

MATERIAL SAFETY DATA SHEET

GLYPHOSATE 360



Reg nr.: 2004/020524/07

PLANT PROTECTION

1. PRODUCT & COMPANY IDENTIFICATION

Product Name: GLYPHOSATE 360
Herbicide
UN No.: 3082
Supplier: Tsunami Plant Protection (Pty) Ltd
POBox 466, Heidelberg, 1438,
South Africa
Telephone: 011 812 9800
Fax: 011 812 9812

Emergency telephone: 011 812 9800
24 Hr Emergency Number: 082 771 2712
In case of Poisoning:
Tygerberg Hospital: (021) 931 6129
Unitas Hospital: 0800 111 990

2. COMPOSITION/INFORMATION ON INGREDIENTS

Common Name: Glyphosate
Chemical Name: N- (phosphonomethyl)glycine (IUPAC)
CAS No.: 38641-94-0
Chemical family: Phosphanoglycine
Chemical formula: C₆H₁₇N₂O₅P
Molecular weight: 228.2
Use: Non-selective, systemic herbicide absorbed through the leaves, with rapid translocation throughout the plant. Inactivated on contact with soil.
Formulation: glyphosate (glycine): 360 g a.e./λ
(isopropylamine salt: 480 g/λ)
Soluble Liquid
Active ingredients: Isopropylamine salt of glyphosate - 48%
Surfactant – 10 to 20 %
Symbol: Xn
Indication of danger: Harmful if swallowed
Risk Phrases: R 36, R 52, R 54

3. HAZARD IDENTIFICATION

Toxicity class: WHO Table 5; EPA III A low toxicity herbicide.
Likely routes of exposure: Skin contact, ingestion and inhalation.
Skin: May cause mild irritation. No adverse effects expected when recommended use instructions are followed.
Eye contact: May cause mild eye irritation. Cause temporary mild discomfort such as watering and redness of the eyes.
Ingestion: Minimally toxic.
Inhalation: Minimally toxic by inhalation.

4. FIRST AID MEASURES AND PRECAUTIONS

Symptoms of glyphosate poisoning include: headache, vomiting and diarrhoea.

Inhalation:

Remove source of contamination, or move victim to fresh air. Keep affected person warm and at rest. Treat symptomatically and supportively. Administration of oxygen should be performed by qualified personnel. Get medical attention if effects persist.

Skin contact:

Move the victim to fresh air and remove all contaminated clothing, shoes and leather goods. Gently wipe off excess chemical. Wash affected skin areas gently and thoroughly with water and non-abrasive soap. Do not rub the skin. If irritation persists, seek medical advice.

Eye contact :

Immediately flush the eyes with clean, gently flowing lukewarm water or saline solution for 20 minutes, holding the eyelid(s) open. If irritation persists, seek medical advice.

Ingestion:

Have victim rinse mouth thoroughly with water. Do not induce vomiting. Seek medical advice immediately showing container and label.

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.

5. FIRE FIGHTING MEASURES

Fire and explosion hazard:

Flash point: None – water based.

This material is not flammable.

Extinguishing agents:

Extinguish fires with carbon dioxide, dry powder, or alcohol-resistant foam. Water spray can be used for cooling of unaffected stock, but avoid water coming in contact with the product. Use as little water as possible. Use spray or fog. Solid stream may cause spreading. Contain water used for fire fighting for later disposal.

Hazardous products of combustion:

Carbon monoxide (CO), phosphorous oxides (P_xO_y) and nitrogen oxides (NO_x)

Fire fighting:

Remove spectators from surrounding area. Remove container from fire area if possible. Contain fire control agents for later disposal. Use a recommended extinguishing agent for the type of surrounding fire. Avoid inhaling hazardous vapours and fumes from burning materials. Keep upwind.

Personal protective equipment:

Fire may produce irritating or poisonous vapours (toxic fumes of carbon monoxide, phosphorous oxides and nitrogen oxides), mists or other products of combustion. Fire fighters and others that may be exposed should wear full protective clothing and self-contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES (SPILLAGE)

Personal precautions:

Avoid contact with skin and eyes. Do not breathe in spray or fumes. For personal protection see Section 8.

