

Material Safety Data Sheet

Difenoconazole 150g/L + Propiconazole 150g/L EC

1. PRODUCT IDENTIFICATION

Product Name: Difenoconazole 150g/L + Propiconazole 150g/L EC
Common Name: Difenoconazole + Propiconazole
Chemical Family: Triazole (Difenoconazole);
Triazole (Propiconazole).
Chemical Formula: $C_{19}H_{17}Cl_2N_3O_3$ (Difenoconazole);
 $C_{15}H_{17}Cl_2N_3O_2$ (Propiconazole).
Chemical Name: cis, trans -3-chloro -4-[4-methyl -2- (1H-1,2,4-triazol -1-ylmethyl)-1,3-dioxolan-2-yl]phenyl 4-chlorophenyl ether (IUPAC) (Difenoconazole);
(±)-1-[2-(2,4-dichlorophenyl)-4-propyl-1,3-dioxolan-2-ylmethyl]-1H-1,2,4-triazole (IUPAC) (Propiconazole).
CAS No.: 119446-68-3 (Difenoconazole);
60207-90-1 (Propiconazole).
Product Use: Fungicide

2. COMPOSITION/INFORMATION ON INGREDIENTS

<u>Ingredient Name</u>	<u>CAS Registry Number</u>	<u>Typical Wt. w/v</u>
Difenoconazole		150g/L
Propiconazole	119446-68-3	150g/L
Inert	60207-90-1	to balance
	/	

3. HAZARDS IDENTIFICATION

Emergency Overview

Light yellow liquid with not distinct

odor.

KEEP OUT OF REACH OF
CHILDREN

MAY CAUSED SKIN SLIGHT
IRRITATION

MAY CAUSED EYE SLIGHT
IRRITATION

Potential Health effects

Dermal contact, ingest and inhalation of the product are the primary routes to induce potential adverse health effects. Inhalation of aerosol during application of the product as part of its end use is another potential route of entry. Eye and skin irritation may occur from contact with the liquid or spray mixture.

4. FIRST AID MEASURES

If swallowed: Rinse mouth with water. Never give anything by mouth to an unconscious person. Should be send to the hospital treatment immediately.

If in eye: Immediately rinse eyes with a large amount of running water. Hold eyelids apart to rinse the advice of a physician.

If on skin: Wash with plenty of soap and water, including hair and under fingernails. Do not apply any medicating agents except on the advice of a physician. Remove contaminated clothing and decontaminate prior to use.

If Inhaled: Move victim from contaminated area to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Get immediate medical attention.

Notes to Physician: There is no specific antidote, Treat symptomatically.

5. FIRE FIGHTING MEASURES

Fire and explosive Properties

Auto-Ignition Temperature	Not applicable
Flash Point	Not available.

Extinguishing Media

Water fog, Carbon Dioxide, Dry Chemical, Foam.

Fire Fighting Instructions

The product is not flammable. But if firing, fire fighters and others who may be exposed to products of combustion should wear full firefighting turn out gear and self-contained breathing apparatus. Firefighting equipment should be thoroughly decontaminated after use.

Person who may have been exposed to contaminated smoke should be immediately examined by a physician and checked for symptoms of poisoning. The symptoms should not be mistaken for heat exhaustion or smoke inhalation.

6. ACCIDENTAL RELEASE MEASURES

In Case of Spill or Leak

Stop the leak, if possible. Ventilate the space involved. Absorb, sweep up, place in container for disposal. Shut off or remove all ignition sources. Prevent waterway contamination. Construct a dike to prevent spreading. Protect works with water spray. Collect run-off water and transfer to drums or tanks for later disposal.

7. HANDLING AND STORAGE

Handling

Harmful if swallowed, inhaled, or absorbed through the skin. Causes eye irritation. Do not breathe gas or allow to get in eyes, on skin, or on clothing. Wash hands, arm and face thoroughly with soap and warm water after use and before eating or smoking. Wash all contaminated clothing with soap and hot water before reuse. Do not contaminate feed or food items. Keep out of reach of children.

