

# CONSUMER SAFETY RESOURCE DOCUMENT

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## **Ballard Enterprises**

Pesticide Business License #: 34421

Pest Control Applicator Certificate #: 34421-104456

Phone: 410-721-3066

Email: [contracts@ballardenterprises.com](mailto:contracts@ballardenterprises.com)

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## **IMPORTANT SAFETY INFORMATION**

This document provides general safety information regarding pesticide and chemical products that may be used during services provided by **Ballard Enterprises**.

For product-specific details, please review the Safety Data Sheets (SDS) and product labels included below.

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## **GENERAL SAFETY GUIDELINES**

- Avoid contact with treated areas until dry or as directed on the product label
  - Keep children and pets away from treated areas until safe for re-entry
  - Do not ingest or inhale treated materials
  - Wash hands after contact with treated surfaces
  - Follow all instructions provided on product labels
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## **EMERGENCY CONTACT INFORMATION**

### **Poison Control Center (24/7):**

1-800-222-1222

In case of exposure or adverse reaction:

- Seek medical attention if necessary
  - Reference the product label or SDS
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**PLANT  
FOOD**  
COMPANY, INC.

The Liquid Fertilizer Experts

**SPECIFICATIONS:**

Density: 12.5 lb/ Gallon  
pH: 6.8 - 7.2

Each Gallon Contains:  
7.03 lb Active Ingredients  
3.71 lb PolyPhosphite  
3.32 lb Potassium

**NET CONTENTS:**

2.5 Gallons (9.46 Liters)  
WT/ gal 12.50 lb (5.66 kg)  
Net Wt. 31.25 lb (14.17 kg)  
Case Wt. 62.50 lb (28.34 kg)

- 2x2.5 gal | 2x9.46 L
- 30 gal | 113.56 L
- 55 gal | 208.20 L
- 275 gal | 1040.99 L

8/15/24

**Company Information:**  
Plant Food Company, Inc.  
38 Hightstown-Cranbury Station Rd  
Cranbury, New Jersey, USA, 08512  
1-800-562-1291 | 609-448-0935  
[www.plantfoodco.com](http://www.plantfoodco.com)

**MADE IN USA**

# PolyPhosphite 30<sup>®</sup>

0-0-27 Foliar Potassium Polyphosphite



**Guaranteed Analysis:**

Soluble Potash (K<sub>2</sub>O) ..... 27.00%

**Derived from:**

Phosphorous Acid and Potassium Hydroxide.

**PolyPhosphite 30<sup>®</sup>** (0-0-27) is a pure potassium polyphosphite fertilizer solution, manufactured in a one-step process by reacting Phosphorous Acid and Potassium Hydroxide in a patented high heat, rapid cooling process that preserves the maximum amount of concentrated phosphite. The results are a longer lasting Polyphosphite while in the plant.

**Directions for Use:**

**Greens, Tees & Fine Turf:** Apply 2 - 6 oz. of PolyPhosphite 30<sup>®</sup> with 1.5 - 2.0 gallons of water per 1,000 sq. ft. (0.7 - 2.0 gallons of with 66 - 88 gallons of water per Acre) every 10 to 21 days throughout the growing season.

**Fairways, Roughs, Sports Turf and Lawns:** Apply 1.0 - 1.5 gallons of PolyPhosphite 30<sup>®</sup> with 44 - 88 gallons of water per acre (3.0 - 4.4 oz. with 1 - 2 gallons of water per 1,000 sq. ft.) every 14 days throughout the growing season.

**Fertigation:**

Inject the equivalent of 1 - 1.2 gallons of PolyPhosphite 30<sup>®</sup> per acre. Use the lower rate for weekly injections. Use higher injection rate when applying every 10 to 14 days or during higher stress conditions. The systemic action allows foliar and root uptake within the turf plant.

**Tree & Shrubs:**

**Broadcast Soil Method:** Mix PolyPhosphite 30<sup>®</sup> at 2 quarts per 100 gallons of water and apply as a soil drench or soil injection at the rate of 25 gallons per 1000 sq. ft. of root zone.

**Basal Drench/ Injection:** Mix PolyPhosphite 30<sup>®</sup> at the rate of 2 gallons per 100 gallons of water. Drench the soil near the stem of the shrub or tree at the rate of 1 quart per inch of stem diameter at 4.5 feet (DBH) or 1 quart per foot of height for shrubs. A soil wetting agent can be added to the mixture to improve soil penetration.

**Foliar Spray:** Mix PolyPhosphite 30<sup>®</sup> at the rate of 2 quarts per 100 gallons and apply a spray to wet the foliage. The addition of a sticker spreader at labeled rates is recommended.

**Tips To Enhance Plant Uptake:**

Do not mow or irrigate treated areas until spray has dried. Apply at 2 week intervals and repeat as needed. Rate and frequency of application may vary due to growth periods, environmental stress conditions and grass type. Do Not apply to emerging seeds, especially if soil pH is less than 6.0. Do Not mix with fixed copper or copper-based fungicides if the pH of the spray solution is below 6.0.

**Turfgrass Application Rates For PolyPhosphite 30<sup>®</sup>**

Fl Oz/ 1,000 sq.ft.	Gal/ One Acre	ML/ 100 M <sup>2</sup>	Phosphite/ 1,000 sq.ft.	Potassium/ 1,000 sq.ft.
2.0	0.7	64	0.05	0.06
3.0	1.0	95	0.08	0.09
4.0	1.4	125	0.11	0.12
4.4	1.5	140	0.12	0.13
6.0	2.0	191	0.16	0.18

**KEEP AWAY FROM CHILDREN & DOMESTIC ANIMALS.**



**WARNING:** Harmful if swallowed; may cause eye irritation. May cause skin irritation.

**FIRST AID:** Flush skin/eyes thoroughly with water and carefully remove contaminated clothing & contacts. If eye or skin irritation persists get medical advice/attention, if swallowed rinse mouth thoroughly with water and get medical advice/attention.