Environmental precautions:

Do not allow entering drains or watercourses. Spillage or uncontrolled discharges into water courses (or public waters) to be

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reported immediately to the Police and to the Department of Water/Environmental Affairs.

Occupational spill:

Remove all sources of flames and sparks. For small liquid spills, soak up with lime, damp earth or sand, or other non-combustible absorbent material and place into containers for later disposal. For large liquid spills, contain the liquid for later disposal. In situations where product comes in contact with water, contain contaminated water for later disposal. Do not flush spilled material into drains. Keep spectators away.

7. HANDLING AND STORAGE REQUIREMENTS

Handling:

Avoid contact with eyes, prolonged contact with skin, and inhalation of spray and fumes. Handle product with caution. 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 a non-abrasive soap and put on clean clothing. Operators should change and wash clothing after use. 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 its original, labelled and closed container in dry, cool, shaded, well-ventilated area, away from heat, sparks and other sources of ignition. Do not store with other pesticides, fertilizer, seeds, foodstuffs and water supplies. Store away from incompatible substances. Product is incompatible with galvanized steel or unlined mild steel. Keep out of reach of unauthorized persons, children and animals. Local regulations should be complied with.

8. EXPOSURE CONTROL / PERSONAL PROTECTION

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. Comply with occupational safety, environmental, fire and other applicable regulations.

PERSONAL PROTECTIVE EQUIPMENT:

If engineering controls and work practices are not effective in controlling exposure to this material, then wear suitable personal protective equipment including approved respiratory protection.

Respirator:

It is usually safe to use the product without a mask or respirator. If the product is used in dusty or confined conditions, a mask or 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.

Clothing:

Employee must wear appropriate protective (impervious) clothing and equipment to prevent repeated or prolonged skin contact with this substance.

Gloves:

Employee must wear appropriate synthetic protective gloves to prevent contact with this substance.

Eye protection:

Wear safety goggles or face shield.

Emergency eye wash: 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.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Clear golden yellow to amber liquid.
Odour:	Mild halide odour.
Relative density:	1.165 ± 0.05 g/cm ³
Solubility in water:	Completely miscible.
Flash point:	None. Water based. Does not flash.
pH:	4,94
Oxidising properties:	None.
Corrosiveness:	Corrosive to galvanized steel and mild steel.

10. STABILITY AND REACTIVITY

Stability:

Stable under normal temperatures and pressures. Glyphosate reacts strongly (possibly violent exothermic reaction) with strong alkalis. Photodecomposition is negligible. Is stable to light and also stable up to 60 °C. Product is unlikely to spontaneously polymerise or decompose. Decompose only after heating to dryness followed by further heating.

Glyphosate may be photolabile in natural waters, with calcium or other metal ions acting as catalysts for the process.

Dilution stability:

Stable in aqueous solutions at 20 °C.

Storage stability:

Stable for 2 years under normal warehouse conditions. Store at temperatures below 50 °C and above -15 °C. Stable to light. Partial crystallization may occur on prolonged storage below -15 °C.

Incompatibility:

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. Incompatible with galvanized steel and unlined mild steel materials for storage.

Thermal decomposition:

Toxic oxides of carbon, nitrogen and phosphorus are released when the product decomposes on heating.

11. TOXICOLOGICAL INFORMATION

Acute oral LD₅₀:

5400 mg/kg in rats.

Acute dermal LD₅₀:

> 5 000 mg/kg in rats.

Inhalation:

Technical: LC₅₀ (4 hours): > 1,3 mg/λ.

Acute skin irritation:

Not irritating to skin (rabbit). Not skin sensitizer.

Acute eye irritation:

Slightly irritating to eyes (rabbit).

Carcinogenicity:

Animal studies did not detect any carcinogenic effects.

Teratogenicity:

Animal studies did not detect any teratogenic effects.

