

Escape

SAFETY DATA SHEET

1. PRODUCT & COMPANY IDENTIFICATION

Product Name: Escape
Pesticide Classification: Herbicide
UN No.: 2763

Supplier

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

Registration Holder

Enviro Industries (Pty) Ltd t/a Enviro Weed Control Systems
Co. Reg. No.: 1999/006136/07
44 Kerk Street, Lichtenburg
North West, South Africa 2740

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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: Terbutylazine 150 g/kg + Hexazinone 50 g/kg GR
Chemical Name: Terbutylazine: N²-tert-butyl-6-chloro-N⁴-ethyl-1,3,5-triazine-2,4-diamine (IUPAC)
Hexazinone: 3-Cyclohexyl-6-(dimethylamino)-1-methyl-1,3,5-triazine-2,4 (1H,3H)-dione
Chemical Formula: Terbutylazine: C₉H₁₆C_lN₅
Hexazinone: C₁₂H₂₀N₄O₂
CAS No.: Terbutylazine: 5915-41-3 and Hexazinone: 51235-04-2
RSA Reg. No.: L6021 Act/Wet No. 36 of/van 1947

2. COMPOSITION / INFORMATION ON INGREDIENTS

| <u>Ingredient Name</u> | <u>Concentration</u> |
|------------------------|----------------------|
| Terbutylazine | 150 g/kg |
| Hexazinone | 50 g/kg |

3. HAZARD IDENTIFICATION

Hazard Class: WHO Class III -Slightly hazardous.

Main Hazard: A relatively low toxicity herbicide. Poisonous if swallowed. Irritating to respiratory system.

Flammability: Non-flammable

Chemical Hazard (Terbuthylazine): Harmful if swallowed.

Chemical Hazard (Hexazinone): Risk of serious damage to eyes.

Biological Hazard: Highly toxic to algae.

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 Hexazinone include mild to moderate corneal cloudiness with transient severe conjunctivitis and slight to moderate iritis. The acute toxicity to Terbuthylazine for man is thought to be low, and no adverse health effects from exposure to this herbicide have been reported.

First Aid Measures:

Skin Contact: Wash skin for at least 15 minutes with fresh running water and soap, including hair and under fingernails. Remove contaminated clothing and wash before re-use. If irritation persists, seek medical advice immediately. Persons who become sensitized may require specialized medical management with anti-inflammatory agents.

Eye Contact: Flush immediately with clear clean running water for about 15 minutes. Hold eyelids apart to rinse the entire surface of the eye and lids. If eye symptoms (redness, irritation or pain) persist refer patient to ophthalmologist for examination of eyes.

Ingestion: Seek medical advice immediately. Rinse mouth thoroughly with water. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Apply artificial respiration if necessary. The patient should be kept under observation for at least 72 h. Treat symptomatically. Consult a physician for severe cases.

Inhalation: Move victim from contaminated area to fresh air. Irritating to respiratory system. Get medical advice if symptoms appear or after significant exposure. Apply artificial respiration if necessary. Treat symptomatically.

Advice to Physician: No signs and symptoms of triazine poisoning are known or expected in humans. Treat symptomatically when required. When large amounts have been ingested, gastric lavage or the administration of activated charcoal with water may be needed.

Antidote: There are no specific antidotes for these chemicals. Because manifestations of toxicity do occasionally occur in peculiarly predisposed individuals, maintain contact with victim for at least 72 hours so that unexpected adverse effects can be treated promptly.

5. FIRE FIGHTING MEASURES

Flammability: Non-flammable

Extinguishing Agents: Dry chemical, foam or standard foam. Water can be used for larger fires or cooling of unaffected stock but avoid the accumulation of polluted run-off from the site. Contain fire control water for later disposal.

Firefighting: If area is heavily exposed to fire and if conditions permit, let fire burn itself out since water may increase the contaminating area. Cool containers/tanks with spray water. Fire may produce irritating or poisonous vapors, mists or other products of combustion. Firefighters and others that may be exposed should wear full protective clothing and self-contained breathing apparatus.

Special Hazards: May generate poisonous and corrosive fumes containing carbon monoxide, nitrogen oxides and hydrochloric acid. Keep upwind. Keep product out of sewers and water sources. Use of contaminated buildings, area and equipment must be prevented until they are properly decontaminated

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: Do not contaminate ponds, waterways or ditches with chemical or used containers. Do not allow to enter drainage systems, surface or ground water. If the product enters watercourses or sewers or contaminate soil or plants, inform competent authority.

Spills: Shovel into suitable container for disposal or use approved industrial vacuum cleaner for removal. Do not flush spilled material into drains.

7. HANDLING AND STORAGE REQUIREMENTS

Suitable Material: This product should only be stored or applied using stainless steel, aluminium, fiberglass or plastic lined containers. Do not mix, store or apply in galvanized or unlined mild steel containers or spray tanks. The product can react with such containers and tanks or produce hydrogen gas which may form a highly combustible mixture that can flash or explode if ignited.

