



SHANGHAI MINGDOU AGROCHEMICAL CO., LTD

Add: Rm 1210, Zhenyuan Building, No. 2052 North Zhongshan Rd, Shanghai, China

Tel: 0086 21 52912919, 52045380 Fax: 0086 21 52912097 Web: [www.agromdc.com](http://www.agromdc.com)

## MATERIAL SAFETY DATA SHEET OF TEBUCONAZOLE 97% TC

### 1. IDENTIFICATION OF THE CHEMICAL PRODUCT AND COMPANY

**Supplier:** SHANGHAI MINGDOU AGROCHEMICAL CO., LTD

**Address:** Rm.1210, Zhenyuan Building, No. 2052 North Zhongshan Rd, Shanghai, China

**FAX:** +86 21 52912097, 61638378

**TEL:** +86 21 52912919, 52045380, 52045370

**Product name:** Tebuconazole 97% TC

### 2. COMPOSITION/INFORMATION ON INGREDIENTS

**Formulation Type:** Technical material

**Active Ingredients:** Tebuconazole

**Chemical Abstracts name:**

$\alpha$ -[2-(4-chlorophenyl)ethyl]- $\alpha$ -(1,1-dimethylethyl)-1H-1,2,4-triazole-1-ethanol

**IUPAC name:**

(*RS*)-1-p-chlorophenyl-4,4-dimethyl-3-(1H-1,2,4-triazol-1-ylmethyl)pentan-3-ol

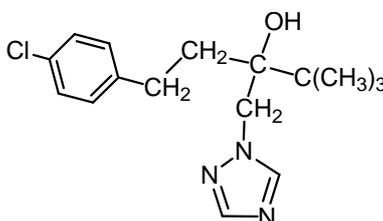
**Chemical Family:** triazole

**CAS NO.** 107534-96-3

**Molecular Formula:** C<sub>16</sub>H<sub>22</sub>ClN<sub>3</sub>O

**Molecular Weight:** 307.8

**Structural Formula:**



**Composition:**

INGREDIENT	CAS NO	PROPORTION (W/W)
Tebuconazole	107534-96-3	97% Min
Inert ingredients	Not available	3% Max

Other ingredients determined not to be hazardous



### 3. HAZARDS IDENTIFICATION

**Emergency overview:** Caution! Keep out of reach of children. Harmful if swallowed. Do not breathe dust. Avoid contact with skin and eyes.

**Environmental hazards:** Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

### 4. FIRST AID MEASURES

**General:** Have the product container, label or Material Safety Data Sheet with you when going for treatment. Tell the person contacted the complete product name, and the type and amount of exposure. Describe any symptoms and follow the advice given.

**Inhalation:** Remove victim from area of exposure - avoid becoming a casualty. Remove contaminated clothing and loosen remaining clothing. Allow patient to assume most comfortable position and keep warm. Keep at rest until fully recovered. Seek medical advice if effects persist.

**Skin Contact:** If skin contact occurs, remove contaminated clothing and wash skin with running water. If irritation occurs seek medical advice.

**Eye Contact:** If in eyes, wash out immediately with water. In all cases of eye contamination it is a sensible precaution to seek medical advice.

**Ingestion:** Rinse mouth with water. If swallowed, give a glass of water to drink. If vomiting occurs give further water. Seek medical advice.

**Note to physician:** No specific antidote. Treat symptomatically.

### 5. FIRE FIGHTING MEASURES

**Flash point:** Not highly flammable.

**Flammable limits:**

LFL: Not determined.

UFL: Not determined.

**Autoignition temperature:** Not determined.

**Hazardous combustion products:** Not combustible, however following evaporation of the water component of the material, the residual material can burn if ignited. On burning will emit toxic fumes.

**Extinguishing media:** Not combustible, however, if material is involved in a fire use: Water fog (or if unavailable fine water spray), foam, dry agent (carbon dioxide, dry chemical powder).

**Fire-fighting instructions:** Evacuate nonessential personnel from the area to prevent human exposure to fire, smoke, fumes or products of combustion. Prevent use of contaminated buildings, area, and equipment until decontaminated. Water runoff can cause environmental damage. If water is used to fight fire, dike and



collect runoff.

**Protective equipment for firefighters:** Fire fighters to wear self-contained breathing apparatus and suitable protective clothing if risk of exposure to vapour or products of combustion.

## 6. ACCIDENT RELEASE MEASURES

**Personal precautions:** Wear protective equipment to prevent skin and eyes being affected. Evacuate unprotected and unnecessary personnel from area of spill.

**Environmental precautions:** Prevent spillage entering drains or watercourse.

**Method for cleaning up:** If material is leaking from a container, stop the leak only if this can be done safely. Vermiculite, Sand, Soil is a suitable absorbent, especially soils high in clay. Soil can be used to form bunds to contain spillage. Contaminated soil should be collected for disposal at a suitable landfill. Contaminated area and tools should be washed down with hypochlorite bleach. Personal protective equipment and clothing should be washed with soapy water.

## 7. HANDLING AND STORAGE

**Handling:** Read the label before use. Keep away from food, drink, and animal feedstuff. KEEP OUT OF REACH OF CHILDREN. Wear suitable Personal protective equipment when handling and spraying.

**Storage:** Store in the original container in a dry, cool, ventilated, LOCKED area. DO NOT store in prolonged sunlight. DO NOT store with food, seed, or animal feedstuff.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Exposure limits:** No exposure limits have been established for this material.

