



SHANGHAI MINGDOU AGROCHEMICAL CO., LTD

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## MATERIAL SAFETY DATA SHEET OF CHLOROTHALONIL 98% TC

### 1. IDENTIFICATION OF THE CHEMICAL PRODUCT AND COMPANY

**Supplier:** SHANGHAI MINGDOU AGROCHEMICAL CO., LTD

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

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**Product name:** Chlorothalonil 98% TC

### 2. COMPOSITION/INFORMATION ON INGREDIENTS

**Formulation Type:** Technical

**Active Ingredients:** Chlorothalonil

**Chemical Abstracts name:** 2,4,5,6-tetrachloro-1,3-benzenedicarbonitrile

**IUPAC name:** tetrachloroisophthalonitrile

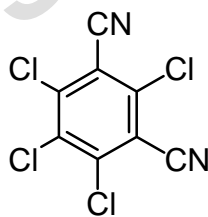
**Chemical class:** Chlorinated benzonitrile fungicide

**CAS NO.** 1897-45-6

**Molecular Formula:** C<sub>8</sub>Cl<sub>4</sub>N<sub>2</sub>

**Molecular Weight:** 265.9

**Structural Formula:**



**Other ingredients determined not to be hazardous**

INGREDIENT	CAS NO	PROPORTION
Chlorothalonil	1897-45-6	≥98%
Inerts	Not available	≤2%

### 3. HAZARDS IDENTIFICATION

**Emergency overview: Warning!** Hazards to humans and domestic animals. Severe irritant to eyes. May cause severe skin irritation and contact dermatitis. Allergic skin reactions are possible. May be fatal if inhaled.



**Route of entry:** Inhalation, skin and eye contact.

**Health hazards:**

Inhalation: May be fatal if inhaled. Do not breathe dust or spray mist.

Skin contact: Harmful if absorbed through skin. Avoid contact with skin or on clothing. May be a potential skin sensitizer. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals.

Eye contact: Causes substantial but temporary eye injury. Do not get in eyes or on clothing.

**Environmental hazards:** Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Do not contaminate water.

#### 4. FIRST AID MEASURES

**General:** 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:** Take off contaminated clothing. Rinse skin immediately with plenty of water for 15 to 20 minutes. Call a poison control center or doctor for treatment advice.

**Eye contact:** Hold eye open and rinse slowly and gently with water for 15 to 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.

**Ingestion:** 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 a poison control center or doctor. Do not give anything by mouth to an unconscious person.

**Inhalation:** 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.

**Note to physician:** No specific antidote. Treat symptomatically.

#### 5. FIRE FIGHTING MEASURES

**Flash point:** Not highly flammable

**Flammable limits:** Not determined.

**Autoignition temperature:** Not determined.

**Hazardous combustion products:** May decompose under fire conditions emitting gases and vapors (e.g., hydrogen), which may be toxic and irritating to the respiratory tract.

**Extinguishing media:** Powder, water spray, foam, carbon dioxide.



**Media to be avoided:** None known.

**Fire-fighting instructions:** Evacuate nonessential personnel from the area. Cool containers exposed to fire, using plenty of spray water. Prevent the contamination of the floor and the beds of water.

**Protective equipment for firefighters:** If product is involved in a fire, wear positive-pressure, self-contained breathing apparatus and full protective clothing.

## 6. ACCIDENT RELEASE MEASURES

**Personal precautions:** Safety glasses or goggles, rubber gloves, shoes plus socks, long-sleeved shirt, and long pants.

**Environmental precautions:** This product is toxic to fish. Keep out of lakes, streams or ponds. Contain spill.

**Method for cleaning up:** Remove as much as possible by absorbing with inert material. Remove any contaminated soil. Place in closed, labeled containers and store in a safe place until disposed. Do not contaminate water while cleaning equipment or disposing of wastes. Persons performing this work should wear adequate personal protective equipment and clothing.

## 7. HANDLING AND STORAGE

**Handling:** Handle the pesticide with gloves and wash the hand after handling. Do not apply to humans, their clothing, or bedding. Do not contaminate food or use on household tanks.

**Storage:** Store at normal temperatures, away from children, domestic animals, food and feed products, seed and fertilizer. Do not contaminate other stored products or the storage area by handling or storage of this product. Keep in a well-ventilated room.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Exposure limits:** No exposure limits have been established for this material.

**Engineering controls:** Ensure well-ventilated.

### Personal protective equipment (PPE):

**Respiratory protection:** Atmospheric levels should be maintained below the exposure guidelines. For most conditions, no respiratory protection should be needed; however, if handling without sufficient ventilation, use NIOSH-approved air-purifying respirator with N, P or R 95 class filter and an organic vapor cartridge.

**Skin protection:** Long-sleeved shirt, long pants and shoes plus socks. Chemical -resistant gloves, e.g., nitrile, neoprene.

**Eye protection:** Protective eyewear (e.g., chemical splash goggles or full-face shield).

**User safety recommendations:** Remove contaminated clothing and wash clothing before reuse. Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet. Remove PPE immediately



after handling this product. Wash outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing. Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Colorless solid

Odor: Slight odor

Melting point: 252 °C

Boiling point: 350 °C

Vapor pressure: 0.076 mPa (25 °C)

S.g./density: 2.0 (20 °C)

Stability: Thermally stable at ambient temperatures. Stable to u.v. light in aqueous media and in crystalline state. Stable in acidic and moderately alkaline aqueous solutions; slow hydrolysis at pH >9.