**STORAGE & DISPOSAL:** Store in a cool dry place above freezing; keep container closed. Do not add other material to the container. Do not allow the product to freeze. Dispose of container(s) and contents in accordance with your local laws. Do not flush to drain. Do not contaminate water, food or feed. You may be able to recycle containers by contacting your local Ag Container Recycling Council (ACRC).

**WARRANTY:** The manufacturer and seller provides no warranty of any kind, expressed or implied, except that the product will conform to the chemical description on the label. Due to unforeseeable factors the buyer and user acknowledge and assume all risks and liabilities associated with this product. The terms of this notice may not be varied by any verbal or written statement.

**HANDLING:** Avoid contact with skin. Safety goggles and rubber gloves should be worn when mixing & handling. Do not eat, drink or smoke while handling. Do Not apply near ponds, waterways or open storm-drains. Do not apply just prior to heavy rain fall.

**MIXING:** In a well ventilated space using clean mixing & application equipment, fill the mix tank 1/2 full with water; begin adding one product at a time using a proper mixing order. When mixing together more than one chemistry always perform compatibility jar test.

LF000027-Z-LABEL rev. 11.2023

# The Liquid Fertilizer Experts

**1. Identification**

**Product name** Green-T® Phosphite 30, 0-0-27  
**Product code** 03027  
**Other Identification:** **Common Name:** Potassium PolyPhosphite  
**Chemical Family:** Inorganic Salt Solution  
**Chemical Description:** Fertilizer solution derived from Mono-and Dipotassium salts of Phosphorous Acid

**Recommended use** Turf & Horticulture-Inorganic Salt Solution

**Manufacturer & Distributor information**  
**Corporate Office** **Plant Food Company, Inc.**  
 38 Hightstown-Cranbury Station Road  
 Cranbury, NJ 08512 United States  
 Information: 1-609-448-0935  
[www.plantfoodco.com](http://www.plantfoodco.com)  
[pfc@plantfoodco.com](mailto:pfc@plantfoodco.com)

**Telephone**  
**Website**  
**E-mail**  
**Contact person** **SDS-Regulatory Department**

**Emergency phone number** **1-800-424-9300 CCN725928**

**Call CHEMTREC Day or Night Within USA and Canada** **or +1 703-527-3887 (collect calls accepted)**  
**Other Countries** 1-609-448-0935


**2. Hazard(s) identification**

**Physical hazards** Not classified.

**Health hazards** Acute toxicity, oral Category 4  
 Serious eye damage/eye irritation Category 2A  
 Specific target organ toxicity, single exposure Category 3 respiratory tract irritation

**Environmental hazards** Hazardous to the aquatic environment, acute hazard Category 2  
**OSHA defined hazards** Not classified.

**Label elements**



**Signal word** **Warning**

**Hazard statement** Harmful if swallowed. Causes serious eye irritation. May cause respiratory irritation.

**Precautionary statement**  
**Prevention** Use only outdoors or in a well-ventilated area. Avoid breathing mist or vapor. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Wear eye/face protection.

**Response** If swallowed: Call a poison center/doctor if you feel unwell. If inhaled: Remove person to fresh air and keep comfortable for breathing. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a poison center/doctor if you feel unwell. Rinse mouth. If eye irritation persists: Get medical advice/attention.

**Hazard(s) not otherwise classified (HNOC)** None known.

**3. Composition/information on ingredients**

<u>Chemical Name</u>	<u>Synonym Common Name</u>	<u>CAS Number</u>	<u>EINECS No.</u>
Phosphonic acid	Phosphorous Acid	13598-36-2	237-066-7
Potassium Hydroxide	Potassium Hydroxide	1310-58-3	215-181-3