Mutagenicity:

Animal studies did not detect any mutagenic effects.

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Reproductivity:

Reproductive changes in test animals only occur at very high doses. It is unlikely that glyphosate would produce effects in humans.

12. ECOLOGICAL INFORMATION**Degradability:**

Glyphosate is moderately persistent in soil, with estimated half-life of 47 days. Microbes are primarily responsible for breakdown.

Glyphosate is strongly adsorbed to suspended organic and mineral matter in water, and broken down primarily by microbes. Half-life ranges from 12 days to 10 weeks.

Mobility:

The product is practically immobile. It is strongly absorbed to most soils. It does not leach appreciably, and has low potential for runoff.

Accumulation:

The product shows little or no tendency to bioaccumulate and poses no long term threat to wildlife.

ECOTOXICOLOGY:**Birds: Slightly toxic.**

LC ₅₀ (5-day diet):	Mallard duck:	> 4500 mg/kg diet
	Bobwhite quail:	> 4500 mg/kg diet

Fish: Not toxic.

LC ₅₀ (96 hours):	Bluegill sunfish:	> 1000 mg/λ
	Trout:	> 1000 mg/λ
	Fathead minnows	97 mg/λ

Due to surfactant, GLYPHOSATE 360 is moderately toxic to fish.

Bees: Not toxic.

LD₅₀ oral & dermal: > 0.1 mg/bee

Daphnia:

LC₅₀ (48 hours): 930 mg/λ

Earthworms:

LC₅₀ (14 days): *Eisenia foetida*: > 5000 mg/kg soil

Other Beneficial organisms:

No effect on carabid beetles. Harmless to slightly harmful to green lacewing, parasite species, mites / spiders and insects. Moderately harmful to *Bembidion lampros*.

13. DISPOSAL CONSIDERATION**Pesticide disposal:**

Open dumping or burning of this pesticide is prohibited. Waste resulting from the use of this product that cannot be reused or reprocessed. Never pour untreated waste or surplus products into public sewers or where there is any danger of run-off or seepage into water systems. Do not contaminate rivers, dams or any other water sources with the product or used containers. Comply with local legislation applying to waste disposal.

Container disposal:

Emptied containers retain vapour and product residues. Observe all labelled safeguards until container is destroyed.

TRIPLE RINSE empty containers in the following manner: Invert the empty container over the spray or mixing tank and allow to drain for at least 30 seconds after the flow has slowed down to a drip. Thereafter rinse the container three times with a volume of water equal to a minimum of 10 % of that of the container. Add the rinsings to the contents of the spray tank before destroying the container in the prescribed manner.

Do not re-use the empty container for any other purpose but destroy it by perforation and flattening and bury in an approved dump site. Prevent contamination of food, feedstuffs, drinking water and eating utensils.

Comply with local legislation applying to waste disposal.

14. TRANSPORT INFORMATION

UN NUMBER: 3082

Road Transport ADR/IRD:

Class: 9
Packing group: III
Shipping name: Environmentally hazardous substance, liquid, N.O.S. (herbicide - glyphosate)

Maritime Transport IMDG/IMO:

Class: 9
Packing group: III
Shipping name: Environmentally hazardous substance, liquid, N.O.S. (herbicide - glyphosate)

Considered a Marine Pollutant.

15. REGULATORY INFORMATION

Symbol: N

Indication: Environmentally dangerous substance.

Risk phrases:

R 36 Irritating to eyes.
R 52 Harmful to aquatic organisms.
R 54 Toxic to flora.

Safety phrases:

S 2 Keep out of reach children.
S 2425 Avoid contact with skin and eyes.
S 36/37/39 Wear suitable protective clothing, gloves and eye/face protection.
S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
S 61 Avoid release to the environment.

16. OTHER INFORMATION**Packaging and Labelling:**

Packed in 200 ml, 500ml & 1, 2, 5, 10, 20 and 25 λ fluorinated plastic containers and labelled according to South African regulations and guidelines.

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 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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Compiled: May 2002 **Reviewed:** December 2005