## 10. STABILITY AND REACTIVITY

**Chemical stability:** Stable under normal conditions.

**Conditions to avoid:** Avoid heat, sunlight and moisture.

**Hazardous decomposition:** The substance decomposes on heating and on burning producing toxic and corrosive fumes including hydrogen chloride and nitrogen oxides.

**Incompatible materials:** Avoid high alkaline conditions.

**Hazardous reactions:** Hazardous polymerization will not occur.

## 11. TOXICOLOGICAL INFORMATION

### Acute toxicity:

Oral: LD<sub>50</sub> >5000 mg/kg (rat)

Dermal: LD<sub>50</sub> >5000 mg/kg (rabbit)

Inhalation: LC<sub>50</sub> >0.52 mg/l (rat)

### Irritant properties:

Skin: mild irritant (rabbit).

Eye: severe irritant (rabbit).

### Allergenic and sensitizing effects:

Evidence in humans of contact dermatitis with repeated exposure.

**Chronic toxicity:** In dogs, 1 years administration caused a significant decrease in body weight gain and increases in absolute liver and kidney weights.

**Carcinogenicity:** No evidence of carcinogenicity in dogs after administration for up to one year.



Treatment related increases in the incidence of renal tubular adenoma and carcinoma were observed in rats and male mice. Squamous cell adenomas and carcinomas were also observed in the forestomach of both species. The forestomach tumors seen in rodent studies are not relevant to human health, as humans do not possess an anatomical equivalent of the rodent forestomach. The relevance of renal tumors to human health is unclear, although metabolism data suggest that the dog, a species that is resistant to chlorothalonil-induced renal injury, may be more representative of humans than the rat. Chlorothalonil is considered to be possibly carcinogenic to humans.

**Neurological effects:** No evidence of adverse developmental effects in rabbit and rat studies.

**Teratogenic effects:** Long-term studies indicate that high doses fed to rats caused reduced weight gains for males and females in each generation studied. Female rats given high doses of chlorothalonil through the stomach during the sensitive period of gestation had normal fetuses, even though that dose was toxic to the mothers. A study of birth defects in rabbits showed no effects. Chlorothalonil is not expected to produce birth defects in humans.

**Genetic effects/Mutagenicity:** Mutagenicity studies on various animals, bacteria, and plants indicate that chlorothalonil does not cause any genetic changes. The compound is not expected to pose mutagenic risks to humans.

**Reproductive effects:** Administration of high doses of chlorothalonil to pregnant rabbits through the stomach during the sensitive period of gestation was required to induce abortion in 4 of the 9 mothers. This and other studies suggest that chlorothalonil will not affect human reproduction at expected exposure levels.

**Target organ effects:** Chronic studies of rats and dogs fed high dietary levels show that chlorothalonil is toxic to the kidney. In addition to less urine output, changes in the kidney included enlargement, greenish-brown color, and development of small grains.

## 12. ECOLOGICAL INFORMATION

The following information is for the active ingredient, chlorothalonil.

### Ecotoxicity:

Birds	Acute oral LD <sub>50</sub> : for mallard ducks >4640 mg/kg. Dietary LC <sub>50</sub> (5 days): for mallard ducks and bobwhite quail >10 000 mg/kg diet.
Fish	LC <sub>50</sub> (96 h): for rainbow trout 47, bluegill sunfish 59, channel catfish 43 µg/l.
Daphnia	EC <sub>50</sub> (48 h): 70 µg/l.
Algae	EC <sub>50</sub> : (120 h) <i>Selenastrum capricornutum</i> 210 µg/l; (72 h) <i>Navicula pelliculosa</i> 5.1 µg/l.
Bees	LD <sub>50</sub> (oral): >63 µg/bee



LD<sub>50</sub> (contact): >101 µg/bee

Earthworm: LC<sub>50</sub> (14 days): >404 mg/kg dry soil

**Bioaccumulative potential:** Low bioaccumulation potential.

**Mobility in soil:** Low mobility in soil. Sinks in water (after 24 h).

### 13. DISPOSAL CONSIDERATION

Disposal must be in accordance with applicable local regulations. Remove nonusable solid materials and/or contaminated soil for disposal in an approved and permitted landfill. Do not flush into surface water or sanitary sewer systems.

Spillage disposal: Do not wash away into sewer. Do not let this chemical enter the environment. Sweep spilled substance into containers; if appropriate, moisten first to prevent dusting. Carefully collect remainder, then remove to safe place.

### 14. TRANSPORT INFORMATION

**UN Number:** 2761

**UN Proper shipping name:** Organochlorine pesticides, solid, toxic

**Transport hazard class:** 6.1

**Packing group:** II

**Marine pollutant:** Yes

### 15. REGULATORY INFORMATION

**Hazard symbols:**

N Dangerous for the environment

**Risk phrases:**

R40 Limited evidence of a carcinogenic effect

R50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

### 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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