

1. PRODUCT AND COMPANY IDENTIFICATION

SUPPLIER: DOW AGROSCIENCES (PTY) LTD
Private Bag X160,
Bryanston.
2021

EMERGENCY TELEPHONE NUMBERS

SPILLAGES:

Emergency telephone (+27) 032 5330716 or
082 887 8079

Fax (+27) 032 5336134

POISONINGS:

National Poison Centre 021-9386084 (office hours).
021-9316129 (after hours).

UOFS Pharmacology/Toxicology information centre:
0824910160

Trade Name DOUBLEDGE 525 SC
HERBICIDE.

Use: A suspension concentrate herbicide with systemic and residual action for pre- and post-emergence control of annual and perennial broadleaf weeds and grasses in industrial areas.

2. COMPOSITION / INFORMATION ON INGREDIENTS

Active ingredient Terbutylazine/Glyphosate IPA
Components Terbutylazine 345 g/l,
Glyphosate 180 g/l a.e.

CAS No. 5915-41-3 (Terbutylazine)
38641-94-0 (Glyphosate IPA)

Chemical Formula Not applicable

NIOSH/RTECS no. XY4550000 (Terbutylazine)
MC1075000 (Glyphosate)

UN no. 3082

Risk Phrases: R20/22, R36, R51/53

3. HAZARD IDENTIFICATION

WHO Classification:

Terbutylazine: III

Glyphosate: III

Main hazard: Toxic to algae.

Biological hazards:

Skin contact, ingestion and inhalation.

Eye contact:

May cause moderate eye irritation.

Skin contact:

Minimally toxic. Non-irritating to skin.

Ingestion:

Minimally toxic.

Inhalation:

Minimally toxic by inhalation.

Reproductive hazard: See section 11.

Carcinogenicity: See section 11.

Mutagenicity: See section 11.

Neurotoxicity: See section 11.

4. FIRST AID MEASURES

Glyphosate is practically nontoxic by ingestion or skin exposure.

Terbutylazine:

Adverse effects in humans have not been reported.

Inhalation :

Remove source of contamination or move victim to fresh air.

Keep person warm and at rest. Treat symptomatically and supportively. Obtain medical advice if necessary.

Skin contact :

Remove contaminated clothing, shoes and leather goods.

Gently wipe off excess chemical. Wash skin gently and thoroughly with water and non-abrasive soap. Seek medical advice if necessary.

Eye contact :

Immediately flush the eyes with gently flowing lukewarm water or saline solution for 20 minutes, holding the eyelid(s) open.

Seek medical attention if necessary.

Ingestion:

Have victim rinse mouth thoroughly with water. Do not induce vomiting. Remove by gastric lavage and catharsis. Give oxygen if respiration is depressed. Do not perform gastric lavage if victim is unconscious. Administration of gastric lavage and oxygen should be performed by qualified medical personnel. 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

Extinguishing agents:

Extinguish **small fires** with carbon dioxide, dry powder, or alcohol-resistant foam. Water spray can be used for **larger fires** or cooling of unaffected stock, but avoid the accumulation of polluted run-off from the site.

Firefighting:

Remove container from fire area if possible. Contain fire control water for later disposal. Use a recommended extinguishing agent for the type of surrounding fire. Keep material out of sewers and water sources. Avoid inhalation of hazardous vapours. Keep upwind.

Special hazard:

No fire hazard.

Personal protective equipment:

Fire may produce irritating or poisonous vapours (toxic oxides of carbon, nitrogen and phosphorus), 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

Personal precautions:

Avoid contact with skin and eyes. Do not inhale fumes. For personal protection see Section 8.

Environmental precautions:

Do not allow entering drains or watercourses. When the product contaminates public waters, inform appropriate authorities in accordance with local regulations.

Small spills:

For small liquid spills, soak up with sand or other suitable noncombustible absorbent material, such as sawdust, and place into containers for subsequent disposal.

Large spills:

For large spills, contain liquid far ahead of spill. Contain spillage and contaminated water for subsequent disposal. Do not flush spilled material into drains. Keep spectators away.

