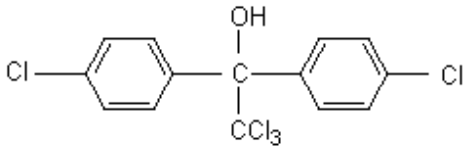
Hangzhou Tianlong Biotechnology Co., Ltd.
Add: Room 1906, Fengqi Times Tower, No.338, Fengqi East Road, Hangzhou, Zhejiang, China.

MATERIAL SAFETY DATA SHEET

1. Chemical Product and company Identification

Product Name: Dicofol
Molecular Formula: C14H9Cl5O
Molecular Weight: 370.5
Molecular Structure:



Chemical Name: 2,2,2-trichloro-1,1-bis(4-chlorophenyl) ethanol (IUPAC)
CAS No.: 115-32-2
Supplier: HANZHOU TIANLONG BIOTECHNOLOGY CO., LTD
Address: Room 1906, Fengqi Times Tower, No.338 Fengqi East Road, Hangzhou, China, 310020
Tel: 0086-571-87214516
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2. Composition / Information on Ingredients

Composition	CAS No.	Content %
Dicofol	115-32-2	95.0
Other ingredients		5.0

3. Hazards Summarizing

More important danger for the man: inhibition of acetylcholinesterase and problem accumulation

Dangers for the environment: The substance is very toxic to aquatic organisms. In the food chain important to humans, bioaccumulation takes place, specifically in fish.

Physical-chemical dangers: The substance decomposes on heating, on burning or on contact with acids or acid fumes, producing toxic and corrosive fumes including chlorine.

4. First Aid Measures

Skin: Remove contaminated clothes. Rinse and then wash skin with water and soap. Refer for medical attention.

Eyes: First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.

Inhalation: Fresh air, rest. Refer for medical attention.

Ingestion: Rinse mouth. Induce vomiting (ONLY IN CONSCIOUS PERSONS!). Refer for medical attention.

5. Fire-Fighting Measures

Extinguishing media and methods:

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

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

Environmental cautions

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

6. Accidental Release Measures

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

Cleaning methods

EX: clear the material in time. Transfer to a properly labeled deposit that will be closed and sealed until the recovery of elimination of the product.

Environmental cautions

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

7. Handling and Storage

Storage: Separated from acids, bases, food and feedstuffs. Keep in a well- ventilated room.

Technical protective measures:

Fire and explosion protection: the area must be far from fire and flammable materials.

8. Exposure Controls/Personal Protection

Personal Protective Equipment:

To avoid eye and skin contact, wearing the following personal protective clothing and equipment is recommended:

Eyes: Safety goggles or face shield

Clothing: Cotton overalls buttoned to the neck and wrist and a washable hat.

Gloves: Elbow length PVC gloves.

Respiratory: Respiratory protection is not normally required. If airborne concentrations are likely to exceed the exposure standard above, an AS/NZS 1715/1716 approved respirator should be worn.

Other: After use and before eating, drinking or smoking, wash hands, arms and face thoroughly with soap and water. After each day's use wash gloves, goggles or face shield and contaminated clothing.

9. Physical and Chemical Properties

Appearance: White solid

Melting Point: 78.5℃.

Boiling point: 225℃.

Density: 1.45g/m^3

Water solubility: 0.8mg/l(25℃)

Other solubility: In acetone, ethyl acetate, toluene 400, methanol 36, hexane, isopropanol 30(all in g/l, 25℃).

10. Stability and Reactivity

Stability: Stable under normal conditions.

Conditions to avoid: fire, heat and high temperature

Products to avoid: highly alkaline materials.

Thermal decomposition: 12^0C

Hazardous decomposition products: oxides of nitrogen, hydrogen, carbon, sulfur, and phoshorous.

Hazardous reaction: none

11. Toxicological Information

Acute toxicity: Dicofol is moderately toxic to practically nontoxic and may be absorbed through ingestion, inhalation, or skin contact. Symptoms of exposure include nausea, dizziness, weakness, and vomiting from ingestion or respiratory exposure, skin irritation or rash from dermal exposure, and conjunctivitis from eye contact. Poisoning may affect the liver, kidneys, or the central nervous system. Overexposure by any route may cause nervousness and hyperactivity, headache, nausea, vomiting, unusual sensations, and fatigue. Very severe cases may result in convulsions, coma, or death from respiratory failure. Dicofol is a moderate skin and eye irritant. Since dicofol is stored in fatty tissues, intense activity or starvation may mobilize the pesticide, resulting in the reappearance of toxic symptoms long after actual exposure. The oral LD50 for dicofol in rats is 575 to 960 mg/kg, in rabbits and guinea pigs is 1810 mg/kg, and in mice is 420 to 675 mg/kg. The dermal LD50 in rats is 1000 to 5000 mg/kg, and in rabbits is between 2000 and 5000 mg/kg. The inhalation LC50 (4-hour) in rats is greater than 5 mg/L.

