

#### SAFETY PRECAUTIONS

1. Handle with care. Avoid contact/splashing. Irritating to eyes.
2. Wear protective clothing - wear rubber gloves and face shield when handling the concentrate.
3. KEEP OUT OF THE REACH OF CHILDREN.
4. KEEP AWAY FROM FOOD AND FOODSTUFFS.
5. KEEP UNDER LOCK AND KEY.
6. DO NOT eat, drink or smoke whilst handling this product.
7. Invert the empty container over the spray or mixing tank and allow to drain for at least 30 seconds after the flow to a drip. Thereafter rinse the container three times with a volume of water equal to a minimum of 10% of that Add the rinsings to the contents of the spray tank before destroying the container.
8. While spraying, avoid contact with the spray as much as you can since product may cause eye and skin irritation, drift onto other crops, grazing rivers or dams.
9. Clean applicator thoroughly after use and dispose of wash water where it will not contaminate crops, grazing, Toxic to fish and harmful to other aquatic life.
10. Destroy empty container and do not use for any other purpose.
11. Change and wash your work clothes. Wash yourself.

#### FIRST AID MEASURES

##### Inhalation:

Remove source of contamination or move victim to fresh air. Keep victim warm and at rest. Treat symptomatically and Obtain medical advice if necessary.

##### Skin contact:

Remove contaminated clothing, shoes and leather goods. Gently wipe off excess chemical. Wash skin gently and thoroughly water and non-abrasive soap. Seek medical advice if necessary. Persons who become sensitised may require specialised management with anti-inflammatory agents.

##### Eye contact:

Immediately flush the eyes with gently flowing lukewarm water or saline solution for 20 minutes, occasionally lifting 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 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.**

Treat symptomatically and supportively as and when required. Gastric lavage may be indicated. Administer charcoal or mixed with saline cathartic or sorbitol.

#### WARRANTY:

The excellent results which this chemical should normally yield are not however warranted or guaranteed, as effectiveness can be greatly influenced by factors outside the control of either the manufacturers or the suppliers. No warranty whatsoever, expressed or implied, is therefore given concerning the performance or effectiveness of this chemical and the responsibility is specifically excluded for any damage, injury or loss of any kind during or resulting from its handling, use or storage, whether or not such has been in accordance with directions. This product is warranted to consist of the ingredients shown on the label.

Date of Manufacture: SEP. 2018 Batch Number: 20180914

Manufactured by:

NOVAAGRO (HK) LTD  
6TH FLOOR, WYNDHAM PLACE,  
44 WYNDHAM STREET,  
CENTRAL HONG KONG

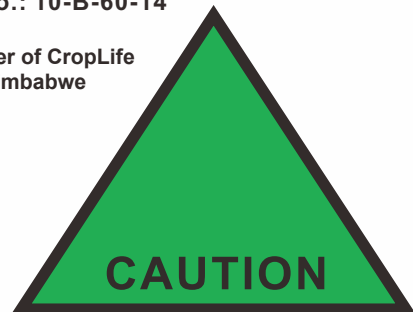
# TEBUCONAZOLE 250EC

## Fungicide

Reg. No.: 10-B-60-14

1Litre

Member of CropLife  
Zimbabwe



**HARMFUL IF SWALLOWED**

**KEEP OUT OF REACH OF CHILDREN**

#### Composition

Tebuconazole.....	<b>w/w</b> 25%
Inert ingredients.....	75%

**Chemical group: Triazole**

An emulsifiable concentrate systemic fungicide for the control of diseases in crops as indicated.

**TO CAUSE A HAZARD IN THE USE, STORAGE OR DISPOSAL OF THIS SUBSTANCE, IS AN OFFENCE.**



1. Triple rinse clean container after use
2. Punctures holes in bottom
3. Return to Maguire's Recycling Facilitator / Return to nearest recycling facility

#### DIRECTIONS FOR USE: Use only as directed

##### Compatibility:

The compatibility of **TEBUCONAZOLE 250EC** with other products can be influenced by the formulation of those quality of the dilution water.