Storage

Store in a cool dry and air ventilating warehouse and protected from light. Avoid contacting with food, feed stuff and seed.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Eye/Face Protection

Goggles and full-face shield should be used when needed to prevent liquid from face and getting into the eyes.

Skin Protection

Avoid skin contact. Use chemical-resistant gloves, and wear long sleeves and trousers to prevent dermal exposure.

Respiratory Protection

Under normal handling conditions no respiratory protection is needed. However, if needed to prevent respiratory irritation, either a respirator approved for dusts and mists, or one approved for pesticides.

9. PHYSICAL AND CHEMICAL PROPERTIES

Color:	Light yellow
Physical state:	Liquid
Odor:	Not distinct odor
pH:	5.0-8.0
Melting point	82.0–83.0 °C (Difenoconazole); –23 °C (glass transition temperature) (Propiconazole)
Boiling point:	100.8 °C/3.7 mPa (Difenoconazole); 99.9 °C (0.32 Pa) (Propiconazole)
Vapor pressure:	3.3×10^{-5} mPa (25 °C) (Difenoconazole); 5.6×10^{-2} mPa (25 °C) (Propiconazole)
Solubility in water:	In water 15 mg/l (25 °C). (Difenoconazole); In water 100 mg/l (20 °C). (Propiconazole)

Solubility in organic solvents: In acetone, dichloromethane, toluene, methanol and ethyl acetate >500, hexane 3, octanol 110 (all in g/l, 25 °C). (Difenoconazole);
In *n*-hexane 47 g/l. Completely miscible with ethanol, acetone, toluene and *n*-octanol (25 °C). (Propiconazole)

Partition coefficient: Kow logP= 4.4 (25 °C) (Difenoconazole);
Kow logP= 3.72 (pH 6.6, 25 °C) (Propiconazole)

10. STABILITY AND REACTIVITY

Stability

Stable up to 150 °C. Hydrolytically stable. (Difenoconazole);
Stable up to 320 °C; no significant hydrolysis. (Propiconazole)

Hazardous Polymerization

Does not occur.

Incompatibility

The product is not compatible with strong oxide agents.

Hazardous Decomposition Products

Not available

11. TOXICOLOGICAL INFORMATION

Acute Oral: Acute oral LD₅₀ for rats 1453, mice >2000 mg/kg. (Difenoconazole);
Acute oral LD₅₀ for rats 1517, mice 1490 mg/kg. (Propiconazole)

Acute Dermal: Acute percutaneous LD₅₀ for rabbits >2010 mg/kg. (Difenoconazole);
Acute percutaneous LD₅₀ for rats >4000 mg/kg. (Propiconazole)

Irritation: Non-irritant to eyes and skin (rabbits). (Difenoconazole);
Non-irritating to skin and eyes (rabbits). (Propiconazole)

Sensitization: Not a skin sensitizer (guinea pigs). (Difenoconazole)
Skin sensitizer (guinea pigs). (Propiconazole)

Long-term Studies: Not teratogenic or mutagenic. (Difenoconazole)
Not mutagenic, not teratogenic. No carcinogenic potential of relevance for human exposure. (Propiconazole)

12. ECOLOGICAL INFORMATION

Ecotoxicological Information

Difenoconazole

Effects on Birds: Acute oral LD₅₀ (9–11 d) for mallard ducks >2150, Japanese quail >2000 mg/kg b.w. Dietary LC₅₀ (5 d) for bobwhite quail 4760, mallard ducks >5000 ppm.

Effects on Fish: LC₅₀ (96 h) for rainbow trout 1.1, bluegill sunfish 1.3, sheepshead minnows 1.1 mg/l.

Effects on Daphnia: EC₅₀ (48 h) 0.77 mg/l.

Effects on Algae: EC₅₀ (72 h) for *Scenedesmus subspicatus* 0.03 mg/l.

