1. PRODUCT AND COMPANY IDENTIFICATION

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

EMERGENCY TELEPHONE NUMBERS
SPILLAGES:
Emergency telephone (+27) 032 330716 or
082 887 8079
Fax (+27) 032 336134
POISONINGS:
National Poison Centre **0800 333 444 (24 h)**
021- 689 5227 (24h)
Trade name SANAZOLE 250 EC
Use An emulsifiable concentrate fungicide for the control of certain diseases on apricots, barley, oak trees, peaches, plums, pecan nuts, mangoes and wheat as indicated in the directions for use.

2. COMPOSITION / INFORMATION ON INGREDIENTS

Active ingredient Propiconazole 250 g/l
Common name Propiconazole
Chemical Name (±)-1-[2-(2,4-dichlorophenyl)-4-propyl-1,3-dioxolan-2-ylmethyl]-1*H*-1,2,4-triazole (IUPAC)
CAS No. 60207-90-1
Chemical Family azole
Chemical Formula $C_{15}H_{17}Cl_2N_3O_2$
NIOSH/RTECS no XZ462000
EINECS no 262-104-4

UN no. 3082

3. HAZARD IDENTIFICATION

Toxicity class: WHO (a.i.) II
ADI (JMPR): 0.02 mg/kg b.w.
NOEL: (2y) for rats 3.6, mice 10 mg/kg b.w. daily
Main hazard: Harmful if swallowed.
Eye and skin irritant.
Eye contact: The product may cause mild eye irritation.
Skin contact: Minimally toxic. The product may cause mild irritation.
Ingestion: Harmful.
Inhalation: Minimally toxic.

4. FIRST AID MEASURES

Inhalation:
Remove source of contamination or move victim to fresh air. Keep victim 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. Persons who become sensitised may require specialised medical management with anti-inflammatory agents.
Eye contact :
Immediately flush the eyes with gently flowing lukewarm water or saline solution for 20 minutes, occasionally lifting the upper and lower lids. Obtain medical attention if necessary. Specialised ophthalmologic treatment might be required.
Ingestion:
Do not induce emesis. Have victim drink a suspension of activated charcoal with water to bind toxicant remaining in the gastrointestinal tract. Follow charcoal with sodium or magnesium sulphate to induce catharsis. Seek medical advice.
Advice to physician:
Treat symptomatically and supportively as and when required. Gastric lavage may be indicated. Administer charcoal slurry, aqueous or mixed with saline cathartic or sorbitol.

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.
Fire fighting:
Fight fire from maximum distance. For **massive fire**, use unmanned hose holder or monitor nozzles. Remove container from fire area if possible. Avoid runoff to sewer. 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. Avoid inhaling hazardous vapours. Keep upwind.
Personal protective equipment:
Fire-fighters and others that may be exposed should wear full chemical protective clothing and self-contained breathing apparatus.

Special hazards:
Fire may produce irritating or poisonous vapours (HCN and toxic oxides of carbon, nitrogen and chlorine) of combustion.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions:
Avoid contact with skin and eyes. Do not breathe in fumes. Ventilate area of spill or leak, especially confined areas. Shut off/remove any ignition sources. For personal protection see Section 8.
Environmental precautions:
Do not allow to enter drains or water courses. When the product contaminates public waters, inform appropriate authorities immediately in accordance with local regulations.
Occupational spill:
Avoid runoff to sewer as it may cause fire/explosion. Remove all sources of ignition. For small liquid spills, soak up with sand or other suitable noncombustible absorbent material, and place into containers for subsequent disposal. 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:
Remove sources of naked flame or sparks. Avoid contact with eyes, prolonged contact with skin, and inhalation of fumes and spray particles. Use with adequate ventilation. Wash hands before eating, drinking, chewing gum, smoking, or using the toilet. Remove clothing immediately if the product 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. Water used to clean equipment must be disposed of correctly to avoid contamination.
Storage:
Keep out of reach of unauthorised persons, children and animals. Store in its original labeled container in shaded, well-ventilated area, away from heat, sparks and other sources of ignition. Not to be stored next to foodstuffs and water supplies. Local regulations should be complied with.

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.
PERSONAL PROTECTIVE EQUIPMENT:

Respirator:
An approved full face respirator suitable for protection from dusts and 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, boots, hat and equipment to prevent repeated or prolonged skin contact with this substance. Do not wear leather clothing.
Gloves:
Employee must wear appropriate chemical resistant 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:
Yellow/brown liquid.
Odour:
Aromatic.
Explosive properties:
Not explosive.
Flammability:
Not flammable..
Flash point:
62 ^{o}C.
Oxidising properties:
Not oxidative.
pH:
7.05 (1 % aqueous dispersion).
Relative density:
Mean density = 0.9847 g/mL (24.5 ^{o}C).
Storage stability:
Stable for 2 years under normal storage conditions..
Density:
0.99 g/cm3 (20 deg.C)
Dilution stability:
Excellent.

