

# Fenthion

## SAFETY DATA SHEET

### 1. PRODUCT & COMPANY IDENTIFICATION

**Product Name:** Fenthion  
**Pesticide Classification:** Insecticide  
**UN No.:** 2902

**Supplier**

Enviro Bio-Chem (Pty) Ltd  
Co. Reg. No.: 2013/194774/07  
44 Kerk Street, Lichtenburg  
North West, South Africa 2740

**Registration Holder**

RT Chemicals  
Co. Reg. No.: CK87/21925/23  
44 Kerk Street, Lichtenburg  
North West, South Africa 2740

**Telephone:** +27 87 231 7261  
**Fax:** 086 541 7948  
**Website:** [www.envirobiochem.co.za](http://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:** Fenthion 500g/l EC  
**Chemical Name:** O,O-dimethyl 0-[3-methyl-4-(methylthio)phenyl] Phosphorothioate  
**Chemical Formula:** C<sub>10</sub>H<sub>15</sub>O<sub>3</sub>PS<sub>2</sub>  
**CAS No.:** 55-38-9  
**RSA Reg. No.:** L6430 Act 36 of 1947

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### 2. COMPOSITION / INFORMATION ON INGREDIENTS

<u>Ingredient Name</u>	<u>Concentration</u>
Fenthion	50% min
Inert ingredients	50% max

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### 3. HAZARD IDENTIFICATION

**Hazard Class:** WHO Class II -Moderately hazardous.

**Main Hazard:** Danger of serious damage to health by prolonged exposure if swallowed.

**Flammability:** Flammable liquid (Flash point: > 38 °C).

**Chemical Hazard:** If involved in a fire, sulphur dioxide and phosphorus pentoxide may be emitted.

**Biological Hazard:** Toxic to fish and aquatic invertebrates. Dangerous to birds.

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### 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:** Mild intoxication causes headaches, blurred vision, weakness, sweating, mild chest pain, nausea and vomiting. Severe intoxication causes cyanosis (blueness of the skin, as from lack of oxygen), muscular twitching, spasms, miosis (pinpoint pupils) and respiratory paralysis.

#### First Aid Measures:

**Skin Contact:** Immediately remove contaminated clothing. Wash affected areas with soap and water. Seek medical aid. If advised by doctor or Poisons Information Centre, atropine tablets may be administered. Obtain an emergency supply of atropine tablets 0.6 mg.

**Eye Contact:** Hold eyes open and flush immediately with clear, clean running water for at least 15 minutes. Obtain medical attention.

**Ingestion:** Wash out mouth with water. Do not induce vomiting. Give a glass of water. Keep patient at rest and seek medical advice immediately. Transport patient to doctor or hospital quickly. If advised by doctor or Poisons Information Centre, Atropine tablets may be administered. Do not attempt to give anything by mouth to a semi-conscious or unconscious person.

**Inhalation:** If inhaled, remove to fresh air and keep at rest. Obtain medical advice. If breathing stops or shows signs of failing, start artificial respiration. If advised by doctor or Poisons Information Centre, atropine tablets may be administered.

**Advice to Physician:** Fenthion is an organophosphorus compound, and as such it is a cholinesterase inhibitor.

Monitor respiratory, cardiac and central nervous system function. Monitor red blood cell and plasma cholinesterase levels. Administer oxygen if necessary. Watch for pulmonary oedema and delayed neurological symptoms.

Contra-indications: Adrenergic derivatives.

Two regimens for initial atropine treatment are currently suggested. In both cases the cessation of the cholinergic symptoms salivation, bronchial secretion, sweating and bradycardia indicates sufficient atropinization. The skin should be dry, the lungs should be clear on auscultation and the heart rate should be in a range of 80 to 100/minute.

Overdoses of atropine have to be strictly avoided, as these can promote heart rhythm disturbances.

It is mandatory to allow 5 minutes after each dose for atropine to become fully effective, the next higher dose must not be given earlier and only if the above symptoms are persisting. Regimen 2 currently is advisable. If further atropine treatment is required (taking into account the relatively short effect of carbamates), it should be done by continuous application of 1 – 2 mg/hour. Atropine treatment can be stopped, when the plasma cholinesterase level has returned to above 30% of normal.