Handling: Harmful if swallowed. Avoid contact with skin, eyes and clothing. Do not leave the product in the applicator for long periods. Use with adequate ventilation. Wash hands before eating, drinking, chewing gum, smoking or using the toilet. Remove clothing immediately if the herbicide gets inside, then wash skin thoroughly using non-abrasive soap and put on clean clothing. Do not apply directly to areas where surface water is present or to intertidal areas below the mean high-water mark. Water used to clean equipment must be disposed of correctly to avoid contamination.

Storage: Store in original sealed containers in a well-ventilated and dry storehouse. Keep away from direct sunlight, open flames, food, seed, animals, children and uninformed persons. Store at temperature not exceeding 40 °C. Do not leave in applicators for extended periods.

8. EXPOSURE CONTROL / PERSONAL PROTECTION

Acceptable Daily Intake (ADI): 0.0035 mg/kg human body weight (Terbutylazine).

Occupational Exposure Limits (Hexazinone): NOEL (rat): 10mg/kg/day; DWEL: 1.05 mg/day; HA:0.20 mg/l (lifetime); LEL: 5 010 mg/kg/day (rat).

Engineering controls: Use outdoors in a well-ventilated area. Comply with occupational safety, environmental, fire and other applicable regulations. Wear suitable personal protective equipment.

Personal Protective Equipment:

Clothing: Long-sleeved shirt, long pants, shoes plus socks and protective (impermeable) gloves must be worn. 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. Safety glasses. The use of a face shield is strongly recommended. 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. Get medical attention incase of eye contact.

Respiratory: Avoid inhaling dust. Use an effective dust mask.

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 dust. 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: Granular herbicide.

Boiling Point: Not applicable.

Melting Point: 115 °C to 117 °C for Hexazinone.

Flash Point: Terbutylazine > 150 °C.

Flammability: Not combustible.

Explosive Properties: Not explosive.

Vapor Pressure: No data available.

Solubility in Water: 33 g/l (Hexazinone) at 25 °C and 8.5 mg/l (Terbuthylazine) at 20 °C.

Solubility in Solvent (Terbuthylazine): 100 g/l dimethylformamide; 40 g/l ethyl acetate; 14.3 g/l octan-1-ol.

Solubility in Solvent (Hexazinone): 388/100g chloroform; 265/100g methanol at 20 °C.

Neurotoxicity (Terbuthylazine): In case of heavy intoxication, symptoms of excitement and depression of the central nervous system may appear.

10. STABILITY AND REACTIVITY

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

Conditions to Avoid: Avoid sources of heat, free flames or spark generating equipment.

Incompatible Materials: This product should only be stored or applied using stainless steel, aluminium, fiberglass or plastic lined containers. Do not mix, store or apply in galvanized or unlined mild steel containers or spray tanks. The product can react with such containers and tanks or produce hydrogen gas which may form a highly combustible mixture that can flash or explode if ignited. Do not mix with other herbicides or pesticide except for products mentioned on the product label.

Decomposition Products: Thermal decomposition of the product may include toxic and corrosive fumes of chlorides and toxic oxides of carbon and nitrogen.

11. TOXICOLOGICAL INFORMATION

Acute toxicity based on the active ingredient toxicity.

Toxicity of Terbuthylazine:

Acute Oral LD₅₀ (rat): 1590 to 2000 mg/kg

Acute Dermal LD₅₀ (rat): > 2 000 mg/kg

Acute Inhalation LC₅₀ (rat, 4 hr): > 3.51 mg/l air.

Skin and Eye Irritation (rabbit): No skin or eye irritation.

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

Chronic Effects: No data available.

Carcinogenicity: Long-term animal studies did not show carcinogenic activity. No human information available.

Mutagenicity: No mutagenic in a series of tests using bacteria, cultured mammalian cells and whole animals. No human information available.

Reproductive Hazard: No data available.

Toxicity of Hexazinone:

Acute Oral LD₅₀ (rat): 1200 mg/kg

Acute Dermal LD₅₀ (rabbit): ≥ 2 000 mg/kg.

Acute Inhalation LC₅₀ (rat, 4 hr): > 2 mg/l air. Irritating to respiratory system. Avoid inhalation of dust.

Skin and Eye Irritation: Severe eye irritation. Risk of serious damage to eyes. The technical material produced persistent mild to moderate corneal cloudiness with transient severe conjunctivitis and slight to moderate iritis in unwashed rabbit eye.

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

Chronic Toxicity: Showed no evidence of cumulative toxicity when administered orally to male rats at a repeated dose of 300 mg/kg per day to a total of ten doses over a 2-week period. NOEL (2 year) for rats is 250 mg/kg diet.

Carcinogenicity: Group C- Possible human carcinogen (limited evidence of carcinogenicity in animals in the absence of human data).

