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MATERIAL SAFETY DATA SHEET OF

CHLOROTHALONIL 96% TC

1. IDENTIFICATION OF THE CHEMICAL PRODUCT AND COMPANY

Product name: Chlorothalonil 98% TC

Supplier: Shanghai Bosman Industrial Co., Ltd

Street address: No. 1611, North Sichuan Road, Hongkou, Shanghai R.P. China

Tel: + 86 21 63065878

Fax: + 86 21 63065878

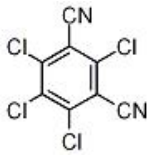
2. COMPOSITION/INFORMATION ON INGREDIENTS

Formulation Type: Technical material (TC)

Active Ingredients: Chlorothalonil

IUPAC name: tetrachloroisophthalonitrile

Structural Formula:



Composition:

INGREDIENT	CAS NO	PROPORTION
Chlorothalonil	1897-45-6	96%
other	Not available	Up to 100%

Other ingredients determined not to be hazardous

3. HAZARDS INDENTIFICATION

Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

Acute toxicity, Inhalation (Category 2), H330

Serious eye damage (Category 1), H318

Skin sensitisation (Category 1), H317

Carcinogenicity (Category 2), H351

Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335

Acute aquatic toxicity (Category 1), H400

Chronic aquatic toxicity (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

Label elements

Labelling according Regulation (EC) No 1272/2008

Pictogram

Signal word Danger

Hazard statement(s)

H317 May cause an allergic skin reaction.

H318 Causes serious eye damage.

H330 Fatal if inhaled.

H335 May cause respiratory irritation.

H351 Suspected of causing cancer.

H410 Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)

P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.

P273 Avoid release to the environment.

P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor.

P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor.

P403 + P233 Store in a well-ventilated place. Keep container tightly closed.

Supplemental Hazard Statements none

4. FIRST AID MEASURES

General: Have the product container, label or MSDS with you when going for treatment. Tell the person contacted the complete product, 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 15 minutes, then continue rinse eyes. Call a poison control center or doctor for treatment advice.

Ingestion: Call a poison control center or doctor immediately for treatment advice. Have a person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by 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. Treatment symptomatically.

5. FIRE FIGHTING MEASURES

Extinguishing media

Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Special hazards arising from the substance or mixture

Hydrogen chloride gas, Nitrogen oxides (NOx)

Nature of decomposition products not known.

Carbon oxides, Nitrogen oxides (NOx), Hydrogen chloride gas

Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

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: white to light yellow

Physical state: Solid

Odor: Slight odour

pH : 5.0-8.0

Melting point: 250-251 ° C

S.g./density: Approx. NA

Solubility in water: NA

10. STABILITY AND REACTIVITY

Chemical stability: Stable under normal conditions.

Conditions to avoid: Avoid heat, sunlight and moisture.

Hazardous decomposition: Hazardous decomposition products formed under fire conditions. - Hydrogen chloride gas, Nitrogen oxides (NOx)

Incompatible materials: Cyanides

11. TOXICOLOGICAL IMFORMATION

Acute toxicity:

Oral: LD_{50} >5000 mg/kg (rat)

Dermal: LD_{50} >5000 mg/kg (rabbit)

Inhalation: LC_{50} >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 posses 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 IMFORMATION

Birds Acute oral LD_{50} for mallard ducks >4640 mg/kg. Dietary LC_{50} (8 d) for mallard ducks and bobwhite quail >10 000 mg/kg diet.

Fish LC_{50} (96 h) for rainbow trout 47, bluegill sunfish 59, channel catfish 43 g/l.

Daphnia LC_{50} (48 h) 70 g/l.

Algae EC_{50} (120 h) for Selenastrum capricornutum 210 g/l; EC_{50} (72 h) for Navicula pelliculosa 5.1 g/l.

Other aquatic spp. LC_{50} (48 h) for Crangonyx pseudogracilis 64g/l, Chironomus riparius 110 g/l, Cloeon dipterum 600 g/l; LC_{50} (24 h) for Brachionus calyciflorus 24 g/l.

Bees LD_{50} for honeybees (oral) >63 g/bee; (contact) >101 g/bee.

Worms LC_{50} (14 d) >404 mg/kg.

Other beneficial spp. LR_{50} (7 d) for Typhlodromus pyri >18.75 kg/ha; LR50 (48 h) for Aphidius rhopalosiphi >18.75 kg/ha.

13. DISPOSAL CONSIDERATION

Pesticide disposal:

Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

Container disposal:

Triple rinse(or equivalent). Then offer for recycling or reconditioning, or puncturing and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities.

14. TRANSPORT INFORMATION

UN Number: 2811

Proper shipping name: TOXIC SOLID, ORGANIC, N.O.S. (Chlorothalonil)

Transport hazard class(es): 6.1

Packing Group: II

15. REGULATARY INFORMATION

Follow all local, international laws and regulations.

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. --END OF MSDS--