Survival of patients after severe organophosphorous insecticide poisoning is strongly dependent on effective intensive care treatment, as aspiration pneumonia and multi-organ failure are typically the final causes of death in such cases. Thus, in severe cases with cardiorespiratory failure and resuscitation the above regimens, though doubtlessly effective against the cholinesterase inhibition, may not improve the outcome, because adequate ICU therapy is critical.

**Antidote:** Atropine sulphate, possibly in conjunction with Toxogonin or obidoxime (PAM).

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### 5. FIRE FIGHTING MEASURES

**Flammability:** Flammable liquid (Flash point: > 38 °C).

**Extinguishing Agents:** Use water fog, foam, carbon dioxide or extinguishing powder.

**Firefighting:** Firefighters should wear full protective gear, including self-contained breathing apparatus. Keep unnecessary people away and move all other personnel to windward side of fire. Use water spray to cool fire-exposed containers. Avoid spraying directly into containers due to danger of boil over. Bund area with sand or earth to prevent contamination of drains or waterways. Dispose of fire control water, other extinguishing agents and spillage according to section 13 of this document. Contamination of water bodies should be avoided.

**Special Hazards:** If involved in a fire, sulphur dioxide and phosphorus pentoxide may be emitted.

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## 6. ACCIDENTAL RELEASE MEASURES (SPILLAGE)

**Personal Precautions:** Wear protective clothing. Avoid breathing vapours or spray drift. If necessary, wear a self-contained breathing apparatus.

**Environmental Precautions:** Prevent spilled material from entering drains or watercourses. Contain spill and absorb with earth, sand, clay or another absorbent material.

**Spills:** Avoid contact with the spilled material or contaminated surfaces. Extinguish or remove all possible sources of ignition. Do not smoke, eat or drink during the clean-up process. Keep people and animals away and upwind. Contain spill and absorb with earth, sand, clay or another absorbent material. Collect and store in properly labelled drums for safe disposal. Clean floor with a damp cloth and place cloth. Cover and label drums for safe disposal according to Section 13 of this document. Thoroughly ventilate the area after clean-up. Deal with all spillages immediately. If contamination of drains, streams, watercourses, etc. is unavoidable, warn the local water authority. Decontaminate tools and equipment used in the clean-up.

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## 7. HANDLING AND STORAGE REQUIREMENTS

**Handling:** Keep out of reach of children. Product is poisonous if absorbed by skin contact, inhaled or swallowed. Avoid contact with eyes, skin and clothing. Do not inhale spray mist. Wash hands, arms and face thoroughly with soap and water after product use and before eating, drinking or smoking. After each day's use, wash gloves, face shield or goggles and contaminated clothing. Keep away from excessive heat, open flames and other sources of ignition.

**Storage:** Store in closed, original containers in a cool, well-ventilated area. Do not store for prolonged periods in direct sunlight. Keep away from excessive heat, open flames and other sources of ignition.

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## 8. EXPOSURE CONTROL / PERSONAL PROTECTION

**Acceptable Daily Intake (ADI):** No data available.

**Exposure Limits:** TWA for fenthion is 0.2 mg/m<sup>3</sup> skin notation (NOHSC).

**Engineering Control Measures:** Control process conditions to avoid contact. Use local exhaust ventilation and spark proof equipment during manufacture. Use in a well-ventilated area only.

### Personal Protective Equipment:

**Clothing:** Wear cotton overalls buttoned to the neck and wrist, a washable hat and impervious footwear. During post-harvest dipping operation wear a full length waterproof apron as well.

**Gloves:** Wear elbow length PVC gloves.

**Eye Protection:** Wear eye protection. During mixing or pouring operations or other activities in which eye contact with undiluted product is likely to occur, splash goggles should be worn. Where there is any possibility that an employee's eyes may be exposed to this substance, the employer should provide an eye wash fountain or appropriate alternative within the immediate work area for emergency use.