As formulations of products can change without the previous knowledge of NOVA AGRO and the quality of water farm to farm, a physical compatibility test should always be carried out prior to application. **TEBUCONAZOLE** is compatible with non-alkaline agricultural chemicals.

##### Mixing instructions:

Half fill the spray tank with water. Add the required volume of **TEBUCONAZOLE 250EC** while agitating. Fill the water. It is important to note that during the application process, the spray mixture must be agitated continuously.

##### Application:

##### Ground application:

**TEBUCONAZOLE 250EC** can be applied by any conventional high volume sprayer that is fitted with an efficient. The boom must be fitted with hollow cone nozzles which are able to deliver mixture to fine droplets. The applicator calibrated correctly to deliver an even distribution of the spray mixture over the target area.

##### Application rates:

CROP / DISEASE	DOSAGE RATE	REMARKS
Maize Northern leaf blight ( <i>Helminthosporium turcicum</i> ) Phaeosparhia	750ml/ha	Apply <b>TEBUCONAZOLE 250EC</b> at 45 and 65 days after planting for Northern leaf blight and Phaeosparhia control.
Soy beans Rust ( <i>Phakopsora pachyrhizi</i> )	750ml/ha	Apply <b>TEBUCONAZOLE 250EC</b> as follows: 1st spray at 50 days after planting, 2nd spray at 70 days via boom sprayer with hollow nozzles. Apply 75l of spray mixture per ha at 3 - 4 bar pressure.
Potatoes Early blight ( <i>Alternaria solani</i> )	75ml/100l water	Apply <b>TEBUCONAZOLE 250EC</b> as a preventative treatment when weather conditions are favourable for the development of the disease (warm, humid conditions). Apply in at least 500l water/ha. Do not apply less than 375ml <b>TEBUCONAZOLE 250EC</b> /ha. Repeat application every 7 - 10 days, but do not exceed 4 applications per season.
Wheat Eye spot ( <i>Pseudocercosporarella</i> <i>herpotrichoides</i> ) Powdery Mildew ( <i>Erysiphe graminis</i> )	750ml/ha	Apply in 300l water / ha at first to second node stage or before a 5% infection level is reached. Repeat application 21 days after initial application especially if initial application was made in the first node stage. Powdery mildew should not be treated later than the flag leaf stage.

#### SAFETY PRECAUTIONS

**Empty container disposal:** invert the empty container over the spray tank or mixing tank and allow to drain for at least 30 seconds after the flow has slowed down to a drip. Thereafter, rinse the container three times with a volume of water equal to a minimum of 10% of the container. Add the rinsings to the contents of the spray tank. Destroy the empty container by perforation and flattening. Return to supplier for recycling. DO NOT use for any other purpose. Dispose of the wash water at a site for the disposal of pesticides.

**Decontamination of sprayer:** Clean applicator thoroughly after use and ensure that all traces of **TEBUCONAZOLE 250EC** are removed. Make use of the following method;

- (a) Drain and rinse tank, spray boom and hoses with clean water for at least 10 minutes
- (b) Fill tank with clean water and add it to 1 litre household bleach (5%) or 1.5 Litres of household bleach (3.5%) per 200 Litres of water. Rinse hoses and spray boom and leave in tank for 15 minutes whilst agitating. Drain through nozzle outlets.
- (c) Repeat step (b) and thereafter, rinse thoroughly with clean water and dispose of the wash water at a site designated for the disposal of pesticides.

Registration held by:

MAGCHEM (PVT) LIMITED,  
2274 TILBURY ROAD,  
WORKINGTON, HARARE,  
ZIMBABWE



## 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.** 2903  
**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:** Clear to slightly turbid yellow liquid.

**Odour:** Aromatic.

**Explosive properties:** Not explosive.

**Flash point:** >172°C.

**Oxidising properties:** Not oxidative.

**pH:** Range 5-8 (1% aqueous dispersion).

**Relative density:** 0.972g/ml (20°C).

**Storage stability:** Stable for 2 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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