



## MATERIAL SAFETY DATA SHEET

**PRODUCT** : **TEBUCONAZOLE 250EC**  
**EFFECTIVE DATE** : **July 2006**  
**REVISION DATE** : **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.

### POISONINGS:

**National Poison Centre** +27-21-9386084 (office hours).  
(South Africa) +27-21-9316129 (after hours).  
**UFS Pharmacology/Toxicology information centre:**  
+27 – 82 491 0160

## 1. IDENTIFICATION OF THE SUBSTANCE

**Trade name** **TEBUCONAZOLE 250EC**  
**Active ingredient** Tebuconazole  
**Chemical Name** (RS)-1-p-chlorophenyl-4,4-dimethyl-3-(1*H*-1,2,4-triazol-1-ylmethyl)=pentan-3-ol (IUPAC)  
**CAS No.** 107534 – 96 – 3  
**Chemical Family** Triazole  
**Chemical Formula** C<sub>16</sub>H<sub>22</sub>ClN<sub>3</sub>O  
**UN no.** 3082  
**Use** Systemic foliar fungicide with protective and curative action.

## 2. COMPOSITION / INFORMATION ON INGREDIENTS

**Hazardous components** Tebuconazole  
**EEC number** 262-104-4  
**Risk phrases** R 23/24/25, 37/38, 51.

## 3. HAZARD IDENTIFICATION

**Toxicity class:** WHO (a.i.) II  
**ADI (JMPR):** 0.02mg/kg b.w.  
**NOEL:** (2y) for rats 3.6, mice 10mg/kg b.w. daily  
**Main hazard** Eye irritant.

**Eye contact:** The product may cause serious damage to eyes.  
**Skin contact:** Minimally toxic. The product may cause mild to moderate irritation.  
**Ingestion:** Harmful.

**Inhalation:** Harmful.

**Environment:** Toxic to aquatic organisms, may cause long – term adverse effects in the aquatic environment.

## 4. FIRST AID MEASURES AND PRECAUTIONS

### 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:

**There is no specific antidote if this product is ingested.**

The active ingredient of this product has a high affinity for activated charcoal. Five mg/kg activated charcoal suspension (50g/400ml water) can be given to absorb the remaining toxicant.

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



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unaffected stock, but avoid water coming in contact with the product.

### **Firefighting:**

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.

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## **6. ACCIDENTAL RELEASE MEASURES (SPILLAGE)**

### **Personal precautions:**

Avoid contact with skin and especially 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 entering drains or watercourses. 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.

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## **7. HANDLING AND STORAGE REQUIREMENTS**

### **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 unauthorized 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.

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## **8. EXPOSURE CONTROL / PERSONAL PROTECTION**

### **Occupational exposure limits:**

No data 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.



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### Gloves:

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

### Eye protection:

The use of safety goggles is strongly 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:** Light yellow liquid.

**Odour:** Aromatic.

**Explosive properties:** Not explosive.

**Flash point:** >172°C.

**Oxidising properties:** Not oxidative.

**pH:** 6.1 (1% aqueous dispersion).

**Relative density:** 0.99g/ml (20°C).

**Storage stability:** Stable for 3 years under normal storage conditions.

**Solubility in water:** Emulsifiable.

**Solubility in organic solvents:**

(data for technical material at 20 °C)

Completely miscible with ethanol, acetone, toluene and *n*-octanol.

## 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<sub>50</sub> :

>200 - 2000mg/kg in rats.

### Acute dermal LD<sub>50</sub> :

>4000mg/kg in rats.

### Acute inhalation LC<sub>50</sub>:

~5.0mg/λ of air (4h)

### Acute skin irritation:

Non-irritating to rabbit skin.

### Acute eye irritation:

Risk of serious damage to eyes.

### Dermal sensitisation:

Tests indicate that the product should be considered a non-sensitizer.

### Carcinogenicity:

The product does not display carcinogenic activity. No human data available.

### Teratogenicity:

Animal studies did not detect any teratogenic effects. No human data available.

### Mutagenicity:

Animal studies did not detect any mutagenic effects. No human data available.

## 12. ECOLOGICAL INFORMATION ECOTOXICOLOGY:

### Birds:

Low toxicity to birds.

Acute oral LD<sub>50</sub> bobwhite quail 1988mg/kg (tech.)

Acute oral LD<sub>50</sub> male Japanese quail 4438mg/kg (tech.)

Acute oral LD<sub>50</sub> female Japanese quail 2912mg/kg (tech.)

### Fish:

Moderately toxic to fish

LC<sub>50</sub> (96 h): 9.28mg/l (rainbow trout)

### Bees:

Low hazard to bees.

### Daphnia:

Low toxicity to *Daphnia magna*.

EC<sub>50</sub> (48h): 7.3mg/l.

### Earthworms:

Low toxicity to *Eisenia foetida*.



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### Soil micro-organisms:

No significant effect on soil micro-organisms, nitrogen fixation or root nodulation.

Toxicity to bacteria: (active ingredient) EC<sub>50</sub>: >10000mg/l; activated sludge.

**Algae:** Growth rate: EC<sub>50</sub>: 3.51mg/l (72h); *Selenastrum capricornutum*

### Degradability:

The main degradation pathways are hydroxylation of the propyl side-chain and the dioxolane ring, with formation of 1,2,4-triazole, which further degrades to form CO<sub>2</sub>. The half-life in aerobic soils at 25°C is 40-70 days. In aerobic aquatic systems the half-life is 25-85 days.

### Mobility:

The product has low mobility in soil and is not likely to leach.

### Accumulation:

The product has the potential to bioaccumulate in fish.

## 13. DISPOSAL CONSIDERATION

### 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 labeled safeguards until container is 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 (Tebuconazole)

Hazard ID: 90

Label: 9

Item number: 11<sup>0</sup>

### IMDG/IMO:

Packaging group: III

Label of class: 9 - **Marine pollutant**

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

### IATA:

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

## 15. REGULATORY INFORMATION

**Symbol:** Xn

### Risk phrases:

**R23** Toxic by inhalation.

**R24** Toxic in contact with skin.

**R25** Toxic if swallowed.

**R 37/38** Irritating to respiratory system and skin.

**R41** Risk of serious damage to the eyes.

**R51** Toxic to aquatic organisms.

### Safety phrases:

**S 2** Keep out of the reach of children.

**S13** Keep away from food, drink and animal foodstuffs

**S23** Do not breathe vapour.

**National legislation:** In accordance with 91/155/EEC Directive and with French standard T01-102 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.



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### REFERENCES

- *The Pesticide Manual*; Eleventh Edition; Editor Clive Tomlin; Crop Protection Publications, 1997.
  - *Pestline*. Material Safety Data Sheets for Pesticides and Related Chemicals; Volume II; Occupational Health Services Inc., 1991.
  - MICROMEDEX, *Environmental Health & Safety Series*, Volume 34.
  - IATA, Dangerous Goods Regulations, 41<sup>st</sup> Edition, effective 1 January 2000.
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