Mutagenicity: No mutagenic was found in the Ames bacterial assay, Chinese hamster ovary cell point mutation assay or in the rat liver DNA repair assay. It was found to be positive in the in-vitro Chinese hamster ovary cell cytogenetic assay but negative in the in-vivo rat bone marrow cytogenetic assay.

Reproductive Hazards: In a 3-generation (3 litter) rat study with 90% powder, no adverse reproduction or lactation effects were seen at any level. Slightly depressed average weanling weights were noted in the second and third litters at 2 500 ppm only.

12. ECOLOGICAL INFORMATION

Ecotoxicity is based on the active ingredient toxicity.

Ecotoxicity of Terbutylazine:

Aquatic Toxicity Fish LC₅₀ (96 hr): 3.8-4.6 mg/l (rainbow trout); 52 mg/l (bluegill sunfish); 7 mg/l (carp and catfish).

Aquatic Toxicity Daphnia LC₅₀ (48 hr): 21.2 mg/l.

Aquatic Toxicity Algae EC₅₀ (72 hr): Highly toxic to algae.

Avian Toxicity LD₅₀ (9 days): No data available.

Bee Toxicity LD₅₀: No data available.

Biodegradability: Microbial degradation proceeds mainly by deethylation and hydroxylation, with eventual ring cleavage. DT₅₀ 30 – 60 days in biologically active soil.

Bio-accumulation: The product shows little or no tendency to bio accumulate and poses no long-term threat to wildlife.

Mobility: Leaches only slightly. Adsorption on soils is strong: $K_d = 2.2-25$, $K_{oc} = 162-278$ are typical values for light agricultural soils. The product is relatively mobile in soil and can result in the contamination of surface and ground water.

Eco-toxicity of Hexazinone:

Aquatic Toxicity Fish LC₅₀ (96 hr): 44.98 mg/l (rainbow trout). Slightly toxic to fish.

Aquatic Toxicity Daphnia LC₅₀ (21 days): > 20 mg/l and < 50 mg/l, with a no-observable effect level for productive impairment of 10 mg/l. Slightly toxic to daphnia.

Aquatic Toxicity Algae EC₅₀ (72 hr): Highly toxic to algae.

Avian Toxicity LD₅₀: >2 258 mg/kg. Minimally toxic to birds.

Bee Toxicity LD₅₀: Non-toxic to bees.

Biodegradability: Microbial degradation contributes to decomposition in soil. The triazine ring is broken to liberate CO₂. It shows a relative resistance to decomposition by ultra violet radiation. It slowly degrades in distilled water (under "artificial sunlight" about 20% in 8 weeks). The rate of photo degradation is about three times faster when small amounts of inorganic salts are present. In photo degradation studies on thin soil surfaces, 60% of the applied 14C material (10 ppm) was degraded during a 6-week exposure to UV light. Volatilization losses are negligible.

Bio-accumulation: It is not expected to bio-accumulate in aquatic systems.

Mobility: Freundlich isotherm constants (K-values) on Fallsington sandy-loam and Flanagan silt-loam were respectively 0.2 (slope 0.95) and 1.0 (slope 1.05).

13. DISPOSAL CONSIDERATION

Pesticide Disposal: Do not contaminate crops, grazing, rivers or dams with chemical or used containers. Contaminated absorbents, used containers, surplus product etc. should be burnt in an incinerator, preferably designed for pesticide disposal. The product is relatively stable and characterized by high terbutylazine mobility in some soils and should not be buried in dump sites, landfills, etc. Comply with any local legislation apply to waste disposal.

Package Product Wastes: Emptied containers retain dust and product residues. Observe all labelled safeguards until container is reconditioned or destroyed. Dispose of in approved landfill or preferably in a pesticide incinerator. Do not contaminate ponds, waterways or ditches with chemical or used container. Do not re-use empty container.

14. TRANSPORT INFORMATION

UN No.: 2763

Class: 6.1

Packaging Group: II

Proper Shipping Name: Triazine Pesticide, Solid, Toxic (contains Hexazinone and Terbutylazine).

Marine Pollutant: Considered a marine pollutant.

15. REGULATORY INFORMATION

Risk Phrases: R 20/22- Harmful by inhalation or if swallowed.

R 36- Irritating to eyes.

R40- Possible risks of irreversible effects.

R41- Risk of serious damage to eyes.

Safety Phrases: S2- Keep out of reach of children.

S13- Keep away from food, drink and animal feeding stuffs.

S20/21- When using, do not eat, drink or smoke.

S25/26- Avoid contact with eyes. In case of accidental contact with eyes, rinse immediately with plenty of warm water and seek medical advice.

S36/37- Wear suitable protective clothing and gloves.

S39- Wear eye/face protection.

S46- If swallowed, seek medical advice immediately and show this container and label.

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.

General: Hexazinone is a triazine herbicide used against many annual, biennial and perennial weeds as well as some woody plants. It is mostly used on non-crop areas. Hexazinone is a systemic herbicide that works by inhibiting photosynthesis in the target plants.

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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