



MATERIAL SAFETY DATA SHEET

APHICIDE

Date Issued: May 2014 and is valid for 3 years from this date.

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Revision No: 6

Print Date: 9/2/16

1. PRODUCT AND COMPANY IDENTIFICATION

TRADE NAME: APHICIDE

SUPPLIER: EFEKTO

PO BOX 652147

BENMORE

2010

TEL No. 011 287 5700

EMERGENCY TELEPHONE NUMBERS:

SPILLAGES: 083 1233 911

Fax: 086 685 3129

POISONINGS:

Tygerberg Hospital National Poison Centre 021-9316129 (all hours)

Griffon Poison Centre 082 446 8946

Use: A systemic emulsifiable insecticide concentrate, with contact and stomach action.

2. HAZARDS IDENTIFICATION

- Dangerous for the environment
- Flammable due to solvent.

This compound inhibits cholinesterase enzyme activity in the nervous tissue. .
Likely routes of exposure: Skin and eye contact, ingestion and inhalation.

Ingestion:

Harmful by ingestion. See point 4 for symptoms.

Inhalation:

Harmful by inhalation. See point 4 for symptoms.

Skin contact:

Harmful in contact with skin. Not irritating to skin.

Eye contact:

May be irritating to eyes

Carcinogenicity: See section 11.

Mutagenicity: See section 11.

Neurotoxicity: See section 11.

Reproductive /Teratogenicity: See section 11.

Symbol: Xn;F

Risk phrases: R10; R20/21/22; R52, R65; R66; R67

UN No.: 2784



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3. COMPOSITION/INFORMATION ON INGREDIENTS

Active ingredients:

Active ingredients.	CAS No.:	EC No.:
Dimethoate 400 g/l	60-51-5	200-480-3
Inerts Balance		

Chemical Name: O,O-dimethyl S-methylcarbamoylmethyl phosphorodithioate, (IUPAC)

Chemical Family: Organophosphate

Chemical Formula: $C_5H_{12}NO_3PS_2$

NIOSH/RTECS No.: TE17500

4. FIRST-AID MEASURES

Symptoms of exposure to the product include: nausea, headache, tiredness, giddiness, blurred vision and pupillary constriction. Depending on severity of poisoning these symptoms become worse with the onset of vomiting, abdominal pain, diarrhea, sweating and salivation. Confusion, ataxia, slurred speech, loss of reflexes are some of the central nervous system effects that may lead to misdiagnosis of acute alcoholism.

Inhalation:

Remove source of contamination or move victim to fresh air. Keep affected person warm and at rest. Supply oxygen if necessary. Treat symptomatically and supportively.

Seek medical advice immediately.

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. Persons who become sensitised may require specialised medical management with anti-inflammatory agents.

Eye contact:

Immediately flush eyes with gently flowing cold water or saline solution for 20 minutes, holding the eyelid(s) open. Seek medical attention immediately.

Ingestion:

Have victim rinse mouth thoroughly with water. Do not induce vomiting, due to the aromatic solvent. Seek medical advice immediately.

Advice to physician:

Atropine must be administered as early as possible and could save lives, if given in time and in an adequate dosage.

NB Because of their respiratory-depressant effects, morphine and similar drugs are contraindicated for patients poisoned with organophosphorous compounds. Avoid aminoglycosides and succinylcholine, which have a blocking effect on the neuromuscular junction. Phenothiazines, reserpine and theophylline are contraindicated in organophosphorous poisoning.



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5. FIRE-FIGHTING MEASURES

Extinguishing agents:

Extinguish small 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. Contain water used for fire-fighting for later disposal.

Avoid the accumulation of polluted run-off from the site.

Fire fighting:

Remove spectators from surrounding area. Remove container from fire area if possible. Fight fire from maximum distance.

For massive fire, use unmanned hose holder or monitor nozzles. Contain fire control agents for later disposal.

