



MATERIAL SAFETY DATA SHEET

SUBJECT : TRIADIMENOL 250EC
EFFECTIVE DATE : January 2006
REVISED : February 2021
REVISION NO : 3
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SUPPLIER: NOVA AGRO (HK) LTD
(Reg. No. 1023146)
6th Floor Wyndham Place
44 Wyndham Street
CENTRAL HONG KONG

SPILLAGES:

Emergency telephone +27(0)83 676 1998

POISONINGS:

National Poison Centre 021-9316129 (after hours).

1. IDENTIFICATION OF THE SUBSTANCE

Product Name TRIADIMENOL 250EC
Common Name Triadimenol
Chemical Name Of The Substance (1RS,2RS;1RS,2SR)-1-(4-chlorophenoxy)-3,3-dimethyl-1-(1H-1,2,4-triazol-1-yl)butan-2-ol.
CAS N^o. [55219-65-3]
Chemical family Triazole
Chemical formula C₁₄H₁₈ClN₃O₂ (Mol. wt.: 295.8)
Use Systemic fungicide with protective and curative action.
UN No. 3082

2. COMPOSITION / INFORMATION ON INGREDIENTS

Hazardous components: Triadimenol 250g/l.

R Phases: Xn, R40 , Cat.3

3. HAZARD IDENTIFICATION

Toxicity class:

WHO (a.i.) II (Table 5) EPA (formulation) III

Health Effects:

No adverse health effects are expected if this product is used at normal recommended dosage rates.

No symptoms of intoxication are to be expected.

Chronic: Animal studies have shown no evidence of oncogenic effect, no evidence of carcinogenic effects and no teratogenic potential.

Eye contact:

The product may cause mild to moderate eye irritation.

Skin contact:

Minimally toxic and may have sensitizing properties

Ingestion:

Minimally toxic.

Inhalation:

May be irritating to the respiratory system.

3. FIRST AID MEASURES AND PRECAUTIONS

Symptoms of exposure to the product include: itching, scratchy throat, sneezing and coughing. Accidental swallowing has caused nausea, vomiting, diarrhoea, headache, ataxia, confusion and fatigue in man.

Inhalation:

Remove source of contamination or move victim to fresh air. Monitor for respiratory distress. Seek medical attention 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 sensitized may require specialized medical management with anti-inflammatory agents or cortisone-containing emulsions.

Eye contact:

Immediately flush the eyes with gently flowing lukewarm water or saline solution for 20 minutes. Obtain medical attention if necessary.

Ingestion:

In case of ingestion of significant quantities of the fungicide, medical advice should be sought immediately.

Advice to physician:

No specific antidotes are available against benzimidazole poisoning. If a large amount of triadimenol has been ingested in the last few hours, and if copious vomiting has not already occurred, the stomach must be emptied and steps taken to limit gastrointestinal absorption. If the patient is fully alert and nervous system depression is not anticipated, oral administration of Syrup of Ipecac is probably the best way to empty the stomach.

Dosage of Syrup of Ipecac:

Adults and children over 12 years: 30ml followed by 2-3 glasses of water.

Children under 12 years: 15ml followed by 1-2 glasses of water. Children less than one year should receive only 10-15 ml and should be under direct medical supervision if at all possible.

When vomiting stops after induced emesis, give activated charcoal and cathartic orally by adding sorbitol to the charcoal slurry.



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Dosage of Activated Charcoal:

Adults and children over 12 years: 50-100mg in 300-800ml water.

Children under 12 years: 15-30mg in 100-300 ml water.

Dosage of Sorbitol:

Adults and children over 12 years: 1-2mg/kg body weight to a maximum of 150mg per dose.

Children under 12 years: 1.0-1.5mg/kg body weight to a maximum of 50mg per dose.

If sorbitol is given separately, it should be diluted with an equal volume of water before administration.

If there are any indications of central nervous system depression, or if the patient fails to vomit within 30 minutes of Syrup of Ipecac administration, measures should be taken to protect the respiratory tract from aspiration of gastric contents, then the stomach should be emptied by gastric intubations, aspiration and lavage with slurry of activated charcoal. Install activated charcoal following lavage. Unless diarrhea has already commenced, include a cathartic to hasten elimination.

