

MATERIAL SAFETY DATA SHEET

SUBJECT: MOLOPO 200 GG
DOCUMENT NO: PS 057
EFFECTIVE DATE: APRIL 2000
REVISED: March 2010
REVISION NO: 5
PAGE : 1 of 4
PRODUCT CODE: -----

1. PRODUCT AND COMPANY IDENTIFICATION

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

EMERGENCY TELEPHONE NUMBERS
SPILLAGES:

Emergency telephone (+27) 32 5330716 or
 082 887 8079
Fax (+27) 32 5336134

POISONINGS:

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

UOFS Pharmacology/Toxicology information centre:
 082 491 0160

Trade name MOLOPO 200 GG
 HERBICIDE

Use: A ready to use soil applied granular
 herbicide for agricultural use with a
 long residual action for the control
 of certain tree and shrub species.

2. COMPOSITION / INFORMATION ON INGREDIENTS

Active ingredient Tebuthiuron 200g/kg
Common name Tebuthiuron
Chemical Name 1-(5-(t-butyl)-1,3,4-thiadiazol-2-yl)-
 1, 3-dimethylurea
CAS No. 34014-18-1
Chemical Family urea
Chemical Formula C₉H₁₆N₄OS (Mol weight: 228,35)
NIOSH/RTECS no YS4250000
EINECS no 251-793-7

UN no. 3077

Risk Phrases: R22, R36/37, R51/53

3. HAZARD IDENTIFICATION

Toxicity class: WHO (a.i.) III; EPA(Formulation) III

ADI (JMPR): 0.20 mg/kg/day based on a two-year rat
 feeding study (NOEL) of 20 mg/kg/day) and
 using 100-fold safety factor.
NOEL: 50 mg/kg in 90-day rat feeding study;
 40 mg/kg in -year rat feeding study.
Main hazard: May cause slight eye and skin irritation.
 Toxic to alagae.

Eye contact:
 May cause mild eye irritation.

Skin contact:
 Mild skin irritant.

Ingestion:
 Harmful if ingested in large amounts.

Inhalation:
 At room temperature, vapors are minimal due to physical
 properties; a single exposure is not likely to be hazardous.

4. FIRST AID MEASURES

Inhalation:
 Move patient from the toxic environment to fresh air.

Skin contact:
 Wash exposed area extremely thoroughly with soap and water.
 A physician may need to examine the area if irritation or pain
 persists after washing.

Eye contact:
 Exposed eyes should be irrigated with copious amounts of
 room temperature water for at least 15 minutes. If irritation,
 pain, swelling, lacrimation, or photophobia persist after 15
 minutes of irrigation, an ophthalmologic examination should be
 performed.

Ingestion:
 If swallowed, seek medical attention. Do not induce vomiting
 unless directed to do so by medical personnel.

Advice to the physician
 There is **no specific antidote**. Supportive care. Treatment must
 be based on judgment of the physician in response to reactions
 of the patient.

5. FIRE FIGHTING MEASURES

Special hazards: There is no fire or explosion hazard.

Hazardous decomposition products: Oxides of nitrogen and
 sulfur may be formed if product is involved in fire.

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

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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. Avoid inhaling hazardous vapours. Keep material away from water sources and sewers. Do not touch material and avoid breathing dusts and fumes. Keep upwind.

Protective clothing:

Fire may produce irritating or poisonous vapours (toxic oxides of carbon and nitrogen), 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 breathe in dust or 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.

Occupational spill:

For small dry spills, sweep up and place the material into a clean, dry container and cover for subsequent disposal. For larger spills contain spilled material 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**Storage stability:**

Stable under normal storage conditions.

Incompatibility:

The active ingredient is stable in aqueous media between pH 5 and pH 9. Hydrolyzed at higher temperatures by strong alkalis and strong acids.

Hazardous decomposition products:

Thermal decomposition may release toxic oxides of carbon, nitrogen and sulfur.

8. EXPOSURE CONTROL / PERSONAL PROTECTION**Occupational exposure limits:**

Not available.

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:**

Off-white to light brown granules.

Odour:

Mild odour.

Flammability:

Not applicable

Explosive properties:

Not explosive.

Flash point:

Not applicable.

Oxidising properties:

Not oxidising.

Bulk density:

Not available.

10. STABILITY AND REACTIVITY**Storage stability:**

The Granules are stable under normal storage conditions.

Hazardous decomposition products:

Thermal decomposition may release toxic oxides of carbon, nitrogen and sulfur.