Solubility in organic solvents:
(data for technical material at 20 °C)
n-hexane: 47 g/ℓ
Completely miscible with ethanol, acetone, toluene and *n*-octanol.
Partition-coefficient in n-octanol / water:
Not available.
Boiling point:
95 °C.

10. STABILITY AND REACTIVITY

Stability:
Stable for 2 years under normal storage conditions.
Incompatibility:
Incompatible with strong oxidising materials. The product is compatible with many other fungicides when used at normal rates. However, a compatibility test is required before using with other products. Do not physically mix concentrate directly with other herbicides or pesticide concentrates; always dilute first.
Thermal decomposition:
Formation of HCN, toxic oxides of carbon, nitrogen and chlorine on heating.

11. TOXICOLOGICAL INFORMATION

Acute oral LD_{50} :
1 503 mg/kg in rats.
Acute dermal LD_{50} :
> 2 000 mg/kg in rats.
Acute inhalation LC_{50} :
> 7.10 mg/L of air.
Acute skin irritation:
Mild irritation to rabbit skin.
Acute eye irritation:
Mild rritation to rabbit eyes.
Dermal sensitisation:
Tests indicate that the product should be considered a moderate sensitiser (Grade III).
Carcinogenicity:
Not carcinogenic..
Teratogenicity:
Not teratogenic..
Mutagenicity:
Not mutagenic.

12. ECOLOGICAL INFORMATION

ECOTOXICOLOGY :
Birds:
Practically non-toxic.
Acute oral LD_{50} : 1 839 mg/kg (Japanese quail)
Fish:
Toxic to fish.
LC_{50} (96 h): 1.47 mg/L (rainbow trout)
Daphnia:
Toxic to *Daphnia magna.*
EC_{50} (24h): 5.83 mg/ℓ.
EC_{50} (48h): 3.64 mg/ℓ.
Alga:
Selenastrum capricornutum:
EC_{50} (72-h): 20,66 p.p.m. average specific growth rate.

Bees:
Low toxicity to bees.
Contact LD_{50} (24 h): > 158 µg a.i./bee.
LD_{50} >10µg/bee for Propiconazole 250 EC.
Earthworms:
Low toxicity to *Eisenia foetida*.
LC_{50} (7d): 640 mg/kg.
LC_{50} (14d): 608 mg/kg.
Soil micro-organisms:
No significant effect on soil micro-organisms, nitrogen fixation or root nodulation.
Degradability:
The main degradation pathways are hydroxylation of the *n*-propyl side-chain and the deketalisation of the dioxolan ring, with formation of 1,2,4-triazole, which further degrades to form CO_2. The half-life in aerobic soils at 25 °C is 40-70 days. In aerobic aquatic systems the half-life is 25 - 85 days.

13. DISPOSAL CONSIDERATIONS

Pesticide disposal
Contaminated absorbents, used containers, surplus product, etc., should be burnt at > 1000°C in an incinerator with effluent gas scrubbing, or buried in an approved landfill. Comply with local legislation applying to waste disposal.
Package product wastes:
Emptied containers retain vapour and product residues. Observe all labelled safeguards until container or destroyed. Combustible containers should be disposed of in pesticide incinerators or buried in an approved landfill. Non-combustible containers must first be triple-rinsed with water, then punctured and transported to a scrap metal facility for disposal.

14. TRANSPORT INFORMATION

UN NUMBER: 3082

ADR/RID:
Shipping name**:**

Environmentally hazardous substance, liquid, n.o.s (Propiconazole 25%)
Hazard ID: 90
Label: 9
Item number: 11^0 (c)

IMDG/IMO:
Packaging group: III
Label of class: 9 **Marine pollutant**
Shipping name: Environmentally hazardous substance, liquid, n.o.s (Propiconazole 25%)

ICAO/IATA:
Packaging group: III
Label of class: 9 **Marine pollutant**
Shipping name: Environmentally hazardous substance, liquid, n.o.s (Propiconazole 25%).

Tremcard no: 90GM6-III

15. REGULATORY INFORMATION

Symbol : Xn
Indication of danger : Harmful, Irritant.
Risk phrases :
R 22 Harmful if swallowed.
R 36/38 Irritating to eyes and skin.
Safety phrases:
S2 Keep out of reach of children.
S3/9/49 Keep only in the original container in a cool, well-ventilated space.
S24/25 Avoid contact with skin and eyes.
S36/37/39 Wear suitable protective clothing, gloves and eye/face protection.
S46 If swallowed, seek medical advice immediately and show this container or label.

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

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.

REFERENCES

- Applicable to own physical and chemical, toxicity and ecotoxicity research studies.
- *The Pesticide Manual*; Thirteenth Edition; Editor Clive Tomlin; Crop Protection Publications, 2003.
- *SABS 0265:1999*.
- Dangerous Goods Declarations, IATA, 49th Edition, Effective 1 January 2005,
- IMDG Code, Vol. 2, 2000 Edition.

END OF MSDS.