

Chlorothalonil -MATERIAL SAFETY DATA SHEET

Manufacturer/information service:

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1. Chemical Product Identification

Product Name: Chlorothalonil

Molecular Formula: $C_8Cl_4N_2$

Molecular Weight: 265.9

Structural Formula:



Chemical Name: Tetrachloroisophthalonitrile (IUPAC)

Form: crystals

Colour: Colourless

Odour: with a slightly pungent odour

CAS No.: 1897-45-6

2. Composition / Information On Ingredients

Composition	CAS No.	Content %
Chlorothalonil	1897-45-6	98.0
Others ingredients		2.0

3. Hazards Identification

Symptoms of Acute Exposure : An extremely severe irritant to eyes. May cause severe skin irritation and contact dermatitis. Allergic skin reactions are possible.

Hazardous Decomposition Products : Can decompose at high temperatures forming toxic gases.

Unusual Fire, Explosion and Reactivity Hazards : During a fire, irritating and possibly toxic gases may be generated by thermal decomposition or combustion.

4. First Aid Measures

Skin: Remove contaminated clothes. Rinse and then wash skin with plenty of water immediately.

Eyes: Rinse with plenty of water for several minutes (remove contact lenses if easily possible) immediately.

Ingestion: If swallowed induce vomiting by tickling the back of throat. Be quiet and call a physician

Notes to physician: No specific antidote if ingested. Treat symptomatically.

5. Fire-Fighting Measures

Extinguishing media

To be used: Powder, water spray, foam, carbon dioxide.

Don't use: Not applicable

Particular risk: None

Measures of personal protection: Safety glasses or goggles, rubber gloves, shoes plus socks, long-sleeved shirt, and long pants.

Environmental cautions

EX: Prevent the contamination of the floor and the beds of water.

6. Accidental Release Measures

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

Cleaning methods

EX: The empty container may be decontaminated by rinsing two or three times with water and detergent and scrubbing the sides.

Environmental cautions

EX: Prevent the contamination of the floor and the beds of water.

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

Personal protective equipment

Respiratory protection: Approved respirator

Protective gloves: Rubber gloves

Eye protection: Safety goggles or face shield.

Industrial hygiene: adequate ventilation.

9. Physical And Chemical Properties

Appearance: Colourless crystals with a slightly pungent odour;

Melting point: 252.1 °C;

Density: 2.0 (20°C);

Water solubility: 0.81 mg/l (25°C);

Other solubility: In xylene 80, cyclohexanone, dimethylformamide 30, acetone, dimethyl sulfoxide 20, kerosene <10 (all in g/kg, 25°C).

PH value: 5.0~7.0;

Flash point: non-inflammable;

Octanol/water partition coefficient: Kow log P= 2.92(25°C);

10. Stability And Reactivity

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 solution; slow hydrolysis at pH>9.

Incompatibility(Materials to Avoid): Incompatible with oils;

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

11. Toxicological Information

Acute oral LD50 : >5000mg/kg (rat)

Acute dermal LD50 : >10000mg/kg (rabbit)

Acute inhalation LC50 (1hour) :>4.7mg/L 9 (rat)

Contact with the skin: Moderate irritation (rabbit);

Contact with the eyes: Severe irritation (rabbit).

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.

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.

Mutagenic effects: 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.

Carcinogenic effects: Based on evidence from animal studies, chlorothalonil's carcinogenic potential is unclear. Male and female rats fed chlorothalonil daily over a lifetime developed carcinogenic and benign kidney tumors at the higher doses. In another study, where mice were fed high daily doses of chlorothalonil for 2 years, females developed tumors in the fore-stomach area (attributed to irritation by the compound) and males developed carcinogenic and benign kidney tumors.

Organ toxicity: 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 And Ecotoxicological Information

Effects on birds: Chlorothalonil is practically nontoxic to birds. The LD50 in mallard ducks is 5000 mg/kg. Most avian wildlife are not significantly affected by this compound.

Effects on aquatic organisms: Chlorothalonil and its metabolites are highly toxic to fish, aquatic invertebrates, and marine organisms. Fish, such as rainbow trout, bluegill, and channel catfish are noticeably affected even when chlorothalonil levels are low (less than 1 mg/L). The LC50 is 0.25 mg/L in rainbow trout, 0.3 mg/L in bluegills, and 0.43 mg/L in channel catfish. Chlorothalonil does not store in fatty tissues and is rapidly excreted from the body. Its bioaccumulation factor is quite low .

Effects on other organisms: The compound is nontoxic to bees.

13. Disposal Considerations

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

Not applicable.

15. Regulatory Information

Not applicable.

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.