CAUTION: Do not instill fluid so rapidly that overloading of the stomach leads to vomiting or regurgitation, followed by aspiration. Serious electrolyte disturbances may follow catharsis, especially in young children.

If contact with the toxicant has been minimal, administration of charcoal without the cathartic followed by careful observation of the patient, probably represent optimal management.

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 poisonous gases of combustion, namely n-butyliisocyanate. **Dust forms explosive mixture with air.**

Lower explosive limit: 0.08g/l

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 (SPILLAGE)

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 dry spills**, sweep up with damp earth or sand or other suitable absorbents, such as sawdust, taking care not to raise a dust cloud. Place the material into a clean, dry container and cover for subsequent disposal. All contaminated cleaning materials should be placed in closeable receptacles. 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 and upwind.

Large spills: Do NOT wash away into sewer. Sweep spilled substance into sealable containers; if appropriate, moisten first to prevent dusting. Carefully collect remainder, and then remove to safe place (extra personal protection: P2 filter respirator for harmful particles).

7. HANDLING AND STORAGE REQUIREMENTS

Handling:

Remove sources of naked flame or sparks. 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

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mark. Water used to clean equipment must be disposed of correctly to avoid contamination

Storage:

Store in its original container in isolated, dry, cool and well-ventilated area. Avoid cross contamination with other pesticides and fertilizers. Product is incompatible with alkaline media. 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 CONTROL / PERSONAL PROTECTION

Exposure Standards:

NOHSC exposure standards have not been assigned for the active ingredient nor the ingredients in the formulation.

Engineering Controls: Not applicable.

Personal Protection**Personal Protective Measures:**

Avoid contact with eyes, skin and clothing during mixing/pouring operations. Ensure adequate ventilation. Do not inhale spray mist or vapour.

Personal Protective Equipment:

When preparing spray, wear elbow-length PVC gloves and face shield.

Industrial Hygiene:

If clothing becomes contaminated with product, or wet with spray, remove clothing immediately. If product or spray on skin, immediately wash the area with soap and water. After use and before eating, drinking or smoking, wash hands, arms and face thoroughly with soap and water. After each day's use wash contaminated clothing, gloves etc. with detergent and water.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Light yellow transparent liquid.
Odour: Characteristic.
Flammability: Flammable.
Explosive properties: Non-explosive.
Flash point: 74°C.
Autoignition Temperature: 290°C
Oxidising properties: Non-explosive.
pH: 6.6

Storage stability:

Considered stable for a period of 3 years in normal air, warehouse and light conditions, if kept in closed container.

Solubility in water:

Forms a stable emulsion when mixed in water.

10. STABILITY AND REACTIVITY

Stability:

Stable in neutral media, but decomposes in strong acidic and strong basic media. Decomposes slowly in the presence of moisture. Stable to light.

Incompatibility:

The product is compatible with most other pesticides (except strong alkaline materials) 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:

When involved in a fire, may evolve noxious fumes which may include HCl, hydrazines, amines, nitrogen oxides and carbon monoxide.

11. TOXICOLOGICAL INFORMATION

Acute oral LD₅₀:

(Information on the Active ingredient)

2 500 mg/kg in rats.

Acute dermal LD₅₀:

(Information on the Active ingredient)

>5000 mg/kg in rats.

Acute inhalation LC₅₀:

(Information on the Active ingredient)

LC₅₀ for rats > 0.9mg/l air (aerosol – 4h)

Acute skin irritation:

(Information on the Active ingredient)

Non-irritant to skin (rabbit).

Acute eye irritation:

Non-irritating to eyes (rabbit).

Dermal sensitisation:

No dermal sensitisation (Guinea pigs).