Use a recommended extinguishing agent for the type of surrounding fire. Water can be used to cool unaffected containers but must be contained for later disposal. Avoid inhaling hazardous vapours. Keep upwind.

Special Hazards:

Fire may produce irritating or poisonous mists (hydrogen sulfide, carbon oxides and sulfur oxides) or other products of combustion.

Personal protective equipment:

Fire-fighters and others that may be exposed should wear full protective clothing and self-contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions:

Do not inhale fumes. Ventilate area of spill or leak, especially confined areas. Avoid contact with skin, eyes or clothes. For personal protection see Section 8.

Environmental precautions:

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

Occupational spill:

For **small spills**, soak up with sand or suitable non-combustible absorbent material, place into containers for subsequent disposal. Thoroughly wash body areas, which come into contact with the product. Avoid runoff to sewer as it may cause fire/explosion. Do not allow the product to come in contact with water systems. For **large spills** contact the manufacturer. Contain liquid far ahead of spill. Contain spillage and contaminated water for subsequent disposal. Do not flush spilled material into drains. Keep spectators away and upwind.

7. HANDLING AND STORAGE

Handling:

Remove sources of naked flame or sparks. Harmful by inhalation or if swallowed. Avoid contact with eyes and skin and inhalation of fumes. Use with adequate ventilation. Wash hands before eating, drinking, chewing gum, smoking or using the toilet. Operators should change and wash clothing daily. Remove clothing immediately if the insecticide 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:



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Store in its original container in isolated, dry, cool (avoid temperatures above 40°C) and well-ventilated area. Avoid cross contamination with other pesticides and fertilizers. Keep under lock and key out of reach of unauthorized persons, children and animals. Store away from incompatible substances. Not to be stored next to foodstuffs and water supplies. Local regulations should be complied with.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational exposure limits:

No occupational limits established by OSHA, ACGIH or NIOSH.

Engineering control measures:

It is essential to provide adequate ventilation. Ensure that control systems are properly designed and maintained. Only spark –resistant equipment should be used. 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 equipment including approved respiratory protection.

Respirator:

An approved full-face respirator suitable for protection from mists of pesticides is required. 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 skin contact with the substance.

Gloves:

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

Eye protection:

Employee must wear splash-proof safety goggles and face-shield to prevent contact with this substance.

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: Light blue liquid

Flammability: Flammable

Flash point: 25 °C

Oxidising properties: No information currently available.

pH: No information currently available.

Relative density: 1.057 g/l at 20°C

Solubility in water: Emulsifies in water.

Partition-coefficient in n-octanol / water: K_{ow} ($\log P_{ow}$) = 0.704(data for active substance).



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10. STABILITY AND REACTIVITY

Stability:

The product is stable in aqueous media at pH 2-7. Product is decomposed by alkalis and heating.

Incompatibility:

The product is compatible with most other common pesticides but incompatible with alkaline materials and with sulfur-based formulations.

Do not physically mix concentrate directly with other herbicides or pesticide concentrates; always dilute first.

Hazardous decomposition:

Product undergoes decomposition at high temperatures. Avoid heating above ambient temperature. Toxic fumes (hydrogen sulfide, carbon oxides and sulfur oxides) may be released when the product decomposes on heating.

11. TOXICOLOGICAL INFORMATION

Acute oral LD₅₀: 300-500 mg/kg body weight in rats.

Acute dermal LD₅₀: >2000 mg/kg in rabbits.

Acute inhalation LC₅₀ (4 h): 3 mg/l air.

Inhalation of the solvents' vapours at high doses have also resulted in an increased incidence of malformations and decreased fetal weight in laboratory animals

Acute skin irritation: Non-irritant.

Acute eye irritation: Mild irritant for the eyes.

Dermal sensitization: The product may cause sensitization by skin contact.

Carcinogenicity: Studies did not detect carcinogenic activity. No human information available.

Teratogenicity / Reproductive hazard: Studies did not detect any teratogenic effects. No human information available.

