

Oxyfen

SAFETY DATA SHEET

1. PRODUCT & COMPANY IDENTIFICATION

Product Name: Oxyfen
Pesticide Classification: Herbicide
UN No.: 1993

Supplier

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

Registration Holder

Erintrade CC t/a RT Chemicals
Co. Reg. No.: CK2001/036403/23
44 Kerk Street, Lichtenburg
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: Oxyfluorfen 240 g/l EC
Chemical Name: 2-chloro- α,α,α -trifluoro-p-tolyl 3-ethoxy-4-nitrophenylether
Empirical formula: C₁₅H₁₁ClF₃NO₄
CAS No.: 42874-03-3
RSA Reg. No.: L7663 Act/Wet No. 36 of/van 1947

2. COMPOSITION / INFORMATION ON INGREDIENTS

<u>Ingredient Name</u>	<u>Concentration</u>
Oxyfluorfen	≥ 240 g/l
Inert Ingredients	≥ 760 g/l

3. HAZARD IDENTIFICATION

Hazard Class: WHO Class III -Slightly hazardous.

Main Hazard: Corrosive. Causes irreversible eye damage. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals.

Flammability: Flammable (Flashpoint 28 °C). Heated material can form flammable or explosive vapours with air.

Chemical Hazard: Hazardous fumes of hydrogen chloride (HCl), hydrogen fluoride (HF), carbon monoxide (CO), carbon dioxide (CO₂), nitrogen oxides (NO₂, N₂O) and unidentified organic compounds may be emitted when the product is burning.

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 of over exposure include nose and throat irritation, dizziness, drowsiness, headaches, abdominal pain, diarrhoea, nausea, vomiting and facial flushing.

First Aid Measures:

Skin Contact: Remove contaminated clothing and rinse contaminated body area thoroughly with plenty of soap and cold water. Do not rub skin hard. Persons attending the patient should avoid contact with heavily contaminated clothing and vomitus. Wear rubber gloves while washing pesticide from skin and hair.

Eye Contact: Flush contaminant out of eyes with clean water for at least 15 minutes. Get medical attention immediately.

Ingestion: If swallowed, immediately contact a poison control centre, emergency treatment centre or a physician for advice. Do not make person vomit unless directed to do so by medical personnel. If medical advice cannot be obtained, then immediately take person and product container, with label, to an emergency treatment centre. Administer artificial respiration or closed chest cardiac massage if necessary. Do not apply direct mouth-to-mouth respiration. Never induce vomiting or give anything by mouth to an unconscious person.

Inhalation: Remove patient from source of poisoning to a cool, well ventilated area and keep the patient quiet and reassured. If breathing is difficult give oxygen. Get medical attention immediately.

Advice to Physician: No information available.

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

5. FIRE FIGHTING MEASURES

Flammability: Flammable (Flashpoint 28 °C). Heated material can form flammable or explosive vapours with air.

Extinguishing Agents: Water spray, foam, dry chemical or carbon dioxide (CO₂). 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), hydrogen fluoride (HF), carbon monoxide (CO), carbon dioxide (CO₂), nitrogen oxides (NO₂, N₂O) and unidentified organic compounds may be emitted when the product is burning.

6. ACCIDENTAL RELEASE MEASURES (SPILLAGE)

Personal Precautions: Prevent exposure to the product or its vapours. Wear suitable protective clothing as described in Section 8. Avoid creating excessive evaporation during any clean-up operations. If exposure occurred, see Section 4 for first aid measures. Remove all contaminated clothing promptly. Thoroughly wash the whole body or at least the exposed skin areas with soap and water as soon as possible. Have clothing thoroughly laundered before re-use, but don't take it home for laundering. Eliminate all ignition sources. Prevent the generation of electrostatic charges as a result of flow, agitation, etc. Ventilate the spill area.

Environmental Precautions: Contain the spill and keep it out of the municipal sewers or open bodies of water. Spills on porous surfaces can contaminate the groundwater. Do not feed animals with contaminated fodder.

Small Spills: Contain the spill with absorbent material (for example paper towel). Soak up carefully and as completely as possible and transfer the liquid and solid contaminated material to a suitable container for disposal according to Section 13. Keep even small amounts separate from other waste. Avoid creating vapours. 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. Contain the spill immediately with inert materials (for example sand or earth). Carefully transfer the liquid and solid diking material to secure containers for recovery or appropriate disposal according to Section 13. Prevent water from entering the sewer, streams or drinking water supplies.