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11. TOXICOLOGICAL INFORMATION
Data as for Tebuthiuron Technical:
Acute oral LD₅₀ :

596 -720 mg/kg (male rats)

Acute dermal LD₅₀:

> 2000 mg/kg (male and female rats)

Acute inhalation LC₅₀ :

The inhalation by animals of 3.7 mg/L technical tebuthiuron for 4 hours did not cause toxicity.

Acute skin irritation:

Mild skin irritant.

Acute eye irritation:

Mild eye irritant.

Dermal sensitisation:

No dermal or systemic evidence of contact hypersensitivity

Carcinogenicity:

Animal studies did not detect any carcinogenic activity. No human information available.

Teratogenicity:

No evidence of teratogenicity

Mutagenicity:

In-vitro mutagenicity studies were negative. Animal mutagenicity studies were negative.

12. ECOLOGICAL INFORMATION
ECOTOXICOLOGY :
Data as for Tebuthiuron Technical:
Birds:

Oral LD₅₀ > 2 000 mg/kg (- mallard ducks)

Fish:

144,0 mg/l (96 hour LC50) - Rainbow trout

31.07 mg/l (96 hour LC50) - *Brachydanio rerio*)

Daphnia pulex:

155.23 mg/l (48 hour EC50 - *Daphnia similis*)

Earthworms

690.18 mg/kg silicon

Algal toxicity EC₅₀:

For green algae is 0.092mg/L.(500 SC). Very toxic to algae.

FATE AND BEHAVIOUR IN PLANTS :

Molopo 200 GG is a highly active non-selective herbicide that works through root-uptake in plants.

Do not contaminate water sources by disposing of waste or equipment wash water.

Do not apply Molopo 200 GG herbicide near desirable trees or other woody species. Exposure of even a small part of a plant root system to Molopo 200 GG, may cause severe plant injury

or kill. The residual action of Molopo 200 GG in the treated area may be impaired if fire occurs within 36 months of application.

Persistence:

Tebuthiuron is highly persistent in soil. Reported field half-lives are from 12 to 15 months in areas with over 1000 mm annual rainfall, with longer half-lives expected in drier areas or in soils with high organic matter content.

13. DISPOSAL CONSIDERATIONS
Pesticide disposal:

Contaminated absorbents, used containers, surplus product, etc., should be burnt at > 1000°C in an incinerator, preferably designed for pesticide disposal. Where no incinerator is available, hydrolysis under alkaline conditions is a suitable method to dispose of small quantities of the product. Before disposal of the resultant waste, the material must be analysed to ensure that the active ingredient has been degraded to a safe level. Treated waste must be buried in approved landfill. Never pour untreated waste or surplus products into public sewers or where there is any danger of run-off or seepage into water systems. Comply with 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. Pour rinse water into spray tanks.

14. TRANSPORT INFORMATION

UN NUMBER: 3077

ADR/RID:

Substance: Environmentally hazardous substance, solid, n.o.s (Tebuthiuron 20 %)

Class: 9
Classification code: M7
Packaging group: III
Hazard ID no.: 90
Label: 9

IMDG/IMO:

Shipping name: Environmentally hazardous substance, solid, n.o.s. (Tebuthiuron 20 %)

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Class: 9
 Label: 9 Marine pollutant
 Packaging group: III

ICAO/IATA:
 Proper Shipping name: Environmentally hazardous substance, solid, n.o.s (Tebuthiuron 20%)
 Class: 9
 Label: 9 Miscellaneous.
 Packaging group: III
 Passenger Aircraft: Y911 (max 30 kg Gross weight)
 911 (No Limit)
 Cargo Aircraft: 911 (No Limit)

Tremcard number 90GM7-III

- *The Pesticide Manual*; Thirteenth Edition; Editor Clive Tomlin; Crop Protection Publications, 2003.
- *SABS 0265:1999*.
- *Dangerous Goods Regulations*; IATA; International Air Transport Association, 47th Edition, Effective 1 January 2006.
- *IMDG CODE, Vol 2, 2005 Edition*.
- *ADR, Vol.1, 2005*

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.

15. REGULATORY INFORMATION

Symbol : Xn, Harmful; N-Dangerous for the environment.
Risk phrases :
R 22 Harmful if swallowed.
R36/38 Irritating to eyes and skin.
R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
Safety phrases:
S 2 Keep out of reach of children.
S36/ 37/39 Wear suitable protective clothing, gloves and eye protection.
S61 Avoid release to the environment. Refer to special instructions/Safety data sheets.
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

Prepared by: Danie Fourie

REFERENCES

- Applicable to own physical and chemical, toxicity and ecotoxicity research studies.