Mutagenicity: Dimethoate (technical) was found to be a weak mutagen and caused base changes in DNA.

12. ECOLOGICAL INFORMATION

ECOTOXICOLOGY:

Birds LD₅₀:

Dimethoate is highly toxic to birds on an acute oral basis

Red-winged blackbird *Agelaius phoeniceus*: 5.4 mg/kg

Mallard duck (m) LD₅₀ = 41.7 mg/kg bw

Fish:

Dimethoate is moderately toxic to fish.

LC₅₀ (96h): 6.2 mg/l (Rainbow trout)

Daphnia:

LC₅₀ (24h): 4.7 mg/l

Bees:

Toxic to bees. LC₅₀ (oral and topical): 0.1-0.2 µg/l

Earthworms LC₅₀: 31 mg/kg dry soil. Earthworms are sensitive to dimethoate at levels of 31 mg/kg soil.

Soil micro-organisms:

No negative effect.



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Degradability: (*Technical material*)

This product is an organophosphate insecticide that is widely applied to soil to control insect pests. The pathway of degradation in soil involves both chemical and microbial processes. Environmental factors can greatly influence the degradation rate in soil; the most important being moisture, pH, organic content, and pesticide formulation. Absorption and desorption constants have been shown to be a linear function of soil silt content K_{oc} ranges from 16.25 (sandy loam) to 51.88 (sandy/loamy sand).

This product in formulation can be classified as non-persistent.

Half life in soil:

DT₅₀ aerobic: 2-4.1 days

DT₅₀ photolytic on soil surface: 7-16 days

Mobility:

Dimethoate is a highly mobile in soil.

Accumulation:

Relatively non-persistent organophosphate insecticide.

German wgk: 3

13. DISPOSAL CONSIDERATIONS

Disposal: On site disposal of the concentrated product is not acceptable. Ideally, the product should be used for its intended purpose. If there is a need to dispose of the product, approach local authorities who hold periodic collections of unwanted chemicals.

Package product wastes:

Emptied containers retain vapours and product residues. Triple rinse containers before disposal. Observe all labelled safeguards until container is destroyed. Do not re-use container for any purpose.

14. TRANSPORT INFORMATION

UN NUMBER: 2784

ADR/RID:

Proper shipping name: Organophosphorous pesticide, liquid, flammable, toxic, # flash point: <23 °C (dimethoate)

Classification code: TF2

Packaging group: II

Label: 6.1 + 3

Hazard ID: 63

AIR/IATA:

Proper shipping name: Organophosphorous pesticide, liquid, flammable, toxic, # flash point: <23 °C (dimethoate)

Class: 3

Subsidiary Risk: 6.1

Hazard Label: Toxic & flammable liquid

Packaging group: II

Passenger aircraft: 611 (max 60 L) Y611 (2 L)

Cargo aircraft: 618 (max 220 L)



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IMDG/IMO:

Proper shipping name: Organophosphorous pesticide, liquid, toxic, flammable (dimethoate)

Packaging group: III

Label of class: 6.1 MARINE POLLUTANT

Subsidiary Risk: 3

Tremcard No: 61GTF2-III

15. REGULATORY INFORMATION

Symbol: Xn;F

Indication of danger: Harmful; Flammable.

Risk Phrase(s)

R10 Flammable.

R20/21/22 Harmful by inhalation, in contact with skin and if swallowed.

R52 Harmful to aquatic organisms

R65 Harmful may cause lung damage if swallowed.

R66 Repeated exposure may cause skin dryness and cracking.

R67 Vapours may cause drowsiness and dizziness

Safety Phrase(s)

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

S2 Keep out of reach of children.

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

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

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



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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.

REFERENCES

- EPA RED, Dimethoate
- ADR 2011, Part 3.
- IMDG Code, 2005 Edition, Vol. 2.
- IATA Dangerous goods regulations, Effective 1 January 2011

END OF MSDS.