Chronic Toxicity Studies: Triadimenol has been evaluated in the following studies:

Feeding/Oncogenicity: A 2-year feeding/oncogenicity study with rats using dietary concentrations of 0, 125, 500, and 2000 parts per million (ppm) equivalent to 0, 6.25, 25.0, and 100mg/kg bwt/day in males and females. Clinical chemistry



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findings suggest that the target organ for toxicity may be the liver. The levels of SGOT and SGPT enzymes were consistently higher at 2000ppm in males and females when compared to controls, and some increase in these two parameters was also observed at 500ppm. Although there was an accompanying small increase in liver weight in 2000ppm females, there were no accompanying increases in histopathologic changes of the liver in either sex. There were only marginal effects seen on other clinical chemistry parameters, and no effect of test compound on clinically observed signs of toxicity, food consumption, hematologic, or urinalysis parameters. The systemic NOEL (no-observed effect level) is 125ppm (6.25mg/kg/day for males and females) based on the increase in liver enzymes (SGOT and SGPT). The systemic LEL (lowest effect level) was 500ppm (25mg/kg/day for males and for females).

Teratology: A rabbit teratology study with a NOEL for maternal toxicity of 8mg/kg. The maternal LEL was 40mg/kg based on decreased body weight gains and food consumption. The developmental NOEL and LEL were 40mg/kg and 200 mg/kg respectively. This study has to be resubmitted with all the findings statistically analyzed on a per litter and per fetus basis in order to be upgraded from its current classification as core supplementary.

Reproduction: A rat multi-generation reproduction study using doses of 0, 20, 100, and 500ppm (equivalent to 0, 1, 5, and 25mg/kg bwt/day for males and females) indicated that the NOEL and LOEL for both parental and pup toxicity are 100 and 500 ppm, respectively, based on significant body weight and organ weight changes. The NOEL for reproductive toxicity is 500 ppm, highest dose level tested.

Mutagenicity: A reverse mutation assay (AMES), a dominant lethal test in mice, DNA damage/repair, unscheduled DNA synthesis, in vitro and in vivo (rat) cytogenic assays, and a forward mutation in mice, all of which were negative for mutagenic effects.

12. ECOLOGICAL INFORMATION

Studies submitted show that this chemical is practically **non-toxic to birds, slightly toxic to fish and moderately toxic to aquatic invertebrates.**

Birds: Acute oral LD₅₀ for mallard ducks >2000mg/kg.

Fish: LC₅₀ (96 h) for carp 16mg/ℓ

Bees: Non-toxic to honeybees

13. DISPOSAL CONSIDERATION

Pesticide disposal:

Contaminated absorbents, used containers, surplus product, etc., should be burnt at >1000°C in an incinerator, preferably designed for pesticide disposal, 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 labeled safeguards until container is destroyed. Combustible containers should be disposed of in pesticide incinerators. Metal containers must be crushed and transported to a scrap metal facility for disposal or burial in a designated landfill.

14. TRANSPORT INFORMATION

UN NUMBER: 3082

Class: 9

Packaging group: III

15. REGULATORY INFORMATION

Symbol: Xn

Indication of danger: Harmful, Toxic.

Risk phrases:

R40 Possible risk of irreversible effect

Safety phrases:

S1/2 Keep locked up and out of reach children.



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S36/37 Wear suitable protective clothing and gloves.

National Legislation: In accordance with 91/155/EEC Directive and with French standard T 01-102 and the South African Occupational Health and Safety Act, 1993 (Act. No. 85 of 1993).

16. OTHER INFORMATION

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

- *The Pesticide Manual*; 13th Edition; Editor Clive Tomlin; Crop Protection Publications, 2004.
 - *Pestline*; Material Safety Data Sheets for Pesticides and Related Chemicals; Volume II; Occupational Health Services Inc., 1991.
 - *IPCS*; Health and Safety Guide No. 22; World Health Organisation, Geneva, 1990.
 - *ADR-Vol. II (Annex B)*, 1 January 1997.
 - *Dangerous Goods Regulations; IATA*; International Air Transport Association, 41st Edition, Effective 1 January 2000.
 - *Guidelines for personal protection when using pesticides in hot climates*. GIFAP, G8/7 5M/989/ENG/QUA.
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