7. HANDLING AND STORAGE

Handling:

Harmful by inhalation or if swallowed. Avoid contact with eyes, prolonged contact with skin, and inhalation of spray and fumes. 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. 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 labeled container in shaded, well-ventilated area, away from heat, sparks and other sources of ignition. Do not store in galvanized steel or unlined steel containers. Not to be stored next to foodstuffs and water supplies. Keep out of reach of children and animals. Local regulations should be complied with.

8. EXPOSURE CONTROL / PERSONAL PROTECTION

Occupational exposure limits:

TLV not established.

Engineering control measures:

It is essential to provide adequate ventilation. The measures appropriate for a particular worksite 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. 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.

PERSONAL PROTECTIVE EQUIPMENT:

Respirator:

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.

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:

The use of safety goggles is recommended.

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:

White to off-white liquid.

Odour:

Mild halide odour.

Explosive properties:

No thermal sensitivity.

Oxidising properties:

None.

pH:

4.5 - 5.0 (5 % solution).

Density:

1,155 g/ml at 20 °C

Solubility in water:

This formulation will mix with water.

Flash point:

Not applicable.

Boiling point:

Not applicable.

10. STABILITY AND REACTIVITY

Stability:

Stable under normal temperatures and pressures. Photodecomposition is negligible. Glyphosate is stable to light and also stable up to 60 °C. Glyphosate may be photolabile in natural waters, with calcium or other metal ions acting as catalysts for the process. Terbutylazine is stable in neutral, weakly acidic and weakly alkaline media. Hydrolysed by strong acids, alkalis and heating. Most stable under well ventilated conditions. Not normally affected by variable conditions of humidity.

Incompatibility:

No data available. See label.

Hazardous decomposition products:

Toxic oxides of carbon, nitrogen and phosphorus are released when glyphosate decomposes on heating. Hydrogen chloride and toxic oxides of nitrogen are released when terbutylazine decomposes on heating.

11. TOXICOLOGICAL INFORMATION

Acute oral LD₅₀ :

Glyphosate : > 5 000 mg/kg in rats.

Terbutylazine: 1 590 - >2 000 mg/kg in rats

Acute dermal LD₅₀ :

Glyphosate: > 2 000 mg/kg in rats.

Terbutylazine: > 2 000 mg/kg in rats.

Acute inhalation LC₅₀ (4 h):

Glyphosate: > 4.46 mg/ℓ (4.46 mg/ℓ maximum concentration obtained)

Terbutylazine: >5.3 mg/ℓ of air over 4 hours

Acute skin irritation:

Glyphosate and terbutylazine are not irritating to skin (rabbit).

Acute eye irritation:

Glyphosate and terbutylazine are considered to be non-irritating (rabbit).

Dermal sensitisation:

Glyphosate and terbutylazine are considered to be weak dermal sensitizers (guinea pig).

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.

12. ECOLOGICAL INFORMATION

ECOTOXICOLOGY:

Birds:

Low toxicity to birds.

Glyphosate: Acute oral LD₅₀: > 2 000 mg/kg (bobwhite quail)

Terbutylazine active: Acute oral LD₅₀ :> 1000 mg/kg (ducks and quail)

Fish:

Glyphosate:

Non-toxic to fish.

LC₅₀ (96 hr): 536.96 mg/ℓ (rainbow trout)

Terbutylazine:

Toxic to fish.

LC₅₀ (96 hr): 4.6 mg/ℓ (rainbow trout)

9.4 mg/ℓ. (gold fish)

52.0 mg/ℓ (bluegill sunfish)

66.0 mg/ℓ (crucian carp)

Bees:

Glyphosate: LD₅₀ > 100µ g/bee

Terbutylazine: Relatively non-toxic.

LD₅₀ (oral and contact): > 100 µg / bee.

Daphnia:

Glyphosate: Very low toxicity to *Daphnia magna*.

EC₅₀ (48 h): > 71.8 mg/ℓ.

Terbutylazine: Unlikely to pose a hazard to Daphnia.

EC₅₀ was 21.2 mg/ℓ.

Algae:

Terbutylazine EC₅₀ (72h) : *Scenedesmus subspicatus*: 0,016 to 0,024 mg/ℓ. Toxic to algae.

