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## 1. PRODUCT IDENTIFICATION

**Product Name:** Shepherd® Fungicide  
**Active Ingredient (%):** Propiconazole (14.3%)  
**CAS No.:** 60207-90-1

**EPA Reg. No.:** 69117-3  
**EPA Est:** 69117-NE-1  
**EPA Signal Word:** Warning

**Chemical Description:** 1-[[2-(2,4-dichlorophenyl)-4-propyl-1,3-dioxolan-2-yl]methyl]-1H-1,2,4-triazole  
**Chemical Class:** Triazole Derivative Fungicide

## 2. COMPOSITION/INFORMATION ON INGREDIENTS

| Material                          | OSHA PEL        | ACGIH TLV       | Other                        | NTP/IARC/OSHA Carcinogen |
|-----------------------------------|-----------------|-----------------|------------------------------|--------------------------|
| Tetrahydrofurfuryl Alcohol (THFA) | Not established | Not established | 2 ppm (TWA)****              | No                       |
| Propiconazole (14.3%)             | Not established | Not established | 10 mg/m <sup>3</sup> TWA *** | No                       |

\*\*\* Occupational Exposure Limit (OEL)

\*\*\*\* Recommended by AIHA (American Industrial Hygiene Association)

Ingredients not precisely identified are proprietary or non-hazardous. Values are not product specifications.

**Hazard Category:** B

## 3. HAZARDS IDENTIFICATION

**Symptoms of Acute Exposure:** May cause eye irritation.

Exposure to high vapor levels may cause headache, dizziness, numbness, nausea, incoordination, or other central nervous system effects.

**Hazardous Decomposition Products:** Can decompose at high temperatures forming toxic gases.

### Physical Properties:

**Appearance:** Clear blue liquid

**Odor:** Aromatic solvent

**Unusual Fire, Explosion and Reactivity Hazards:** Combustible liquid. Can release vapors that form explosive mixtures at temperatures at or above the flash point. Heavy vapors can flow along surfaces to distant ignition sources and flash back.

During a fire, irritating and possibly toxic gases may be generated by thermal decomposition or combustion.

## 4. FIRST AID MEASURES

**Have the product container, label, or Material Safety Data Sheet with you when calling a poison control center or doctor, or going for treatment.**

**If in Eyes:** Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

**If on Skin or Clothing:** Take off contaminated clothing. Immediately rinse skin with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

**If Swallowed:** Immediately call a poison control center or doctor for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by the poison control center or doctor. Do not give anything by mouth to an unconscious person.

**If Inhaled:** Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by

mouth-to-mouth, if possible. Call a poison control center or doctor for further treatment advice.

## 5. FIRE FIGHTING MEASURES

### Fire and Explosion:

**Flash Point (Test Method):** 181°F (Setaflash)

**Flammable Limits (% in Air):**

**Lower:** % Not applicable

**Upper:** % Not applicable

**Autoignition Temperature:** Not available

**Flammability:** Combustible liquid

**Unusual Fire, Explosion and Reactivity Hazards:** Combustible liquid. Can release vapors that form explosive mixtures at temperatures at or above the flash point. Heavy vapors can flow along surfaces to distant ignition sources and flash back.

During a fire, irritating and possibly toxic gases may be generated by thermal decomposition or combustion.

**In Case of Fire:** Use appropriate extinguishing media for combustibles in the area. Wear full protective clothing and self-contained breathing apparatus. 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.

## 6. ACCIDENTAL RELEASE MEASURES

**In Case of Spill or Leak:** Control the spill at its source. Contain the spill to prevent from spreading or contaminating soil or from entering sewage and drainage systems or any body of water. Clean up spills immediately, observing precautions outlined in Section 8. Cover entire spill with absorbing material and place into compatible disposal container. Scrub area with hard water detergent (e.g. commercial products such as Tide, Joy, Spic and Span). Pick up wash liquid with additional absorbent and place into compatible disposal container. Once all material is cleaned up and placed in a disposal container, seal container and arrange for disposition.



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## 7. HANDLING AND STORAGE

Store the material in a well-ventilated, secure area out of reach of children and domestic animals. Do not store food, beverages, or tobacco products in the storage area. Prevent eating, drinking, tobacco use, and cosmetic application in areas where there is a potential for exposure to the material. Wash thoroughly with soap and water after handling.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**THE FOLLOWING RECOMMENDATIONS FOR EXPOSURE CONTROLS/PERSONAL PROTECTION ARE INTENDED FOR THE MANUFACTURE, FORMULATION, PACKAGING, AND USE OF THIS PRODUCT.**

**FOR COMMERCIAL APPLICATIONS AND/OR ON-FARM APPLICATIONS, CONSULT THE PRODUCT LABEL.**

**Ingestion:** Prevent eating, drinking, tobacco usage, and cosmetic application in areas where there is a potential for exposure to the material. Wash thoroughly with soap and water after handling.

**Eye Contact:** Where eye contact is likely, use chemical splash goggles. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

**Skin Contact:** Where contact is likely, wear chemical-resistant (such as nitrile or butyl) gloves, coveralls, socks, and chemical-resistant footwear. For overhead exposure, wear chemical-resistant headgear.

