Chlorthal-Dimethyl 750

SAFETY DATA SHEET

1. PRODUCT & COMPANY IDENTIFICATION

Product Name: Chlorthal-Dimethyl 750

Pesticide Classification: Herbicide

UN No.: Not regulated.

Supplier	**Registration Holder**
Enviro Bio-Chem (Pty) Ltd	Erintrade CC t/a RT Chemicals
Co. Reg. No.: 2013/194774/07	Co. Reg. No.: CK2001/036403/23
44 Kerk Street, Lichtenburg	44 Kerk Street, Lichtenburg
North West, South Africa 2740	North West, South Africa 2740

Telephone: +27 87 231 7261

Fax: 086 541 7948

Website: www.envirobiochem.co.za

24 Hr Emergency Number: Bateleur: +27 83 123 3911

In case of Poisoning:

Poison Information Centre: +27 82 446 8946

Tygerberg Hospital: (+27 21) 931 6129

Poison Emergency Enquiries: (+27 21) 689 5227

Common Name: Chlorthal-dimethyl 750 g/kg WP

Chemical Name: Dimethyl 2,3,5,6-tetrachloro1,4-benzenedicarboxylate

Empirical formula: $C_{10}H_6Cl_4O_4$

CAS No.: 2136-79-0

RSA Reg. No.: L7738 Act/Wet No. 36 of/van 1947

Namibia Reg. No.: N-AR 1197

2. COMPOSITION / INFORMATION ON INGREDIENTS

Components	% m/m	Synonyms	CAS Reg. No.	EEC No.	UN No.
Chlorthal-dimethyl	75	dimethyltetrachloroterephthalate DCPA, Dacthal®	[1861-32-1]	217-464-7	—
Calcium lignin	5	—	—	—	—
Silica Aerogel	15	amorphous silica silicon powder, amorphous	[112945-52-5] [7631-86-9] [63231-67-4	231-545-4 (silicon dioxide)	1346
Sodium lignosulfonate	5	lignosulfonic acid, sodium salt sulfonated lignin sodium salt	[8061-51-6]	—	—
Hexachlorobenzene	< 0.01%	HCB	118-74-1	204-273-9	2729

Components	% m/m	Chemical Name	Chemical Family	Hazard
Chlorthal-dimethyl	75	dimethyl 2,3,5,6-tetrachloro-1,4-benzenedicarboxylate	Ester of a chlorinated aromatic acid	Eye and lung irritation; Possible carcinogen
Silica Aerogel	15	Amorphous silicon dioxide	Silicate	Eye and lung irritation
Hexachlorobenzene	< 0.01	Hexachlorobenzene	Chlorinated aromatic hydrocarbon	Carcinogen

3. HAZARD IDENTIFICATION

Hazard Class: WHO Class III -Slightly hazardous.

Main Hazard: May be harmful if swallowed. May be harmful in case of contact with skin. May be harmful if inhaled.

Flammability: Non-flammable

Chemical Hazard: Hazardous fumes may be emitted when heated excessively or burned.

Biological Hazard: Highly toxic to fish.

4. FIRST AID MEASURES AND PRECAUTIONS

If poisoning is suspected, do not wait for symptoms to develop. Contact a physician, the nearest hospital, or the nearest Poison Control Centre.

Symptoms of Human Poisoning: Symptoms include eye irritation in case of eye contact, an upset stomach in case of ingestion and lung irritation or breathing difficulties when inhaled.

First Aid Measures:

Skin Contact: Remove contaminated clothing and wash the affected area with soap and clean water. If soap is not immediately available, rinse for 15 minutes with clean water. Contact a physician if a rash or other symptom of over-exposure appears.

Eye Contact: Immediately flush gently with copious volumes of clean, clear running water, holding the eyelids apart to ensure rinsing of the entire surface of the eyes and the eyelids. Remove contact lenses if present and continue for a minimum of 15 minutes. Contact a physician if irritation occurs or persists.

Ingestion: Contact a physician immediately. Immediately give clean water to drink, a little at a time. Do not give anything by mouth to an unconscious person. Do not induce vomiting. If vomiting occurs spontaneously, keep the airways clear and lower the head below waist level to prevent fluid from entering the lungs.

Inhalation: Immediately get the affected persons out of the contaminated area to fresh, ventilated air and allow to rest. Contact a physician when breathing difficulties persist.

Advice to Physician: Treat symptomatically.

Antidote: There is no specific antidote for poisoning with this product.

