

ENVIRO Glyphosate 360

SAFETY DATA SHEET

1. PRODUCT & COMPANY IDENTIFICATION

Product Name: ENVIRO Glyphosate 360
Pesticide Classification: Herbicide
UN No.: 3082

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

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: Glyphosate 360 g/l SL
Chemical Name: N-(phosphonomethyl)-glycine (IUPAC)
Empirical Formula: C₆H₁₇N₂O₅P
Cas No.: 38641-94-0
RSA Reg. No.: L4767 Act/Wet No. 36 of/van 1947
Namibia Reg. No.: N-AR 0700

2. COMPOSITION / INFORMATION ON INGREDIENTS

<u>Ingredient Name</u>	<u>Concentration</u>
Glyphosate isopropylamine salt	480 g/l (acid equivalent to 360 g/l)

3. HAZARD IDENTIFICATION

Hazard Class: WHO Class III -Slightly hazardous.

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

Flammability: Water based product, non-flammable.

Chemical Hazard: Irritating to eyes. Risk of serious damage to eyes.

Biological Hazard: Dangerous to fish. Approved for aquatic weed control if the instructions for use are followed.

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 glyphosate poisoning include headaches, dizziness, weakness, in-coordination, muscle twitching, tremors, nausea, abdominal cramps, diarrhoea and sweating. Blurred or dark vision, confusion, tightness in the chest, wheezing, productive coughing and pulmonary oedema may occur. Incontinence, unconsciousness and convulsions may indicate severe poisoning. Slow heartbeat and salivation may occur. Slowing of the heartbeat rarely progresses to complete sinus arrest. Respiratory depression may be fatal.

First Aid Measures:

Skin Contact: Remove contaminated clothing and wash before re-use. Wash affected skin areas with fresh running water and soap. Treat symptomatically.

Eye Contact: Hold eyes open and flush immediately with clear, clean running water for at least 15 minutes. If eye symptoms (redness, irritation or pain) persist refer patient to ophthalmologist for examination of eyes.

Ingestion: Seek medical advice immediately. Rinse mouth thoroughly. Dilute immediately by swallowing water. Treat symptomatically. Ingestions of small amounts (less than 10 mg glyphosate / kg body weight) occurring less than an hour before treatment, are probably best treated by Syrup of Ipecac (e.g. Lennon Ipekakuanha), followed by 1-2 glasses of water. The dose for adults and children over 12 years is 30 ml. The dose for children under 12 years is 15 ml.

Inhalation: Move victim from contaminated area to fresh air. Apply artificial respiration if necessary. Irritating to respiratory system. Avoid inhalation of vapor or spray mist. Treat symptomatically.

Advice to Physician: There is no specific antidote. Treat symptomatically and supportively as and when required. Remove by gastric lavage and catharsis, but not if victim is unconscious. Give oxygen if respiration is depressed.

Treatment: Treat symptomatically and supportively as and when required. Remove by gastric lavage and catharsis, but not if victim is unconscious. Give oxygen if respiration is depressed.

Ingestions of large amounts (more than 10 mg glyphosate/kg body weight) occurring less than an hour before treatment, should probably be treated by gastric lavage:

- 1) Intubate stomach and aspirate contents.
- 2) Lavage stomach with slurry or activated charcoal in 0.9% saline. Leave 30-50 gm activated in the stomach before withdrawing tube.
- 3) Sodium sulfate, 0.25 gm/kg in tap water, as a cathartic.

Observe the following precautions:

- 1) If the victim is unconscious or obtunded and facilities are at hand, insert an endotracheal tube (cuffed, if available) prior to gastric intubation.
- 2) Keep victim's head below level of stomach during intubation and lavage (Trendelenburg, or left lateral decubitus, with head of table tipped downward). Keep victim's head turned to the left.
- 3) Aspirate pharynx as regularly as possible to remove gagged or vomited stomach contents.

Ingestions occurring more than an hour before treatment are probably best treated only by activated charcoal, 30-50 gm, and sodium or magnesium sulfate, 0.25 gm/kg, as directed above.

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.

Antidote: There are no specific antidotes for these chemicals.

5. FIRE FIGHTING MEASURES

Flammability: Water based product, non-flammable.