Earthworms:

Glyphosate:

Not toxic to earthworms.

The reported contact LC50 values for earthworms in soil are greater than 5000 ppm

Terbuthylazine:

LC₅₀ (7 d): >200 mg/kg soil.

Degradability:

Glyphosate is strongly adsorbed to soil and therefore becomes practically immobile. Microbial degradation is the major cause of loss from soil, with liberation of carbon dioxide. The principal metabolite is aminomethylphosphonic acid. In soil the half life of the product is less than 60 days.

Terbuthylazine may be subject to slow degradation in soil which may be due to both slow chemical hydrolysis and slow biodegradation. Degradation may be slower under cold or dry conditions.

Mobility:

Glyphosate is practically immobile and is unlikely to leach. Terbuthylazine is relatively mobile in soil and can result in the contamination of surface and ground water.

Accumulation:

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

German wgk:

Not available.

13. DISPOSAL CONSIDERATIONS

Pesticide disposal:

Waste resulting from the use of this product that cannot be reused or reprocessed should be disposed of in a landfill approved for pesticide disposal or in accordance with applicable local procedures. Hydrolysis under alkaline conditions is a suitable method to dispose of small quantities of the product. After hydrolysis, dilute and dispose of in pits or landfill. Comply with any local legislation applying to waste disposal.

Package product wastes:

Emptied containers retain vapour and product residues. Observe all labeled safeguards until container is cleaned, reconditioned or destroyed. Combustible containers should be disposed of in pesticide incinerators. Non-combustible containers must first be triple-rinsed with water, punctured and recycled or disposed of.

14. TRANSPORT INFORMATION

UN NUMBER: 3082

ADR:

Shipping name: Environmentally hazardous substance, liquid, n.o.s.

Class: (Terbuthylazine and Glyphosate) 9
Classification code: M6
Packaging group: III
Label: 9
Hazard ID no.: 90

IMDG/IMO:

Shipping name: Environmentally hazardous substance, liquid, n.o.s. (Terbuthylazine and Glyphosate)
Class: 9
Packaging group: III

IATA:

Shipping name: Environmentally hazardous substance, liquid, n.o.s. (Terbuthylazine and Glyphosate)
Class: 9
Packaging group: III
Passenger aircraft: Y914 (30 kg), 914 (No limit).
Cargo: 914 (No limit)

Tremcard no: 90GM6-III

15. REGULATORY INFORMATION

Symbol : Xn; N
Indication of danger: Harmful; Dangerous for the environment.

Risk phrases :

R 20/22 Harmful by inhalation or if swallowed.
R 36 Irritating to eyes.
R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety phrases:

S 2 Keep out of reach children.
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.

National legislation: In accordance with the South African National Road Traffic Act, 1996 (Act 93 of 1996), the Fire Brigade Act, 1987 (Act 99 of 1987) and the Occupational Health and Safety Act, 1993 (Act. No. 85 of 1993)

16. OTHER INFORMATION

Compiled by: Danie Fourie

REFERENCES

- Applicable own physical and chemical, toxicity and ecotoxicity research studies.
- *The Pesticide Manual*; Eleventh Edition; Editor Clive Tomlin; Crop Protection Publications, 2003
- *Dangerous Goods Regulations, 47th Edition. Effective 1 January 2006.*
- *IMDG Code, Vol 2, 2005 Edition.*
- *ADR, Vol. 1, 2005 Edition.*
- EXTOWNET, PIP
- SABS 0265:1999.

All information and instructions provided in this Material Safety Data Sheet (MSDS) are based on the current state of scientific and technical knowledge at the date indicated on the present MSDS and are presented in good faith and believed to be correct. This information applies to the PRODUCT AS SUCH. In case of new formulations or mixes, it is necessary to ascertain that a new danger will not appear. It is the responsibility of persons in receipt of this MSDS to ensure that the information contained herein is properly read and understood by all people who may use, handle, dispose or in any way come in contact with the product. If the recipient subsequently produces formulations(s) containing this product, it is the recipients sole responsibility to ensure the transfer of all relevant information from this MSDS to their own MSDS.

END OF MSDS.