5. FIRE FIGHTING MEASURES

Flammability: Non-flammable. Will not auto-ignite. The product is non-combustible.

Extinguishing Agents: Water spray, foam, dry chemical or carbon dioxide (CO_2). Do not use a water jet.

Firefighting: Wear complete firefighting gear including protective gloves, eye protection and self-contained breathing apparatus. Stay upwind if possible. Do not breath fumes and smoke. Use water spray to cool containers exposed to fire. Contain run-off. Wash clothing and equipment before re-use.

Special Hazards: Hazardous fumes of hydrogen chloride (HCℓ), carbon monoxide (CO), carbon dioxide (CO_2), sulphur dioxide (SO_2), sulphuric acid (H_2SO_4) and unidentified organic compounds may be emitted when the product is heated excessively or burned.

6. ACCIDENTAL RELEASE MEASURES (SPILLAGE)

Personal Precautions: Prevent exposure to the product or its dust. Wear suitable protective clothing as described in Section 8. Avoid producing excessive dust during any clean-up operations. If exposure occurred, see Section 4 for first aid measures.

Environmental Precautions: Do not use water to dilute the spill. Contain the spill and keep it out of the municipal sewers or open bodies of water. Do not feed animals with contaminated fodder.

Small Spills: First, carefully sweep up or vacuum the spilled product as completely as possible into a secure container for re-use or appropriate disposal according to Section 13. Then wash the surface with plenty of soap and water, but do not dispose of the wash-water into the sewer system.

Large Spills: Evacuate the area of non-essential personnel. Scoop or shovel most of the spilled product into suitable containers for re-use or appropriate disposal according to Section 13. Avoid creating dust. Carefully sweep up (or vacuum, if possible) the remaining spilled material as completely as possible. Only then can water be used to dilute and wash away remaining residues. Prevent water from entering the sewer, streams or drinking water supplies.

7. HANDLING AND STORAGE REQUIREMENTS

Handling: Keep children, uninformed persons and pets away. Use only as directed on the product label or insert and heed all warnings and precautions. Wear suitable protective clothing as described in Section 8 and wash them after use. Do not eat, drink or smoke whilst mixing or applying. Do not inhale dust, fumes or spray mist. Do not handle or apply the product under strong windy conditions. Prevent drift of spray mist onto other crops, grazing, rivers, dams or areas not under treatment. Wash thoroughly after handling with soap and water. Clean the applicator immediately after use and dispose of the wash water where it will not contaminate crops, grazing, dams, streams or underground water.

Storage: Store inside the original container in a cool, dry, ventilated, locked place out of the reach of children. Store away from food, feed and drink and where streams and underground water cannot be accidentally contaminated. Keep the container closed when not in use.

8. EXPOSURE CONTROL / PERSONAL PROTECTION

Acceptable Daily Intake (ADI): 0.5 mg/kg/day (1988 US EPA).

Occupational Exposure Limits:

Hazardous Components	% m/m	Hazard	Permissible Exposure Limits * PEL (TWA) OSHA (USA)	Threshold Limit Value * TLV (TWA) INSHT
Chlorthal-dimethyl	75	Eye and lung irritation; possible carcinogen	None adopted	None adopted
Silica Aerogel	15	Eye and lung irritation	15 mg/m^3 total dust; 5 mg/m^3 respirable dust	10 mg/m^3
Hexachlorobenzene	< 0.01	Possible carcinogen	None adopted	0.002 mg/m^3

Engineering Controls: Use process enclosures, local exhaust ventilation or other suitable systems to keep airborne levels below the permissible exposure limits, especially when user operations generate dust, fumes or mist.

Personal Protective Equipment:

Clothing: Wear a long-sleeved overall or laboratory coat (over long pants) and shoes (or boots) plus socks. A chemical resistant apron is highly recommended whenever pesticides and other hazardous chemical products are handled. Keep clothes worn during handling of the product separately from other laundry and wash them with detergent and hot water. Never use contaminated clothing until it has been laundered properly.

Gloves: Use rubber gloves. Remove and replace them immediately if there is any indication of damage or degradation. Rinse and remove the gloves immediately after use and wash the hands with soap and water.

Eye Protection: Use safety glasses with side shields. If eye discomfort is experienced, use chemical goggles compatible with the respiratory protection employed or use a full-face respirator.

Respiratory: Work only in a well-ventilated area and wear a clean dust-mask that properly fits over the nose and mouth. If the ventilation is insufficient to keep exposure to product dust to a minimum, a properly fit-tested respirator fitted with organic vapour cartridges and dust filters is required.