<b>4. First-aid measures</b>	
Inhalation	Remove victim from contaminated atmosphere. If breathing is labored, administer oxygen. If breathing has ceased, clear airway and start CPR. Obtain medical attention.
Skin contact	Immediately flush with large quantities of water. Remove contaminated clothing under a safety shower. Continue rinsing. Obtain medical attention if irritation occurs.
Eye contact	Immediately flush eyes with plenty of water for at least 15 minutes. Continue rinsing. Remove contact lenses, if present and easy to do. If eye irritation persists: Get medical advice/attention.
Ingestion	Rinse mouth. IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. If victim is conscious, give two to four glasses of water and induce vomiting by touching finger to back of throat. Obtain medical attention.
Most important symptoms/effects, acute and delayed	Irritation of eyes and mucous membranes.
Indication of immediate medical attention and special treatment needed	Provide general supportive measures and treat symptomatically. Keep victim warm. In case of shortness of breath, give oxygen. Keep victim under observation. Symptoms may be delayed.
General information	Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves. In the case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
<b>5. Fire-fighting measures</b>	
Flammable Properties:	NFPA: Health - 1 Flammability - 0 Reactivity - 0
Suitable extinguishing media	Not flammable, use media suitable for combustibles involved in fire.
Unsuitable extinguishing media	Not applicable.
Specific hazards arising from the chemical	During fire, gases hazardous to health may be formed. Heating (flames) of closed or sealed containers may cause violent rupture of container due to thermal expansion of compressed gases. Heating causes release of ammonia vapors. Vapors are irritating to eyes, skin and respiratory tract. Heating to dryness may cause the release of ammonia, ammonium sulfate, sulfur and oxides of sulfur (respiratory hazard).
Special protective equipment and precautions for firefighters	Self-contained breathing apparatus and full protective clothing must be worn in case of fire. Move containers from fire area if you can do so without risk. Keep containers/storage vessels in fire area cooled with water spray.
Fire-fighting equipment/instructions	
Specific methods	Move container from fire area if it can be done without risk.
General fire hazards	Heating this product will evolve ammonia
<b>6. Accidental release measures</b>	
Personal precautions, protective equipment and emergency procedures	Keep people away from any upwind of spill/leak. Keep out of low areas. Keep unnecessary personnel away. Wear appropriate personal protective equipment. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.
Environmental precautions	Avoid release to the environment. Contact local authorities in case of spillage to drain/aquatic environment. Prevent further leakage or spillage if safe to do so. Do not contaminate water. Avoid discharge into drains, water courses or onto the ground.
Methods and materials for containment and cleaning up	Stop the flow of material, if this is without risk. Large Spills: Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Absorb in vermiculite, Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination. Never return spills in original containers for re-use. For waste disposal, see section 13 of the SDS.
<b>7. Handling and storage</b>	
Precautions for safe handling	Do not taste or swallow. Avoid breathing mist or vapor. Avoid contact with eyes. Provide adequate ventilation. Wear appropriate personal protective equipment. When using, do not eat, drink or smoke. Observe good industrial hygiene practices. Wash hands thoroughly after handling. Avoid release to the environment. Do not empty into drains.
Conditions for safe storage, including any incompatibilities	Store locked up. Store in original tightly closed container. Store in a cool, dry place out of direct sunlight. Store away from incompatible materials (see Section 10 of the SDS).
<b>8. Exposure controls/personal protection</b>	
Occupational exposure limits	No exposure limits noted for ingredient(s).
Biological limit values	No biological exposure limits noted for ingredient(s).
Appropriate engineering controls	Provide eyewash station.
Individual protection measures, such as personal protective equipment	
Eye/face protection	Wear eye/face protection. Wear safety glasses with side shields (or goggles).
Skin protection	
Hand protection	For prolonged or repeated skin contact use suitable protective gloves.
Other	Wear suitable protective clothing. Wash contaminated clothing prior to reuse.
Respiratory protection	In case of insufficient ventilation, wear suitable respiratory equipment.
Thermal hazards	Wear appropriate thermal protective clothing, when necessary.
General hygiene considerations	When using, do not eat, drink or smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.



## SAFETY DATA SHEET

## Green-T® Phosphite 30, 0-0-27

### 9. Physical and chemical properties

Appearance (physical state, color, etc)	Clear liquid
Odor	Odorless
Odor threshold	Not available.
pH	6.8 - 7.0
Melting point/freezing point	32 °F (0° C) (Typical))
Initial boiling point and boiling range	222°F (106°C)
Flash point	Not available.
Evaporation rate	Not determined
Flammability (solid, gas)	Not applicable
Upper/lower flammability or explosive limits	Not applicable
Vapor pressure	Not available.
Vapor density	Not available.
Relative density	12.31 lbs/gal (1.48 kg/L)
Solubility	Complete
Solubility (water)	100%
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Data not available
Viscosity	1-10 CPS @ 21°C
Other information	
Shelf life	> 2 years

### 10. Stability and reactivity

Reactivity	Avoid interaction with heat (flames), oxidizers, acids or alkalis (see details below in this section).
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	Strong oxidizers such as nitrates, nitrites or chlorates can cause explosive mixtures if heated to dryness
Conditions to avoid	Temperatures above 120°F (49°C) and below 32°F (0°C).
Hazardous decomposition products	Heating this product will evolve ammonia. Heating to dryness will produce ammonia, ammonium sulfate, sulfur and oxides of sulfur.

### 11. Toxicological information

Information on likely routes of exposure	
Oral	Not determined
Inhalation	Not determined
Skin contact	Not determined
Eye contact	Not determined
Chronic/Carcinogenicity:	Not listed in NTP, IARC or by OSHA.
Teratology:	Data not available.
Reproduction:	Data not available.
Mutagenicity:	Data not available.



## SAFETY DATA SHEET

## Green-T® Phosphite 30, 0-0-27

### 12. Ecological information

Ecotoxicity	Not determined
Persistence and degradability	No data is available on the degradability of this product.
Bioaccumulative potential	This product is not bioaccumulative.
Mobility in soil	Not determined
Other adverse effects	Not determined

### 13. Disposal considerations

Disposal instructions	Collect and reclaim or dispose in sealed containers at licensed waste disposal site. This material and its container must be disposed of as hazardous waste. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.
Hazardous waste code	The waste code should be assigned in discussion between the user, the producer and the waste disposal company.
Waste from residues / unused products	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
Contaminated packaging	Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

### 14. Transport information

DOT	Not regulated as dangerous goods.
IATA	Not regulated as dangerous goods.
IMDG	Not regulated as dangerous goods.

### 15. Regulatory information

US federal regulations	This product meets the criteria of the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)	Not regulated.
CERCLA Hazardous Substance List (40 CFR 302.4)	Not listed.
SARA 304 Emergency release notification Hazard categories	Not regulated. Immediate Hazard - Yes Delayed Hazard - No Fire Hazard - No Pressure Hazard - No Reactivity Hazard - No
SARA 302 Extremely hazardous substance	Not listed.
Other federal regulations	
OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)	Not listed.
Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List	Not regulated.
Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)	Not regulated.
Safe Drinking Water Act (SDWA)	Not regulated.