7. HANDLING AND STORAGE REQUIREMENTS

Handling: This material is flammable and a severe irritant. Keep children, uninformed persons and pets away. Use only as directed on the product label and heed all warnings and precautions. Wear suitable protective clothing as described in Section 8 and wash them after use. Ground all containers when transferring the material. Do not eat, drink or smoke whilst mixing or applying. Do not handle the product near ignition sources, food, feed or drinking water. Do not inhale vapours 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 containers in a cool, dry, ventilated, locked place out of the reach of children and out of direct sunlight. Avoid temperatures below 1°C. 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. Ground all metal containers during storage.

8. EXPOSURE CONTROL / PERSONAL PROTECTION

Acceptable Daily Intake (ADI): No data available.

Engineering Controls: It is essential to provide adequate ventilation. The measures appropriate for a particular work site depend on how this material is used and on the extent of exposure. Ensure that control systems are properly designed and maintained. Eliminate all possible ignition sources. Comply with occupational Safety, environmental, fire, and other applicable regulations.

Personal Protective Equipment:

Clothing: Long-sleeved shirt, long pants, shoes plus socks, protective waterproof (impermeable) gloves. Employee must wear appropriate protective clothing and equipment to prevent prolonged skin contact with this product.

Gloves: Protective waterproof (impermeable) rubber or plastic gloves are recommended.

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.

Respiratory: An approved respirator suitable for protection from dusts and mists of pesticides is adequate. Limitations of respirator use specified by the approving agency and the manufacturer must be observed.

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: Orange to brown transparent liquid.

Physical State: Non-viscous liquid.

Odour: Characteristic of aromatic solvents.

Density: 0.99 g/ml

Viscosity: Non-viscous

Solubility in Water (Product - oxyfluorfen 240 g/l EC): Forms a stable emulsion in water.

Solubility in Water (Oxyfluorfen): Approximately 0.12 mg/l at 25 °C.

Solubility in Water (xylene): Insoluble

Solubility in Water (Dimethylformamide): Completely miscible.

Solubility in Organic Solvents (Oxyfluorfen): Soluble in most organic solvents, including cyclohexanone, acetone, chloroform, acetonitrile, methanol, etcetera.

Solubility in Organic Solvents (Xylene and Dimethylformamide): Miscible with many organic solvents.

Partition Coefficient (Oxyfluorfen): (n-octanol/water) $\log K_{ow} = 4.47$ at 25 °C

Boiling Range (Xylene): 137 to 140 °C; **(Dimethylformamide):** 153 °C; **(Oxyfluorfen):** 358.2 °C with decomposition.

Decomposition temperature (Oxyfluorfen): Above 50 °C.

Vapour Pressure (Xylene): 0.8 kPa (20 °C); **(Dimethylformamide):** 0.5 kPa (25 °C); **(Oxyfluorfen):** 0.027 mPa (25 °C)

Relative Vapour Density [air = 1] (Xylene): 3.7; **(Dimethylformamide):** 2.5

Henry's Law Constant Estimate (Oxyfluorfen): $3.3 \times 10^{-4} \text{ Pa m}^3 \text{ mol}^{-1}$

Flash Point: 28 °C

Flammability (Product - oxyfluorfen 240 g/l EC): Flammable liquid and vapour (GHS Category 3)

Auto-ignition Temperature (Xylene): 527 °C; **(Dimethylformamide):** 445 °C

Explosive Properties - Explosive limits, vol% in air: (Xylene): 1.1 to 7.0; **(Dimethylformamide):** 2.2 to 15.2 at 100 °C.

Oxidising Properties: Oxyfluorfen is a light-dependent peroxidizing herbicide.

Corrosive Properties: No data available.

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

10. STABILITY AND REACTIVITY

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

Conditions to Avoid: Direct sunlight, open flames, ignition sources, high temperatures, sources of heat, oxidising agents, chlorinated hydrocarbons, strong acids or bases and nitrate-containing fertilisers must be avoided.

Because of flow, agitation, etc., electrostatic charges can be generated. Above 27 °C explosive vapour/air mixtures may be formed.

Incompatible Materials: Incompatible with non-chemical resistant packing material. The product will react with strong acids and bases, oxidising agents, chlorinated hydrocarbons and nitrates.

Decomposition Products: Hazardous fumes of hydrogen chloride (HCl), hydrogen fluoride (HF), carbon monoxide (CO), carbon dioxide (CO₂), nitrogen dioxide (NO₂), nitrous oxide (N₂O) and unidentified organic compounds may be emitted when the product is burning.

11. TOXICOLOGICAL INFORMATION

Acute toxicity based on the active ingredient toxicity.