Extinguishing Agents: Extinguish small fires with carbon dioxide, dry powder, or alcohol-resistant 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: Fire may produce irritating or poisonous vapours, 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: Slight fire or explosion hazard when exposed to heat and flame. Keep upwind. Avoid inhalation of hazardous vapours. Keep material out of sewers and water sources.

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: Dangerous to fish. Maximum permitted concentration in treated water is 0.2 ppm. Approved for aquatic weed control. Do not contaminate ponds, waterways or ditches with chemical or used container. 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.

Small Spills: Soak up with sand or other suitable non-combustible absorbent material, such as sawdust and place into containers for subsequent disposal.

Large Spills: Contain spillage and contaminated water for subsequent disposal. Do not flush spilled material into drains. Keep spectators away.

7. HANDLING AND STORAGE REQUIREMENTS

Suitable Material: 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. Mix, store and apply glyphosate solutions in stainless steel, aluminium, fibre glass, plastic or plastic-lined steel containers.

Handling: Poisonous if swallowed. Avoid contact with skin, eyes and clothing. 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 at temperature not exceeding 30 °C. Store in original sealed containers, in a well-ventilated and dry storehouse. Keep away from direct sunlight, food, seed, animals, children and uniformed persons. Do not leave spray solution in spray tanks for long periods.

8. EXPOSURE CONTROL / PERSONAL PROTECTION

Acceptable Daily Intake (ADI): 0.3 mg/kg human body weight (World Health Organization).

Engineering Controls: Use outdoors in a well-ventilated area. Comply with occupational safety, environmental, fire and other applicable regulations. Wear suitable personal protective equipment. Following application clean sprayer parts by flushing with water.

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. Clothing soaked with Enviro Glyphosate 360 solution should be promptly removed and laundered before re-use.

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 Enviro Glyphosate 360 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: Avoid inhaling fumes or spray drift. Respiratory protection is not required for normal use and handling. During periods of abnormal exposure to heavy spray or mist, use a NIOSH approved mist respirator. 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 in 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: Light-amber to light brown liquid.

Odor: No data available.

pH: 4.5 – 5.5

Melting Point (Glyphosate): 200 °C

Flash Point: >100°C. Water-based, non-flammable.

Flammability: Water-based, non-flammable.

Explosive Properties: Slight explosion hazard when exposed to heat and flame.

Oxidizing Properties: Corrosive to iron, steel and aluminium.

Density: 1.13 – 1.17 g/ml at 20 °C.

Solubility of Glyphosate in Water: 12 g/l (25 °C). Very soluble in water.

Solubility of Glyphosate in Solvent: Insoluble in common organic solvents e.g. acetone, ethanol and xylene.

10. STABILITY AND REACTIVITY

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

Conditions to Avoid: Glyphosate is stable up to 60 °C. Avoid excessive heat.

Incompatible Materials: Spray solutions containing this product should be mixed, 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. The product is relatively stable in neutral, weakly acidic and weakly alkaline media, but reacts strongly (and possibly violently) with strong alkalis. Mixing with other products may reduce the activity of glyphosate. Do not mix with other herbicides or pesticides except for products mentioned on the product label. Do not physically mix concentrate directly with other herbicides or a pesticide concentrates, always dilute first.

Decomposition Products: None known.

11. TOXICOLOGICAL INFORMATION

Acute toxicity based on the active ingredient toxicity.

Acute Oral LD₅₀ (rat): 5600 mg/kg

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

Acute Inhalation (rat, 4 hr): >1.3 mg/l air. Glyphosate is a moderately toxic herbicide.

Skin and Eye Irritation: It can cause significant eye irritation, but non-irritating to skin (rabbits).

Skin Sensitization (guinea pig): In a number of human volunteers, patch tests produced no visible changes or sensitization.

Chronic Dietary NOEL (24 month): No ill-effects were observed in rats and dogs receiving 300 mg/kg diet (highest dose treated). Sub-chronic and chronic tests with glyphosate have been conducted with rats, dogs, mice and rabbits in studies lasting from 21 days to two years. With few exceptions there were no treatment-related gross (easily observable) or cellular changes. In a chronic feeding study with rats, no toxic effects were observed in rats given doses as high as 31 mg/kg/day, the highest dose tested. No toxic effects were observed in a chronic feeding study with dogs fed up to 500 mg/kg/day, the highest dose tested. Mice fed glyphosate for 90 days exhibited reduced body weight gains. The lifetime administration of very high amounts of glyphosate produced only a slight reduction of body weight and some microscopic liver and kidney changes. Blood chemistry, cellular components and organ function were not affected even at the highest doses.