**Respirator:** If inhalation is likely wear an AS/NZS 1715/1716 approved respirator.

**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.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

**Appearance:** Clear brown liquid.

**Odour:** Aromatic, chemical.

**pH:** 4.9 to 5.9 (1% in water)

**Vapour Pressure:**  $7.4 \times 10^{-6}$  hPa (at 20 °C) (fenthion).

**Solubility:** Emulsifies in water.

**Specific Gravity:** 1.112 at 20 °C.

**Flash Point:** > 38 °C

**Partition Coefficient (octanol/water):**  $\log P_{ow} = 4.84$  at 20 °C (fenthion).

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## 10. STABILITY AND REACTIVITY

**Stability:** The product is stable when stored under normal storage conditions at normal temperatures.

**Conditions to Avoid:** None to specifically mention.

**Incompatible Materials:** Avoid iron and strong oxidising agents. Avoid highly alkaline conditions.

**Decomposition Products:** Sulphur dioxide and phosphorus pentoxide may be emitted in the event of fire.

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## 11. TOXICOLOGICAL INFORMATION

The active ingredient, fenthion, is an anticholinesterase compound. Symptoms typical of cholinesterase inhibition (for all routes of entry). Acute toxicity based on the formulated product toxicity.

**Acute Oral LD<sub>50</sub> (rat):** 309 - 474 mg/kg. Poisonous if swallowed.

**Acute Dermal LD<sub>50</sub> (rat):** >5 000 mg/kg.

**Acute Inhalation LC<sub>50</sub> (rat, 4 hr):** 0.5 mg/l air (based on active ingredient). Poisonous by inhalation. High vapour concentrations may be irritating to the respiratory tract and may cause headaches, dizziness, drowsiness, anesthesia, and other central nervous system effects.

**Skin Irritation (rabbit):** Poisonous if absorbed by skin contact. May irritate the skin.

**Eye Irritation (rabbit):** Slightly irritating to the eyes.

**Skin Sensitization (guinea pig):** Not a skin sensitizer.

**Chronic Effects:** The main health effects from repeated exposure would be toxic symptoms of cholinesterase inhibition as described above. Chronic toxicity studies showed limited evidence of irreversible effects.

**Carcinogenicity:** No data available.

**Mutagenicity:** No data available.

**Reproductive Hazard:** No data available.

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## 12. ECOLOGICAL INFORMATION

Ecotoxicity is based on the active ingredient toxicity.

**Aquatic Toxicity Fish LC<sub>50</sub> (96 hr):** 0.83 g/l (rainbow trout); 2.7 mg/l (golden orfe). Toxic to fish.

**Aquatic Toxicity Daphnia EC<sub>50</sub> (48 hr):** 0.0057 mg/l (Daphnia magna). Toxic to aquatic invertebrates.

**Aquatic Toxicity Algae EC<sub>50</sub> (96 hr):** 1.79 mg/l (green algae).

**Avian Toxicity LD<sub>50</sub> (9 days):** 7.2 mg/kg (bobwhite quail). Dangerous to birds.

**Bee Toxicity LD<sub>50</sub>:** Dangerous to bees.

**Biodegradability:** Not easily biodegradable.

**Bio-accumulation:** No data available.

**Mobility:** No data available.

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### 13. DISPOSAL CONSIDERATION

**Pesticide Disposal:** Do not contaminate crops, grazing, rivers or dams with chemical or used containers. Dispose of waste product as hazardous waste via a licensed disposal contractor to an approved landfill. Do not discharge into drains or sewers.

**Package Product Wastes:** Triple or preferably pressure rinse containers before disposal. Add rinsings to spray tank. Do not dispose of undiluted chemicals on-site. If recycling, replace cap and return clean containers to recycler or designated collection point. If not recycling, break, crush or puncture and bury empty containers in a local authority landfill. If no landfill is available, bury the containers below 50 cm in a disposal pit specifically marked and set up for this purpose clear of waterways, desirable vegetation and tree roots. Empty containers and product should not be burnt.

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### 14. TRANSPORT INFORMATION

**UN Number:** 2902

**Class:** 6.1

**Packaging Group:** III

**Proper Shipping Name:** Pesticide; Liquid; Toxic; N.O.S. (contains Fenthion)

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### 15. REGULATORY INFORMATION

**Risk Phrases:** R68- Possible risks of irreversible effects.

R23- Toxic by inhalation.

R48/25- Toxic: danger of serious damage to health by prolonged exposure if swallowed.

R21/22- Harmful in contact with skin and if swallowed.

R38- Irritating to skin.

**Safety Phrases:** Not applicable

**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.

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### 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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