**Engineering measures:** Use assisted ventilation in enclosed spaces if needed, especially storage areas.

### Personal protective equipment (PPE):

**Respiratory protection:** A combination particulate/ organic vapor respirator may be necessary until effective engineering controls are installed to comply with occupational exposure limits.

**Skin protection:** Where contact is likely, wear chemical-resistant gloves (such as barrier laminate or butyl rubber), coveralls, socks and chemical-resistant footwear.

**Eye protection:** Where eye contact is likely, use chemical splash goggles.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**Appearance:** White to beige powder.

**Odor:** Weak.

**S.g./density:** 1.25 (26 °C).

**Solubility in water:** 36 mg/l.



**Melting point:** 105 °C.

**Boiling point:** Decomposes before boiling.

**Degradation point:** 350 °C.

**Octanol-water partition coefficient:** Log P: 3.7 (at pH 7, 20 °C)

## 10. STABILITY AND REACTIVITY

**Chemical stability:** Stable under normal conditions.

**Conditions to avoid:** Very high or low temperatures.

**Hazardous decomposition:** Burning with limited oxygen may produce carbon monoxide.

**Incompatible materials:** Strong oxidising agents.

**Hazardous reactions:** Hazardous polymerization will not occur.

## 11. TOXICOLOGICAL INFORMATION

The following information is for the active ingredient, Tebuconazole.

### Acute toxicity:

Oral: LD<sub>50</sub> for male rats 4000, female rats 1700, mice c. 3000 mg/kg.

Dermal: LD<sub>50</sub> for rats >5000 mg/kg.

Inhalation: LC<sub>50</sub> for rats 0.37 mg/l air (aerosol), >5.1 mg/l (dust).

### Irritant properties:

Skin: Non-irritating to skin (rabbits).

Eye: Mild irritant to eyes (rabbits).

**Chronic toxicity/Carcinogenicity:** Prolonged overexposure to tebuconazole may cause effects to liver, spleen, adrenals and/or eyes. Tebuconazole was not carcinogenic in a chronic feeding study in rats. In a mice study, there was an increased incidence of liver tumors at the highest dose tested.

**Reproductive toxicity:** Animal studies on tebuconazole resulted in decreased pup body weights and smaller litters at doses that were also toxic to mother animals.

**Developmental toxicity:** In animals studies with tebuconazole, developmental effects were observed at doses that were also toxic to the maternal animal.

**Genotoxicity:** Neither in vitro nor in vivo tests on tebuconazole demonstrated mutagenic effects.

## 12. ECOLOGICAL INFORMATION

The following information is for the active ingredient, Tebuconazole.

### Ecotoxicity:

Birds Acute oral LD<sub>50</sub>: for male Japanese quail 4438, female Japanese quail 2912, bobwhite quail 1988 mg/kg b.w.



- Dietary LC<sub>50</sub> (5 days): for mallard ducks >4816, bobwhite quail >5000 mg/kg feed.
- Fish LC<sub>50</sub> (96 h): for rainbow trout 4.4, bluegill sunfish 5.7 mg/l (flow through).
- Daphnia EC<sub>50</sub> (72 h, static): for *Selenastrum capricornutum* 3.80 mg/l.
- Bees LD<sub>50</sub> (oral): 83 µg/bee  
LD<sub>50</sub> (contact): >100 µg/bee.
- Earthworm: LC<sub>50</sub> (14 days): for *Eisenia foetida* 1381 mg/kg dry soil.

**Persistence and degradability:** Tebuconazole is soluble in water. It is stable to hydrolysis and photolysis on soil and in water. The photolysis half-life of tebuconazole in soil averages 190 days and in water averages 590 days.

**Bioaccumulative potential:** BCF (Bio-concentration factor): 78, low potential.

**Mobility in soil:** Tebuconazole has a low to moderate mobility in soils. Absorption to soil increases as level of organic matter and clay increases.

### 13. DISPOSAL CONSIDERATION

Triple or preferably pressure rinse containers before disposal. Add rinsings to spray tank. Do not dispose of undiluted chemicals on-site. If recycling, replace cap and return clean containers to recycler or designated collection point. If not recycling, break, crush or puncture and bury empty containers in a local authority landfill. If no landfill is available, bury the containers below 500 mm in a disposal pit specifically marked and set up for this purpose clear of waterways, desirable vegetation and tree roots. Empty containers and product should not be burnt.

### 14. TRANSPORT INFORMATION

**UN Number:** 3077

**UN Proper shipping name:** Environmentally hazardous substances, solid, n.o.s.

**Transport hazard class:** 9

**Packing group:** III

**Marine pollutant:** Yes

### 15. REGULATORY INFORMATION

**Hazard symbols:**

Xn Harmful

N Dangerous for the environment

**Risk phrases:**

R22 Harmful if swallowed.

R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.



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R63 Possible risk of harm to the unborn child.

**Safety phrases:**

S2 Keep out of the reach of children.

S22 Do not breathe dust.

S36/37 Wear suitable protective clothing and gloves.

S61 Avoid release to the environment. Refer to special instructions/safety data sheet.

**16. OTHER INFORMATION**

This MSDS summarizes our best knowledge of the health and safety hazard information of the product and how to safely handle and use the product in the workplace. Each user should read this MSDS and consider the information in the context of the how the product will be handled and used in the workplace including in conjunction with other products.

If clarification or further information is needed to ensure that an appropriate risk assessment can be made the user should contact the company.

END OF MSDS