Carcinogenicity: Animal studies did not detect any carcinogenic effects. The US EPA has stated that there is sufficient evidence to conclude that glyphosate is not carcinogenic in humans.

Mutagenicity: The product was not clastogenic when tested with Chinese Hamster ovary cells and is not mutagenic in mouse lymphoma cells.

Reproductive Hazards: Most of the field and laboratory evidence shows that glyphosate produces no reproductive changes in test animals. It is unlikely that the compound would produce any reproductive effects in humans. It did not cause any teratogenic effects (birth effects).

12. ECOLOGICAL INFORMATION

Ecotoxicity is based on the active ingredient toxicity.

Aquatic Toxicity Fish LC₅₀ (96 hr): 86 mg/l (trout); 120 mg/l (bluegill sunfish).

Aquatic Toxicity Daphnia LC₅₀ (48 hr): >780 mg/l.

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

Avian Toxicity LD₅₀ (5-day diet): >4 500 mg/kg (mallard duck). Slightly toxic to birds.

Bee Toxicity LD₅₀: Non-tox to bees.

Biodegradability: Microbial degradation is the major cause of loss from soil, with liberation of carbon dioxide. The principle metabolite is amino-methylphosphonic acid. DT₅₀ is 3 days for salt and 60 days for the acid. Photodecomposition plays only a minor role in environmental breakdown. In water, glyphosate is strongly absorbed to suspended organic and mineral matter and is broken down primarily by microorganisms. Its half-life in pond water ranges from 12 days to 10 weeks.

Bio-accumulation: The product shows little or no tendency to bio accumulate and poses no long-term threat to wildlife. Glyphosate has no significant potential to accumulate in animal tissue.

Mobility: Glyphosate is highly absorbed on most soils especially those with high organic content. The compound is so strongly attracted to the soil that little is expected to leach from the applied area. Because glyphosate is so tightly bound to the soil, little is transferred by rain or irrigation water. One estimate showed less than two percent of the applied chemical lost to run-off. The herbicide could move when attached to soil particles in erosion run-off.

13. DISPOSAL CONSIDERATION

Pesticide Disposal: Do not contaminate crops, grazing, rivers or dams with chemical or used containers. Waste resulting from the use of this product that cannot be re-used or reprocessed should be disposed of in a landfill approved for pesticide disposal in accordance with applicable local procedures. Hydrolysis under alkaline conditions (10 % NaOH) is a suitable method to dispose of small quantities of the product. After hydrolysis, dilute and dispose of in a landfill. Comply with any local legislation applying to waste disposal.

Package Product Wastes: Emptied containers retain vapour and product residues. Observe all labelled safeguards until container is cleaned, reconditioned, or destroyed. Rinse empty container three times with a volume of water equal to at least one tenth of that of the container. Add the rinsings to the spray tank before perforating and flattening the container. Dispose of in approved landfill or preferably in a pesticide incinerator.

14. TRANSPORT INFORMATION

UN No.: 3082

Class: 9

Packaging Group: III

Shipping Name: Environmentally Hazardous, Liquid, N.O.S. (contains Glyphosate-isopropylammonium)

Marine Pollutant: Although glyphosate is practically non-toxic to fish, the formulated product is considered a marine pollutant.

15. REGULATORY INFORMATION

Risk Phrases: R20/22- Harmful by inhalation or if swallowed.

R36- Irritating to eyes. (Risk of serious damage to eyes).

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

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

S45- In case of accident or if you feel unwell, seek medical advice Immediately.

S61- Avoid release to the environment. Refer to special instructions / safety data sheets.

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: Glyphosate is a broad-spectrum, non-selective systemic herbicide. It is useful on essentially all annual and perennial plants including grassed, sedges, broad-leafed weeds and woody plants.

Emergency and First Aid Procedures: The chemical information provided has been condensed from original source documents, primarily from: "Morgan, D.P. 1982 Recognition and management of pesticide poisonings, 3rd ed. U.S. Environmental Protection Agency, Washington, DC. 120 pp". This information has been provided in this form for your convenience and general guidance only. In specific cases, further consultation and reference may be required and is recommended.

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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