Other Protection: Do not eat, drink or smoke while handling this product. Prevent contamination of food, feeds, drinking water and eating utensils. After using this product wash hands and face before eating. Take extreme care to avoid drift. Wash accurately (preferably a shower) after work shift. Wash hands during breaks and at the end of the work with soap and water.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Yellowish brown solid (powder).

Odour: No data available

Solubility in Water (Product): Disperses in water

Solubility in Water (AI): Approximately 0.5 mg/ℓ at 25 °C.

Solubility in Water (Amorphous silica): Insoluble

Solubility in Organic Solvents (AI): Soluble in aromatic hydrocarbons (e.g. xylene), ketones (e.g. acetone, chlorinated hydrocarbons (e.g. carbon tetrachloride), etcetera.

Solubility in Organic Solvents (Amorphous silica): Insoluble.

Partition Coefficient (AI): (n-octanol/water) log K_{ow} = 4.28 at 25 °C.

pH: Not applicable.

Melting Range (AI): 153 – 154.5 °C.

Boiling Range: Decomposes without boiling.

Decomposition Temperature (AI): 360 – 370 °C.

Vapour Pressure at 25 °C: 0.21 mPa (1.58 x 10^{-6} mmHg) (also reported as 2.5 x 10^{-6} mm Hg).

Vapour Density: Heavier than air.

Henry's Law constant estimate: 1.376 x 10^{-6} atm $m^3.mol^{-1}$ (0.139 Pa $m^3.mol^{-1}$).

Flash Point: Non-flammable

Flammability: Non-flammable. Chlorthal-dimethyl will decompose in direct flames.

Auto-ignition Temperature: Will not auto-ignite under normal storage conditions.

Oxidising Properties: None

Corrosive Properties: None

Hydrolysis: Virtually no degradation in water ranging from moderately acidic to moderately alkaline (pH 5.0 to pH 9.0). Hydrolyses in strong acidic or alkaline media.

10. STABILITY AND REACTIVITY

Stability: The product is stable under normal conditions of storage and use. None of the components contain reactive functional groups and the active ingredient, chlorthal-dimethyl, will only react at an appreciable rate under extreme conditions of pH when the ester functions will be hydrolysed.

Conditions to Avoid: The product will decompose at elevated temperatures (360 – 370 °C).

Incompatible Materials: Store away from strong oxidising agents. Store separate from and prevent contact with alkalis and acids which will destroy the product.

Decomposition Products in the Environment: Chlorthal-dimethyl is slowly broken down in most soils (DT_{50} 14 to 100 days) to the tetrachloroterephthalic acid, which is much more water soluble than the parent compound and is subject to leaching in soils. This carboxylic acid is also the major breakdown product in water and appears to be persistent in water as it is found as a wide-spread contaminant in both surface and ground water.

Decomposition Products in Emergency Situations: Hazardous fumes of hydrogen chloride (HCℓ), carbon monoxide (CO), carbon dioxide (CO_2) and unidentified organic compounds may be emitted when the product is heated excessively or burned.

11. TOXICOLOGICAL INFORMATION

No toxicological information is available on this product. The toxicity data below are based on the published properties for chlorthal-dimethyl, amorphous silica and the lignosulfonate dispersants/surfactants. While the toxicological concern for chlorthal-dimethyl per se may be low, the technical product may contain very small amounts of dioxin (2,3,7,8-TCDD) and hexachlorobenzene (HCB) as impurities, which are of toxicological concern. However, available analytical data indicate that the product contains < 0.01% HCB.

Acute Oral LD_{50} (rat): > 3 000 mg/kg

Acute Oral LD_{50} (rabbit): >10 000 mg/kg

Acute Dermal LD_{50} (rabbit): > 2 500 mg/kg

Acute Inhalation LC_{50} (rat, 4 hr): > 6 mg/L air

Skin Irritation (rabbit): Causes mild irritation.

Eye Irritation (rabbit): Causes eye irritation.

Sensitization (guinea pig): Not a skin sensitizer.

Chronic Dietary Study: NOAEL (systemic toxicity) is 1 mg/kg-day. In a 2-year study effects on the lungs, liver, kidney, thyroid and thyroid hormones in rats were observed. No dose-related ocular toxicity was observed in rats in a separate study. (Note: the chlorthal-dimethyl utilized in this study contained 0.13% of the manufacturing impurity hexachlorobenzene).