### 16. Other information, including date of preparation or last revision

Issue date	6/1/2015
Revision date	
Version #	1
Disclaimer	While the information contained herein is presented in good faith and believed to be accurate, it is provided for your guidance only. Because many factors may affect processing or application, we recommend that you make tests to determine the suitability of a product for your particular purpose prior to use. No warranties of any kind, either expressed or implied, including warranties of merchantability or fitness for a particular purpose, are made regarding products described or information set forth, or that the products, or information may be used without infringing the intellectual property rights of others. In no case shall the information provided be considered a part of our terms and conditions of sale. Further, you expressly understand and agree that the information furnished by our company hereunder is given gratis and we assume no obligation or liability for the information given or results obtained, all such being given and accepted at your risk.

### Revision Information

Composition / Information on Ingredients: Ingredients  
Physical & Chemical Properties: Multiple Properties



# 16-4-5, 50% SRN

## Magnesium, Sulfur & Micronutrients

### Premium Liquid Fertilizer for Trees & Ornamentals



#### Guaranteed Analysis

Total Nitrogen (N) .....	16.00%
0.3% Ammoniacal Nitrogen	
7.7% Urea Nitrogen	
8.0% Slowly Available Water Soluble Nitrogen*	
Available Phosphate (P <sub>2</sub> O <sub>5</sub> ) .....	4.00%
Soluble Potash (K <sub>2</sub> O) .....	5.00%
Magnesium (Mg) .....	.0250%
.0250% Chelated Magnesium (Mg)	
Sulfur (S) .....	.2000%
Boron (B) .....	.0125%
Copper (Cu) .....	.0050%
.0050% Chelated Copper (Cu)	
Iron (Fe) .....	.2000%
.2000% Chelated Iron (Fe)	
Manganese (Mn) .....	.0250%
.0250% Chelated Manganese (Mn)	
Zinc (Zn) .....	.0125%
.0125% Chelated Zinc (Zn)	

Derived from Ammonium Nitrate, Urea, Triazone, Tech Grade Phosphoric Acid, Potassium Hydroxide, Magnesium EDTA Chelate, Solubor, Ammonium Thiosulfate, Copper EDTA Chelate, Iron EDTA Chelate, Manganese EDTA Chelate, Zinc EDTA Chelate.

\*Slowly Available Nitrogen from Urea-Triazone Solution

16-4-5, 50% SRN has been formulated for deep root feeding of trees and ornamentals. It supplies the primary nutrients of Nitrogen, Phosphorous and Potassium plus Magnesium, Sulfur, Boron, Copper, Iron, Manganese and Zinc all in one ready-to-use package. Being a liquid, 16-4-5, 50% SRN mixes instantly with water which makes it a natural to use with hydraulic equipment. A substantial percentage of the Nitrogen in 16-4-5, 50% SRN is unique as it is derived from Triazone. With Triazone, there is little chance of burn because it makes its Nitrogen available through a slow, regulated breakdown of complex molecules. Triazone lasts substantially longer than Urea or Ammonium Nitrate in the soil and provides a steady source of Nitrogen to trees and ornamentals.

■ Weight per gallon: 10.0 lbs. (4.54 kg)

■ Each gallon contains:  
1.6 lb Nitrogen  
.4 lb Phosphate  
.5 lb Potassium

■ Potential Acidity 720 lbs. CaCO<sub>3</sub> Equivalent Per Ton

■ pH 9.2 - 9.7



**PLANT  
FOOD**  
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#### Directions for Use:

**Deep Root Feeding:** To feed with your hydraulic system at the 1 pound per caliper inch rate, obtain a hydraulic needle probe unit with an on/off lever. To determine the output of your equipment, place the probe in a bucket and time how long it takes to pump one gallon of water. The time it takes to fill one gallon is the amount of time you will require for each one-gallon injection. Apply five such one-gallon injections per caliper inch of tree, totaling five gallons of diluted solution. The rate of 1 pound per caliper inch of tree is obtained by mixing 100 pounds (10 gallons) of 16-4-5, 50% into 500 gallons of water and injecting five gallons of diluted solution per caliper inch of tree. To determine the caliper inches of a tree, measure the diameter of the tree at breast height. The fertilizer injections should be made 2½ feet apart beginning two feet from the trunk of the tree going in a circular pattern around the tree extending two feet beyond the drip line. Make sure the injection probe penetrates into the soil to your desired feeding depth, which should be 8 to 12 inches deep. Care should be taken to prevent hollowing out of the root area with excessive water.

Gallons H <sub>2</sub> O	Gallons 16-4-5	Pounds 16-4-5	Caliper inches of trees
5	1/10	1	1
500	10	100	100
1000	20	200	200

**The Most Commonly Used Rate:** One pound of 16-4-5, 50% SRN per each caliper inch of tree provides:

■ .16 lb. of Nitrogen ■ .04 lb. of Phosphorus ■ .05 lb. of Potassium

**Simplified Tree & Ornamental Feeding:** For deep root feeding mix 1 to 5 gallons of 16-4-5, 50% SRN per 100 gallons of water. Inject 1 to 5 gallons of the diluted fertilizer solution per each inch of tree trunk diameter at breast height. 16-4-5, 50% SRN will provide a continuous feeding throughout the growing season.

**Foliar Feeding:** Mix 2 to 3 quarts of 16-4-5, 50% SRN per 100 gallons of water; spray until light run-off. Foliar feeding with 16-4-5, 50% SRN will help correct deficiencies that occur through the growing season. Do not foliar feed when temperatures exceed 80°F, or in drought conditions.