Effects on Bees: Non-toxic to honeybees; LD₅₀ (oral) >187 µg/bee; LC₅₀ (contact) >100 µg/bee.

Propiconazole

- Effects on Birds: Acute oral LD₅₀ for Japanese quail 2223, bobwhite quail 2825, mallard ducks >2510, Pekin ducks >6000 mg/kg b.w. LC₅₀ (5 d) for Japanese quail >10€000, bobwhite quail >5620, mallard ducks >5620, Pekin ducks >10€000 mg/kg diet.
- Effects on Fish: LC₅₀ (96 h) for carp 6.8, rainbow trout 4.3, golden orfe 5.1, sprutte (*Leiostomus xanthurus*) 2.6 mg/l.
- Effects on Daphnia: EC₅₀ (48 h) 10.2 mg/l.
- Effects on Bees: LD₅₀ (contact and oral) >100µg/bee.

Chemical Fate Information

- Animals: After oral administration, difenoconazole was rapidly eliminated practically to entirety, with urine and faeces. Residues in tissues were not significant and there was no evidence for accumulation. (Difenoconazole)
- After oral administration to rats, propiconazole is rapidly absorbed and also rapidly and almost completely eliminated with urine and faeces. Residues in tissues were generally low and there was no evidence for accumulation or retention of propiconazole or its metabolites. The major sites of enzymic attack are the propyl side-chain and the cleavage of the dioxolane ring, together with some attack at the 2,4-dichlorophenyl and 1,2,4-triazole rings. In mice, the major metabolic pathway is via cleavage of the dioxolane ring. (Propiconazole)
- Plants: Two routes of metabolism: one by a triazole route to triazolylalanine and triazolylacetic acid; the other by hydroxylation of the phenyl ring, followed by conjugation. (Difenoconazole)
- Degradation proceeds through hydroxylation of the *n*-propyl side-chain and dementalization of the dioxolan ring. After cleavage of triazole, triazole-alanine is formed as the main metabolite. Metabolites are conjugated mostly as glucosides. (Propiconazole)
- Soil/Environment: Practically immobile in soil, strong adsorption to soil particles (mean adsorption coefficient normalized to organic carbon, K_{oc,ads} 4545 ml/g), low potential to leach below top soil layer. Soil dissipation rate is slow and dependent on application rate; DT₅₀ 3 mo–1 y. Hydrolytically stable at pH 5–9 (25 °C). Undergoes indirect photolysis in (sterile) natural water; DT₅₀ 4.6 d. In standard lab. water-sediment systems (n=2) in the dark, rapid dissipation from the water, DT₅₀ 1–3 d, but slow degradation in whole system, DT₅₀ c. 8 mo. (Difenoconazole)
- Soil DT₅₀ (aerobic, 20–25 °C, lab.) 29–128 d; (field) 5–148 d. Immobile in soil; normalized K_{oc (ads)} 950 ml/g. DT₅₀ from water 5.5–6.4 d (sorption to sediment), from sediment 485–636 d. Hydrolytically stable in water; photolytic DT₅₀ in sterile natural water 18 d (latitude 30–50° N) The main degradation pathways are hydroxylation of the propyl side-chain and the dioxolane ring, leading finally to formation of 1,2,4-triazole. (Propiconazole)

13. DISPOSAL CONSIDERATIONS

Waste Disposal

Pesticide wastes are acutely hazardous. Do not reuse product containers. Dispose product containers, waste containers, residues according local health and environmental regulations.

14. TRANSPORT INFORMATION

UN Number: 1993

Dangerous Goods Class: 3

Packing Group: III

15. REGULATORY INFORMATION

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

16. OTHER INFORMATION

The information contained herein relates only to the specific material identified. We believe that such information is accurate and reliable as of the date of this material safety data sheet, but no representation, guarantee or warranty, express or implied, is made as to the reliability or completeness of the information. Urge persons receiving this information to make their own determination as to the information's suitability and completeness for their particular application.