Carcinogenicity: Hexachlorobenzene (HCB) has been found to be carcinogenic in several studies conducted for IARC and NTP. As a result of this the product has been classified by EPA as a Group C, possible carcinogen, based on increased incidence of thyroid tumours in both sexes of the rat and liver tumours in female rats and mice.

Mutagenicity: Available evidence indicates that chlorthal-dimethyl is not mutagenic. No mutagenicity was seen in a number of tests, including mutation frequency and activity, cytogenetic tests, DNA repair and dominant lethal tests.

Teratogenicity: No adverse effects for maternal rats and rabbits or their offspring was observed. NOEL (maternal toxicity, rabbits) was set at 250 mg/kg-day and NOEL (developmental toxicity, rabbits) was set at 500 mg/kg-day.

Reproductive Hazard: Available data indicate no reproductive effects (no embryotoxicity or fetotoxicity).

12. ECOLOGICAL INFORMATION

No toxicological information is available on this product. The toxicity data below are based on the published properties for chlorthal-dimethyl. The other components are not expected to have adverse environmental effects.

Aquatic Toxicity Fish LC_{50} (96 hr): 6.6 mg/ℓ (rainbow trout). 6.7 mg/ℓ (bluegill sunfish) Highly toxic to fish.

Aquatic Toxicity Daphnia EC_{50} (48 hr): 27 mg/ℓ.

Aquatic Toxicity Algae EC_{50} (5 days): 11 mg/ℓ.

Avian Toxicity LD_{50} (9 days): > 2 250 mg/kg (bobwhite quail). Moderately toxic to some young wildfowl, and practically non-toxic to the young of other species and adult birds

Bee Toxicity LD_{50}: Slightly toxic to bees. At high doses there was only 3% bee mortality.

Biodegradability: Chlorthal-dimethyl is moderately persistent in soil. However, moisture is essential for degradation. In one study, there was no apparent build-up of pesticide residues in soil even after repeated application. The chlorthal-dimethyl concentration declined slowly to 75 or 80% in 28 days. Later sampling showed a continued decline of chlorthal-dimethyl and its breakdown products.

Bio-accumulation: The Partition coefficient (n-octanol/water) is log K_{ow} = 4.28 at 25 °C.

Mobility: 282.9 (Log K_{oc} = 2.452). The breakdown product (2,3,5,6-tetrachloroterephthalic acid) is much more water soluble than the parent chlorthal-dimethyl and is subject to leaching in some soils.

13. DISPOSAL CONSIDERATION

Pesticide Disposal: Wastes resulting from the use of this product should be minimised by completely emptying and rinsing the container into the tank mixture. Spray mixture and rinse water should be disposed of on site by use according to the product label, if possible, or disposed of in accordance with applicable local regulations and requirements, preferably at an approved chemical waste disposal site. Never dispose residual tank mixes and rinsates in the sewer system.

Package Product Wastes: Rinse empty containers three times with sufficient water and add the rinsings to the contents of the spray tank. Destroy empty containers by perforation and flattening, then dispose as hazardous waste via a licensed disposal contractor to an approved landfill. Pesticide containers must never be used for any other purpose.

14. TRANSPORT INFORMATION

UN No.: Not regulated.

Class: Not regulated.

Packaging Group: Not regulated.

Proper Shipping Name: Not regulated.

15. REGULATORY INFORMATION

Risk Phrases:

R20/22- Harmful by inhalation and if swallowed.

R36/38- Irritating to eyes and skin.

R57- Toxic to bees.

Safety Phrases:

S1/2- Keep locked up and out of the reach of children.

S24/25- Avoid contact with skin and eyes.

S36/37/39- Wear suitable protective clothing, gloves and eye/face protection.

S60- This material and its container must be disposed of as hazardous waste.

National Legislation: This product is registered under Act 36 of 1947 of the Republic of South Africa. It is a violation of South African law to use this product in any manner inconsistent with its approved labelling. Read and follow all label directions.

16. OTHER INFORMATION

Note: Read and understand all the information on the product label before using the product.

Disclaimer: The information on this sheet is not a specification; it does not guarantee specific properties. The information is intended to provide general guidance as to health and safety based upon our knowledge of the handling, storage and use of the product. It is not applicable to unusual or non-standard uses of the product, nor where instructions or recommendations are not followed. All information is given in good faith but without guarantee in respect of accuracy, and no responsibility is accepted for errors and omissions or the consequence thereof.

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