**Turf Feeding with 16-4-5, 50% SRN:** Know the capabilities and limitations of the applicator you plan to use. Study the area to be treated and calculate the square footage accurately. A rate of 1/2 pound Nitrogen per 1,000 sq. ft. is accomplished by applying:

■ 2½ pints per 1,000 sq. ft. ■ 1 gallon per 3,200 sq. ft. ■ 5 gallons per 16,000 sq. ft.

Add the proper amount of water to obtain this coverage. (Two to five gallons of water per 1,000 sq. ft.). The 1/2 pound rate should be used during warmer weather or when watering is not practical. Avoid application during periods of extremely hot or dry weather. The 1 pound rate should be used in spring and fall during colder weather, or where complete irrigation or watering may be accomplished after application.

#### Application Rates for 16-4-5, 50% SRN

Fluid Oz/ 1,000 sq. ft.	Gallons/ One Acre	ML/ 100 M <sup>2</sup>	L/HA Litre/ Hectare	Nitrogen/ 1,000 sq. ft.	Phosphate/ 1,000 sq. ft.	Potassium/ 1,000 sq. ft.	Magnesium/ 1,000 sq. ft.	Sulfur/ 1,000 sq. ft.	Boron/ 1,000 sq. ft.	Copper/ 1,000 sq. ft.	Iron/ 1,000 sq. ft.	Manganese/ 1,000 sq. ft.	Zinc/ 1,000 sq. ft.
6.0	2.0	191	20	0.08	0.02	0.02	0.0001	0.0010	0.0001	0.00002	0.0010	0.00001	0.00006
8.0	2.7	255	25	0.10	0.03	0.03	0.0002	0.0013	0.0001	0.00003	0.0013	0.00002	0.00008
16.0	5.4	509	50	0.20	0.05	0.06	0.0003	0.0026	0.0002	0.00006	0.0026	0.00003	0.00016
20.0	6.8	637	64	0.26	0.06	0.08	0.0004	0.0032	0.0002	0.00008	0.0032	0.00004	0.00020
32.0	10.9	1019	100	0.41	0.10	0.13	0.0006	0.0050	0.0003	0.00013	0.0052	0.00006	0.00032

#### Available Container Sizes:

2 x 2.5 gal	(2 x 9.46 L)	Case
30 gal	(113.56 L)	Drum
55 gal	(208.20 L)	Drum
275 gal	(1040.99 L)	Tote

Store above 32° F. Do not allow to freeze.


38 Hightstown-Cranbury Station Road ■ Cranbury, NJ 08512 ■ 800.562.1291 ■ pfc@plantfoodco.com ■ www.plantfoodco.com

1645

### 1. Identification

<b>Product name</b>	<b>16-4-5, 50% SRN (Slow Release Nitrogen) w/ Magnesium, Sulfur &amp; Micros</b>
<b>Product code</b>	1645
<b>Other Identification:</b>	<b>Common Name:</b> Micronutrient Fertilizer <b>Chemical Family:</b> Inorganic Salt Solution <b>Chemical Description:</b> Fertilizer solution derived from urea, ammonium nitrate, triazone, phosphoric acid, potassium hydroxide, ammonium thiosulfate, iron EDTA chelate, boric acid, copper EDTA chelate, manganese EDTA chelate, zinc EDTA chelate <b>Turf &amp; Horticulture-Inorganic Salt Solution</b>
<b>Recommended use</b>	
<b>Manufacturer &amp; Distributor information</b>	
<b>Corporate Office</b>	<b>Plant Food Company, Inc.</b> 38 Hightstown-Cranbury Station Road Cranbury, NJ 08512 United States Information: 1-609-448-0935
<b>Telephone</b>	
<b>Website</b>	<a href="http://www.plantfoodco.com">www.plantfoodco.com</a>
<b>E-mail</b>	<a href="mailto:pfc@plantfoodco.com">pfc@plantfoodco.com</a>
<b>Contact person</b>	<b>SDS-Regulatory Department</b>
<b>Emergency phone number</b>	<b>1-800-424-9300 CCN725928</b>
<b>Call CHEMTREC Day or Night Within USA and Canada</b>	<b>or +1 703-527-3887 (collect calls accepted)</b>
<b>Other Countries</b>	1-609-448-0935

### 2. Hazard(s) identification

<b>Physical hazards</b>	Not classified.	
<b>Health hazards</b>	Acute toxicity, oral Serious eye damage/eye irritation Specific target organ toxicity, single exposure	Category 4 Category 2A Category 3 respiratory tract irritation
<b>Environmental hazards</b>	Hazardous to the aquatic environment, acute hazard	Category 2
<b>OSHA defined hazards</b>	Not classified.	
<b>Label elements</b>		
<b>Signal word</b>	<b>Warning</b>	
<b>Hazard statement</b>	Harmful if swallowed. Causes serious eye irritation. May cause respiratory irritation.	
<b>Precautionary statement</b>		
<b>Prevention</b>	Use only outdoors or in a well-ventilated area. Avoid breathing mist or vapor. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Wear eye/face protection.	
<b>Response</b>	If swallowed: Call a poison center/doctor if you feel unwell. If inhaled: Remove person to fresh air and keep comfortable for breathing. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a poison center/doctor if you feel unwell. Rinse mouth. If eye irritation persists: Get medical advice/attention.	
<b>Hazard(s) not otherwise classified (HNOC)</b>	None known.	