Chronic toxicity: In a 2-year dietary study with rats, liver growth, enzyme induction, and other changes in the liver, adrenal gland, and urinary bladder were observed at doses of 2.5 mg/kg/day and above. Effects on the liver, kidney, and adrenals, and reduced body weights were observed at doses of 6.25 mg/kg/day and above in a 3-month dietary study with mice. When dicofol was fed to rats for 3 months, fewer than half of the animals survived at 75 mg/kg/day dose. Liver enzyme induction was observed at 75 mg/kg/day and above. Decreased body weights, decreased cortisone levels, and toxic changes in the liver, adrenal glands, and kidneys were noted at 25 mg/kg/day. Similar results were observed in a 3-month feeding study with mice [44]. When dogs were fed dicofol for 3 months, 2 two out of 12 survived at 25 mg/kg/day. Poisoning symptoms and effects on the liver, heart, and testes were observed at the 7.5 mg/kg/day dose. When dicofol was fed to dogs, 4.5 mg/kg/day for 1 year caused toxic effects on the liver. Long-term dermal exposure of rats to dicofol as an emulsifiable concentrate formulation also produced

toxic effects on the liver.

Reproductive effects: Reproductive effects in rat offspring have been observed only at doses high enough to also cause toxic effects on the livers, ovaries, and feeding behavior of the parents. Rats fed diets containing dicofol through two generations exhibited adverse effects on the survival and/or growth of newborns at 6.25 and 12.5 mg/kg/day.

Teratogenic effects: No teratogenic effects were observed when rats were given up to 25 mg/kg/day on days 6 through 15 of pregnancy.

Mutagenic effects: Five separate laboratory tests have shown that dicofol is not mutagenic.

Carcinogenic effects: No evidence of carcinogenicity was observed in when rats were fed up to 47 mg/kg/day for 78 weeks. A 2-year oncogenicity study in mice showed an increased incidence of liver tumors in male mice at dietary concentration levels of 13.2 and 26.4 mg/kg/day. It is unlikely that dicofol poses a carcinogenic risk to humans.

Organ toxicity: Chronic exposure to dicofol can cause damage to the kidney, liver, and heart. Prolonged or repeated exposure to dicofol can cause the same effects and symptoms as acute exposure. Prolonged or repeated skin contact can cause moderate skin irritation and/or sensitization of the skin.

12. Ecological Information

Effects on birds: Dicofol is slightly toxic to birds. The 8-day dietary LC50 is 3010ppm in bobwhite quail, 1418ppm in Japanese quail, and 2126ppm in ring-necked pheasant. Eggshell thinning and reduced offspring survival were noted in the mallard duck, American kestrel, ring dove, and screech owl.

Effects on aquatic organisms: Dicofol is highly toxic to fish, aquatic invertebrates, and algae. The LC50 is 0.12 mg/L in rainbow trout, 0.37 mg/L in sheepshead minnow, 0.06 mg/L in mysid shrimp, 0.015 mg/L in shell oysters, and 0.075 mg/L in algae.

Effects on other organisms: Dicofol is not toxic to bees.

13. Disposal Considerations

Waste Disposal Method:

Material which cannot be used at the site should be disposed of in an approved waste disposal facility following all applicable Federal, State and Local regulations. Metal: Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities. Plastic: Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke. Do not contaminate water supplies by disposal of wastes or containers. Spillage disposal: Do NOT wash away into sewer. Sweep spilled substance into covered containers; if appropriate, moisten first to prevent dusting. Carefully collect remainder, then remove to

safe place (extra personal protection: complete protective clothing including self-contained breathing apparatus).

14. Transport Information

Class: 9

UN No.: 3077

Packing group: III

15. Regulatory Information

Risk phrase: Harmful by inhalation, in contact with skin and if swallowed.
Irritating to eyes, respiratory system and skin.
Toxic to aquatic organisms.

Safe phrase: Keep locked up and out of reach children.
Keep away from food, drink and animal feeding stuffs.
Do not breathe vapour/spray.
Avoid contact with skin and eyes.
Wear suitable protective clothing, gloves and eye/face protection.
Avoid release to the environment.

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.