequate, use a suitable respirator for added protection.
- Hand protection: Waterproof gloves
- Eye protection: Safety glasses; chemical goggles.
- Skin protection: Long-sleeved shirts and long pants, shoes plus socks.
- Working and hygiene procedures: Always practice good industrial hygiene; handle with care; avoid personal contact. Do not get into eyes or on skin; do not breathe mist or vapor of product. Do not swallow. Wash hands with soap and water and rinse after handling product. Shower after each shift. Wash all work clothing and completely clean all personal protective equipment after each shift.

7. Physical and chemical properties

- Appearance: Pale yellow powder
- Odor: Slight odor
- Density: 0.30 - 0.40 g/cm³ (20°C)
- Flash point: >90°C
- Auto ignition: Not available
- pH value: 6.0 - 9.0
- Viscosity: Not applicable
- Melting point: Not available
- Boiling point: Not applicable
- Oxidizing properties: Not oxidize
- Solubility in water: Soluble
- Vapour pressure: Not available
- Partition coefficient: Kow logP = 0.59 (pH 5), 0.67 (pH 7) (Cymoxanil) Not available

9. Toxicological information

8. Stability and reactivity

- Thermal stability: Stable under normal use and storage conditions.
- Conditions to avoid: Heat, water and fire
- Materials to avoid: Oxidising agents, acids, alkalis
- Hazardous decomposition products: Oxides of nitrogen, sulfur, ethylene thiourea, and carbon

- Acute LD₅₀ oral on rats: >3000 mg/kg
- Acute LD₅₀ dermal on rats: >2150 mg/kg
- Acute LD₅₀ inhalation on rats: >5.0 mg/L
(4 hour)
- Eye irritation on rabbits: Slightly irritation to eyes
- Skin irritation on rabbits: Non irritation to skin
- Sensitization: Slight sensitizer to guinea pigs
- Carcinogenicity: Cymoxanil showed no evidence of carcinogenic potential and was classified as a “Not Likely” carcinogen. No data are available regarding the carcinogenic effects of mancozeb. While studies of other EBDCs indicate they are not carcinogenic, ETU (a mancozeb metabolite), has caused cancer

in experimental animals at high doses.

Thus, the carcinogenic potential of mancozeb is not currently known.

- **Mutagenicity:** Cymoxanil showed no mutagenic effects in animal experiments. For Mancozeb, it was found to be mutagenic in one set of tests, while in another it did not cause mutations. Mancozeb is thought to be similar to maneb, which was not mutagenic in the Ames Test.

Data regarding the mutagenicity are inconclusive but suggest that mancozeb is either not mutagenic or weakly mutagenic.

- **Reproductive toxicity:** Cymoxanil showed no effects on reproduction. For Mancozeb, in a three-generation rat study with mancozeb at a dietary level of 50 mg/kg/day there was reduced fertility but no indication of embryotoxic effects. In another study in which pregnant rats were exposed to mancozeb by inhalation, toxic effects on the pups were observed only at exposure levels (55 mg/m³) that were also toxic to the dams. It is unlikely that mancozeb will produce reproductive effects in humans under normal circumstances.
- WHO class: III
- EPA toxicity class: Not available
- ADI (rat) mg/kg: 0.016 mg/kg for Cymoxanil; (JMPR) 0.03 mg/kg b.w. (group ADI with maneb, metiram and zineb); ethylenethiourea 0.004 mg/kg b.w.

10. Ecological information

- LC₅₀ rainbow trout: LC₅₀ (96 h) in trout (*Onchorhynchus mykiss*) 61 mg/L for Cymoxanil and LC₅₀ (48 h) for rainbow trout 2.2 mg/L for Mancozeb
- LC₅₀ daphnia magna: LC₅₀ (48 h) 27 mg/L for Cymoxanil and 0.073 mg/L for Mancozeb
- Acute LD₅₀ oral birds: Acute oral LD₅₀ for mallard ducks and bobwhite quail >2250 mg/kg for Cymoxanil and in 10-day dietary studies, there were no mortalities in mallard ducks at 6400 mg/kg daily, and in Japanese quail at 3200 mg/kg daily for Mancozeb.
- CE₅₀ seed weed: Not available
- Bee toxicity: LD₅₀ for honeybees (oral) >1000 ppm; (contact) >25 µg/bee for Cymoxanil and LC₅₀ 0.193 mg/bee for Mancozeb
- **Mobility:** Cymoxanil has medium mobility in soil. Mancozeb is more mobile in wet and sandy soil than in dry and organic rich soil.
- **Persistence/degradability:** Cymoxanil is not persistent in water and soil. It has low soil persistence with a reported half-life of 1-7 days. Again, the primary concern with mancozeb is its spontaneous degradation to ethylenethiourea (ETU) in the presence of water and oxygen.
- **% Biodegradability:** No data available for Cymoxanil; This product is biodegradable for

mancozeb.

- Sewage toxicity: No data available

11. Disposal considerations

Disposal of product would be treated, stored, transported, and disposed of according to the local waste regulation authority. Do not flush to surface water or sanitary sewer system.

12. Transport information ☐

UN N°: Not available

- IMCO class: Not available
- Packing group: Not available
- IATA packing instruction: Not available
- ADR: Not available
- Flash point: >90°C
- First aid code: Not available

13. Regulatory information

- Classification: Not applicable
- Risk phrases: Not applicable
- Safety phrases: Not specified

14. Additional information

- MSDS created date: October 14, 2017
- Revision date: Original

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