### 3. Composition/information on ingredients

<u>Chemical Name</u>	<u>Synonym Common Name</u>	<u>CAS Number</u>	<u>EINECS No.</u>
Carbonyl Diamide	Urea	57-13-6	200-315-5
Ammonium Nitrate	Ammonium Nitrate	6484-52-2	229-347-8
1,3,5-triazinan-2-one	Triazone	7098-14-8	230-406-5
trihydroxidooxidophosphorus phosphoric acid	Phosphoric Acid	7664-38-2	231-633-2
Potassium Hydroxide	Potassium Hydroxide	1310-58-3	215-181-3
Dipotassium salt of carbonic acid	Potassium Carbonate	584-08-7	209-529-3
Thiosulfuric acid dipotassium salt	Potassium thiosulfate	10294-66-3	233-666-8
Thiosulfuric acid diammonium salt	Ammonium thiosulfate	7783-187-8	231-982-0



## SAFETY DATA SHEET

## 16-4-5, 50% SRN (Slow Release Nitrogen) w/ Magnesium, Sulfur & Micros

### 4. First-aid measures

Inhalation	Remove victim from contaminated atmosphere. If breathing is labored, administer oxygen. If breathing has ceased, clear airway and start CPR. Obtain medical attention.
Skin contact	Immediately flush with large quantities of water. Remove contaminated clothing under a safety shower. Continue rinsing. Obtain medical attention if irritation occurs.
Eye contact	Immediately flush eyes with plenty of water for at least 15 minutes. Continue rinsing. Remove contact lenses, if present and easy to do. If eye irritation persists: Get medical advice/attention.
Ingestion	Rinse mouth. IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. If victim is conscious, give two to four glasses of water and induce vomiting by touching finger to back of throat. Obtain medical attention.
Most important symptoms/effects, acute and delayed	Irritation of eyes and mucous membranes.
Indication of immediate medical attention and special treatment needed	Provide general supportive measures and treat symptomatically. Keep victim warm. In case of shortness of breath, give oxygen. Keep victim under observation. Symptoms may be delayed.
General information	Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves. In the case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

### 5. Fire-fighting measures

Flammable Properties:	NFPA: Health - 1 Flammability - 0 Reactivity - 0
Suitable extinguishing media	Not flammable, use media suitable for combustibles involved in fire.
Unsuitable extinguishing media	Not applicable.
Specific hazards arising from the chemical	During fire, gases hazardous to health may be formed. Heating (flames) of closed or sealed containers may cause violent rupture of container due to thermal expansion of compressed gases. Heating causes release of ammonia vapors. Vapors are irritating to eyes, skin and respiratory tract. Heating to dryness may cause the release of ammonia, ammonium sulfate, sulfur and oxides of sulfur (respiratory hazard).
Special protective equipment and precautions for firefighters	Self-contained breathing apparatus and full protective clothing must be worn in case of fire. Move containers from fire area if you can do so without risk. Keep containers/storage vessels in fire area cooled with water spray.
Fire-fighting equipment/instructions	
Specific methods	Move container from fire area if it can be done without risk.
General fire hazards	Heating this product will evolve ammonia

### 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Keep people away from any upwind of spill/leak. Keep out of low areas. Keep unnecessary personnel away. Wear appropriate personal protective equipment. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.
Environmental precautions	Avoid release to the environment. Contact local authorities in case of spillage to drain/aquatic environment. Prevent further leakage or spillage if safe to do so. Do not contaminate water. Avoid discharge into drains, water courses or onto the ground.
Methods and materials for containment and cleaning up	Stop the flow of material, if this is without risk. Large Spills: Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Absorb in vermiculite. Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination. Never return spills in original containers for re-use. For waste disposal, see section 13 of the SDS.

### 7. Handling and storage

Precautions for safe handling	Do not taste or swallow. Avoid breathing mist or vapor. Avoid contact with eyes. Provide adequate ventilation. Wear appropriate personal protective equipment. When using, do not eat, drink or smoke. Observe good industrial hygiene practices. Wash hands thoroughly after handling. Avoid release to the environment. Do not empty into drains.
Conditions for safe storage, including any incompatibilities	Store locked up. Store in original tightly closed container. Store in a cool, dry place out of direct sunlight. Store away from incompatible materials (see Section 10 of the SDS).

### 8. Exposure controls/personal protection

Occupational exposure limits	No exposure limits noted for ingredient(s).
Biological limit values	No biological exposure limits noted for ingredient(s).
Appropriate engineering controls	Provide eyewash station.
Individual protection measures, such as personal protective equipment	
Eye/face protection	Wear eye/face protection. Wear safety glasses with side shields (or goggles).
Skin protection	
Hand protection	For prolonged or repeated skin contact use suitable protective gloves.
Other	Wear suitable protective clothing. Wash contaminated clothing prior to reuse.
Respiratory protection	In case of insufficient ventilation, wear suitable respiratory equipment.
Thermal hazards	Wear appropriate thermal protective clothing, when necessary.
General hygiene considerations	When using, do not eat, drink or smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.