**Inhalation:** Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below exposure limits. A NIOSH-certified combination air-purifying respirator with an N, P, or R 95 or HE class filter and an organic vapor cartridge may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits. Protection provided by air-purifying respirators is limited. Use a pressure demand atmosphere-supplying respirator if there is any potential for uncontrolled release, exposure levels are not known, or under any other circumstances where air-purifying respirators may not provide adequate protection.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**Appearance:** Clear blue liquid

**Odor:** Aromatic solvent

**Melting Point:** Not applicable

**Boiling Point:** Not available

**Specific Gravity/Density:** 1.09 g/cm<sup>3</sup>

**pH:** 4–7 (10% solution in H<sub>2</sub>O)

**Solubility in H<sub>2</sub>O:** Propiconazole: 0.1 g/l @ 68°F (20°C)

**Vapor Pressure:** Propiconazole: 4.2 x 10<sup>-7</sup> mmHg @ 77°F (25°C)

## 10. STABILITY AND REACTIVITY

**Stability:** Stable under normal use and storage conditions

**Hazardous Polymerization:** Will not occur

**Conditions to Avoid:** Flame, heat, ignition sources

**Materials to Avoid:** Strong oxidizers

**Hazardous Decomposition Products:** Can decompose at high temperatures forming toxic gases

## 11. TOXICOLOGICAL INFORMATION

### Acute Toxicity/Irritation Studies (Finished Product)

### Ingestion: Slightly Toxic

Oral (LD50 Rat): 4,340 mg/kg body weight

### Dermal: Slightly Toxic

Dermal (LD50 Rabbit): > 2,020 mg/kg body weight

### Inhalation: Slightly Toxic

Inhalation (LC50 Rat): > 2.6 mg/1 air – 4 hours

**Eye Contact:** Moderately irritating (Rabbit)

**Skin Contact:** Non-irritating (Rabbit)

**Skin Sensitization:** Not a sensitizer (Guinea Pig)

### Reproductive/Developmental Effects

**Propiconazole:** None observed

### Chronic/Subchronic Toxicity Studies

**Propiconazole:** None observed

### Carcinogenicity

**Propiconazole:** Increased incidence of liver tumors at extremely high doses (male mice).

### Other Toxicity Information: None

### Toxicity of Other Components:

**Tetrahydrofurfuryl Alcohol (THFA):** Inhalation of vapors at high concentrations can cause central nervous system effects (dizziness, headache), irritation to eyes or respiratory tract. Chronic overexposure may affect the kidney.

### Target Organs:

**Active Ingredients:** Propiconazole: Liver

**Inert Ingredients:** Tetrahydrofurfuryl Alcohol (THFA): CNS, Kidney

## 12. ECOLOGICAL INFORMATION

### Summary of Effects:

**Propiconazole:** Moderately toxic to fish and invertebrates. Practically non-toxic to birds and bees.

### Eco-Acute Toxicity:

#### Propiconazole:

Bees LC50/EC50 > 25 ug/bee

Invertebrates (Water Flea) LC50/EC50 3.2 – 10.2 ppm

Fish (Trout) LC50/EC50 4.3 ppm

Fish (Bluegill) LC50/EC50 5.7 – 6.4 ppm

Bird (8-day dietary – Bobwhite Quail) LC50/EC50 > 5,620 ppm

Bird (8-day dietary – Mallard Duck) LC50/EC50 > 5,620 ppm

### Eco-Chronic Toxicity:

#### Propiconazole:

Fish (Fathead minnow) Early Life Stage MATC > 0.43 and < 0.97 mg/l

Invertebrate (Daphnia Magna) Life Cycle MATC > 0.31 and < 0.69 mg/l

Mallard Reproduction NOEC 300 ppm

Bobwhite Reproduction NOEC 1,000 ppm



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**Environmental Fate:****Propiconazole:**

The information presented here is for the active ingredient, Propiconazole.

Low bioaccumulation potential. Not persistent in soil. Stable in water. Low mobility in soil. Sinks in water (after 24 h).

**13. DISPOSAL CONSIDERATIONS**

Do not contaminate water, food, or feed by storage or disposal.

**Pesticide Storage:** Store in a tightly closed container in a cool, dry place.

**Pesticide Disposal:** Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

**Container Disposal:** Completely empty pack into application equipment, then dispose of empty pack in a sanitary landfill or by incineration, or if allowed by State and local authorities, by burning; if burned, stay out of smoke.

**14. TRANSPORT INFORMATION****DOT Classification:****Surface Transportation**

**Non-Bulk Containers (<= 119 gal. cap.):** Not regulated by DOT

**Bulk Containers (>119 gal. cap.):** Combustible liquid, n.o.s.  
(Tetrahydrofurfuryl Alcohol), NA1993, PGIII

**Air Transportation**

**Domestic and International:** Not regulated

**B/L Freight Classification:** Fungicides, NOIBN, o/t poison

**Comments:**

**International Transportation (Water):** Not regulated

**15. REGULATORY INFORMATION****EPCRA SARA Title III Classification:**

**Section 311/312 Hazard Classes:**

Acute Health Hazard

Fire Hazard

**Section 313 Toxic Chemicals:** Propiconazole (14.3%)  
(CAS No. 60207-90-1)

**California Proposition 65:** Not applicable

**CERCLA/SARA 302 Reportable Quantity (RQ):** None

**RCRA Hazardous Waste Classification (40 CFR 261):** Not applicable

**TSCA Status:** Exempt from TSCA, subject to FIFRA

**16. OTHER INFORMATION****NFPA Hazard Ratings**

Health: 2

Flammability: 2

Instability: 0

**HMIS Hazard Ratings**

Health: 1

Flammability: 2

Reactivity: 0

**Rating Key**

0 = Minimal

1 = Slight

2 = Moderate

3 = Serious

4 = Extreme

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*The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind, expressed or implied, is made with respect to the information contained herein. It is the responsibility of the user to comply with all laws and procedures applicable to the safe handling, storage, and use of this product and to determine the suitability of the product for its intended use. IT IS A VIOLATION OF FEDERAL LAW TO USE THIS PRODUCT IN A MANNER INCONSISTENT WITH ITS LABELING.*

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