Acute Oral LD₅₀ (rat): >5 000 mg/kg

Acute Dermal LD₅₀ (rabbit): >5 000 mg/kg

Acute Inhalation LC₅₀ (rat, 4 hr): >11 mg/l air

Skin Irritation (rabbit): This substance is a moderate skin irritant. Skin irritation may include discomfort, redness, swelling, and possibly blistering. If absorbed through the skin, this substance is considered practically non-toxic to internal organs.

Eye Irritation (rabbit): This substance is a severe eye irritant and could cause permanent damage to your eyes and blindness. The degree of the injury will depend on the amount of material that gets into the eye and the speed and thoroughness of the first aid treatment. Symptoms of overexposure may include discomfort, irritation and redness, and blurred vision.

Skin Sensitization (guinea pig): This product contains trace quantities of methylisothiazolinone and methylchloroisothiazolinone as preservatives. At higher concentrations these preservatives have been shown to cause allergic skin reactions in susceptible individuals.

Chronic Dietary Study: A 2-year trial caused anemia, anorexic appearance and affected the liver of rats.

Carcinogenicity: Animal studies showed that oxyfluorfen may cause cancer.

Mutagenicity: Available evidence indicates that oxyfluorfen is not mutagenic. No mutagenicity was seen in a number of tests.

Teratogenicity (rat): Data suggest that oxyfluorfen may have teratogenic effects at very high doses.

Reproductive Hazard: Suspected of damaging fertility and/or the unborn child through inhalation or ingestion.

12. ECOLOGICAL INFORMATION

Ecotoxicity is based on the active ingredient toxicity. Valid aquatic toxicity tests require the dissolution of the test substance in the test water. The solubility of oxyfluorfen is only 0.12 mg/l. The values below were taken from published data.

Aquatic Toxicity Fish LC₅₀ (96 hr): 0.41 mg/l (rainbow trout); 0.2 mg/l (bluegill sunfish). Highly toxic to fish.

Aquatic Toxicity Daphnia LC₅₀ (48 hr): 1.5 mg/l

Aquatic Toxicity Algae EC₅₀ (5 days): 50 mg/l (blue-green algae).

Avian Toxicity LD₅₀ (9 days): >4 000 mg/kg (mallard duck); >2 150 mg/kg (bobwhite quail). Slightly toxic to some species.

Bee Toxicity LD₅₀: Not toxic to honeybees at 0.025 mg a.i./bee.

Biodegradability: Oxyfluorfen is moderately persistent in most soils. In soil where light does not penetrate, the rate of decomposition is decreased. Oxyfluorfen is not subject to microbial degradation or hydrolysis. The main mechanism of degradation in soils may be photodegradation and evaporation/co-distillation in moist soils. In laboratory studies, its soil half-life was 6 months, indicating very low rates of microbial degradation. Oxyfluorfen has a representative field half-life of about 30 to 40 days

Bio-accumulation: The Partition coefficient (*n*-octanol/water) is log K_{ow} = 4.73 at 25 °C.

The BCF estimate is 875.2 (log BCF = 2.942), from log K_{ow}. Oxyfluorfen accumulated up to 13 mg/kg in bluegill sunfish exposed to 10 ug/l for 40 days. This represents a BCF of 1 300.

Mobility: Oxyfluorfen is very well-sorbed to most soils. Soil binding is at its highest in soils with high organic matter and clay content. Once oxyfluorfen is adsorbed to soil particles, it is not readily removed. Oxyfluorfen is practically insoluble in water, and therefore is unlikely to be appreciably mobile in most instances, unless the sorptive capacity of the soil is exceeded. Oxyfluorfen did not leach below 4 inches in any soil except sand.

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 according to the product label 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 systems.

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 and then dispose of them at a sanitary landfill or by incineration. Pesticide containers must never be used for any other purpose.

14. TRANSPORT INFORMATION

UN No.: 1993

Class: 3

Packing Group: III

Proper Shipping Name: Flammable Liquid, N.O.S. (contains Oxyfluorfen).

15. REGULATORY INFORMATION

Risk Phrases:

- R10-** Flammable
- R20-** Harmful by inhalation.
- R36/37/38-** Irritating to eyes, respiratory system and skin.
- R41-** Risk of serious damage to eyes.
- R50-** Very toxic to aquatic organisms.
- R61-** May cause harm to the unborn child.
- R67-** Vapours may cause drowsiness and dizziness.

Safety Phrases:

- S1/2-** Keep locked up and out of the reach of children.
- S16-** Keep away from sources of ignition – No smoking.

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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