## SAFETY DATA SHEET

## 16-4-5, 50% SRN (Slow Release Nitrogen) w/ Magnesium, Sulfur & Micros

### 9. Physical and chemical properties

Appearance (physical state, color, etc)	Clear/Hazy liquid, Green/Amber in color
Odor	Slightly musty
Odor threshold	Not available.
pH	9.2 - 9.7
Melting point/freezing point	32 °F (0° C) (Typical))
Initial boiling point and boiling range	222°F (106°C)
Flash point	Not available.
Evaporation rate	Not determined
Flammability (solid, gas)	Not applicable
Upper/lower flammability or explosive limits	Not applicable
Vapor pressure	Not available.
Vapor density	Not available.
Relative density	10 lbs/gal (1.2 kg/L)
Solubility	Complete
Solubility (water)	100%
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Data not available
Viscosity	1-10 CPS @ 21°C
Other information	
Shelf life	> 2 years

### 10. Stability and reactivity

Reactivity	Avoid interaction with heat (flames), oxidizers, acids or alkalis (see details below in this section).
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	Strong oxidizers such as nitrates, nitrites or chlorates can cause explosive mixtures if heated to dryness
Conditions to avoid	Temperatures above 120°F (49°C) and below 32°F (0°C).
Hazardous decomposition products	Heating this product will evolve ammonia. Heating to dryness will produce ammonia, ammonium sulfate, sulfur and oxides of sulfur.

### 11. Toxicological information

Information on likely routes of exposure	
Oral	Not determined
Inhalation	Not determined
Skin contact	Not determined
Eye contact	Not determined
Chronic/Carcinogenicity:	Not listed in NTP, IARC or by OSHA.
Teratology:	Data not available.
Reproduction:	Data not available.
Mutagenicity:	Data not available.

**SAFETY DATA SHEET****16-4-5, 50% SRN (Slow Release Nitrogen) w/ Magnesium, Sulfur & Micros**

<b>12. Ecological information</b>	
Ecotoxicity	Not determined
Persistence and degradability	No data is available on the degradability of this product.
Bioaccumulative potential	This product is not bioaccumulative.
Mobility in soil	Not determined
Other adverse effects	Not determined
<b>13. Disposal considerations</b>	
Disposal instructions	Collect and reclaim or dispose in sealed containers at licensed waste disposal site. This material and its container must be disposed of as hazardous waste. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.
Hazardous waste code	The waste code should be assigned in discussion between the user, the producer and the waste disposal company.
Waste from residues / unused products	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
Contaminated packaging	Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.
<b>14. Transport information</b>	
DOT	Not regulated as dangerous goods.
IATA	Not regulated as dangerous goods.
IMDG	Not regulated as dangerous goods.
<b>15. Regulatory information</b>	
US federal regulations	This product meets the criteria of the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)	Not regulated.
CERCLA Hazardous Substance List (40 CFR 302.4)	Not listed.
SARA 304 Emergency release notification	Not regulated.
Hazard categories	Immediate Hazard - Yes Delayed Hazard - No Fire Hazard - No Pressure Hazard - No Reactivity Hazard - No
SARA 302 Extremely hazardous substance	Not listed.
Other federal regulations	
OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)	Not listed.
Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List	Not regulated.
Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)	Not regulated.
Safe Drinking Water Act (SDWA)	Not regulated.
<b>16. Other information, including date of preparation or last revision</b>	
Issue date	6/1/2015
Revision date	
Version #	1
Disclaimer	While the information contained herein is presented in good faith and believed to be accurate, it is provided for your guidance only. Because many factors may affect processing or application, we recommend that you make tests to determine the suitability of a product for your particular purpose prior to use. No warranties of any kind, either expressed or implied, including warranties of merchantability or fitness for a particular purpose, are made regarding products described or information set forth, or that the products, or information may be used without infringing the intellectual property rights of others. In no case shall the information provided be considered a part of our terms and conditions of sale. Further, you expressly understand and agree that the information furnished by our company hereunder is given gratis and we assume no obligation or liability for the information given or results obtained, all such being given and accepted at your risk.
Revision Information	Composition / Information on Ingredients: Ingredients Physical & Chemical Properties: Multiple Properties



# Adams Earth<sup>®</sup>

## Biostimulant

### Guaranteed Analysis

Boron (B) .....	.020%
Copper (Cu) .....	.050%
.050% Chelated Copper (Cu)	
Iron (Fe) .....	.100%
.100% Chelated Iron (Fe)	
Manganese (Mn) .....	.050%
.050% Chelated Manganese (Mn)	
Zinc (Zn) .....	.050%
.050% Chelated Zinc (Zn)	

Derived from  
EDTA Chelated Micronutrients of Copper, Iron,  
Manganese, Zinc, and complexed sugars of  
Boron

### Non-Plant Food Ingredients

Total Humic and Fulvic Acids.....	14.0%
4.1% Fulvic Acid	
8.2% Humic Acid	
1.2% Humin	
.5% Ulmic Acid	
L-Amino Acid Substrates* .....	44.5%
Soluble Kelp Extract .....	2.5%
Contains Auxin, Cytokinin and Gibberellin Hormones	
Plant Metabolites (Intermediate)** .....	16.5%
Carbohydrates.....	3.0%
Sarsaponins (Natural Wetting Agent) .....	1.0%

Derived from Leonardite, Humic Acid, North  
Atlantic Ascophyllum Nodosum SeaWeed  
Extract (SWE), Simple and Complex  
Carbohydrates, Hydrolyzed Fish Emulsions,  
Sarsaponins (Natural Wetting Agent), Colloidal  
Mineral Extracts, Polyofermented Extracts of  
Yeast, Fungi and Soil Bacteria.

- Weight per gallon: 8.80 lbs. (3.99 kg)
- pH: 7.0



**AdamsEarth<sup>®</sup>** is an organic blend of humic and amino acids, North Atlantic Ascophyllum Nodosum SeaWeed Extract (SWE), natural sugars, vitamins and other organic compounds. The organic nutrients in **AdamsEarth<sup>®</sup>** will aid in the improvement of soil structure, rooting, and the uptake of N-P-K and minor elements.

**AdamsEarth<sup>®</sup>** contains several different sources of organic matter which will break down at varying times during the growing cycle, providing a longer period to aid in microbial feeding.

**AdamsEarth<sup>®</sup>** is a unique combination of humic acid, biostimulants, and micronutrients. The humic acid will assist in chelating nutrients tied up in the soil. North Atlantic Ascophyllum Nodosum SeaWeed Extract (SWE) improves rooting caused by auxin, cytokinin, and gibberellin hormones. The micronutrients will aid in the correction of soil deficiencies that may be caused by imbalances due to low or high pH.

Benefits of **AdamsEarth<sup>®</sup>**:

- Improves rooting mass with top growth.
- Chelates nutrients tied up in soils, such as phosphates and iron.
- Increases microbial activity.
- Increases plant vigor and chlorophyll production.
- Improves heat and cold tolerance.
- Releases tied-up soil nutrients, allowing them to be plant available.

Use **AdamsEarth<sup>®</sup>** when one or more of the following occurs:

- Pre Stress Conditions
- High Stress
- High Salts
- Traffic and Wear
- High Disease Pressure
- Poor Rooting
- Insect Damage
- Drought Conditions
- Compaction and Poor Drainage
- Poor Soil Structure

### \*L-Amino Acid Substrates

L-Alanine .....	538 Mg/Lb
L-Arginine .....	546 Mg/Lb
L-Glycine .....	345 Mg/Lb
L-Hydroxyproline .....	285 Mg/Lb
L-Isoleucine .....	354 Mg/Lb
L-Leucine .....	558 Mg/Lb
L-Lysine .....	575 Mg/Lb
L-Methionine .....	103 Mg/Lb
L-Phenylalanine .....	300 Mg/Lb
L-Serine .....	338 Mg/Lb
L-Threonine .....	351 Mg/Lb
L-Tryptophan .....	73 Mg/Lb
L-Tyrosine .....	316 Mg/Lb
L-Valine .....	452 Mg/Lb

### \*\*Plant Metabolites (Intermediate)

<b>Vitamins</b>	
B-1 .....	16 Mg/Lb
B-2 .....	16 Mg/Lb
B-6 .....	16 Mg/Lb
B-12 .....	25 Mg/Lb
Biotin .....	100 Mg/Lb
Choline .....	160 Mg/Lb
<b>Minerals</b>	
Calcium .....	500 Mg/Lb
Phosphorus .....	216 Mg/Lb
Iodine .....	120 Mg/Lb
Magnesium .....	250 Mg/Lb
Potassium .....	350 Mg/Lb
Selenium .....	25 Mg/Lb

# Adams Earth<sup>®</sup>

## Biostimulant

### Directions for Use:

#### Turfgrass:

- Greens, Tees and Fine Turf ..... 2.0 - 6.0 oz. with 1.5 - 2 gallons of water per 1,000 sq. ft. (.07 - 2.0 gallons with 66 - 88 gallons of water per acre) every 7 - 14 days throughout the growing season
- Fairways, Roughs, Sports Turf and Lawns ... 0.7 - 1.0 Gallons with 44 - 88 gallons of water per Acre (2.0 - 3.0 oz. with 1.5 - 2 gallons water per 1,000 sq. ft.) every 2 weeks during stress periods
- Hydroseeding ..... 1.0 - 2.0 gallons per acre
- Overseeding ..... 1.0 gallon per acre before seeding, 1/2 gallon per acre at seeding with a starter fertilizer
- Sodding ..... 1.0 gallon per acre before sodding, 1 gallon per acre after sodding

#### Trees and Ornamentals:

- Deep Root Injection ..... 32.0 - 64.0 oz. per 100 gallon tank mix
- Diameter at Breast Height ..... 2.0 oz. per caliper inch

#### Agricultural Use:

- Open Fields ..... 1.0 - 2.0 gallons per acre.
- Bedding Plants ..... 3.0 - 6.0 oz. per 1,000 sq. ft.
- Transplanting ..... 24.0 oz. per 100 gallons of solution

Application Rates for AdamsEarth <sup>®</sup>											
Fluid Ounces/ 1,000 sq. ft.	Gallons/ One Acre	ML/ 100 M <sup>2</sup>	L/HA Litre/ Hect- are	Boron/ 1,000 sq. ft.	Copper/ 1,000 sq. ft.	Iron/ 1,000 sq. ft.	Manganese/ 1,000 sq. ft.	Zinc/ 1,000 sq. ft.	Humic & Fulvic Acid/ 1,000 sq. ft.	L-Amino Acids/ 1,000 sq. ft.	Carbohydrates/ 1,000 sq. ft.
2.0	0.7	64	6	0.0001	0.0001	0.0001	0.0001	0.0001	0.0190	0.0612	0.0041
3.0	1.0	95	10	0.0001	0.0001	0.0002	0.0001	0.0001	0.0289	0.0918	0.0062
4.0	1.4	127	13	0.0001	0.0001	0.0003	0.0001	0.0001	0.0385	0.1224	0.0083
6.0	2.0	191	20	0.0001	0.0002	0.0004	0.0002	0.0002	0.0577	0.1836	0.0124
9.0	3.1	286	30	0.0001	0.0003	0.0006	0.0003	0.0003	0.0866	0.2753	0.0186

**Available Container Sizes:**  
 2 x 2.5 gal (2 x 9.46 L) Case  
 275 gal (1040.99 L) Tote



Store above 40° F. Do not allow to freeze.

ADAMS

**1. Identification**

**Product name** AdamsEarth Biostimulant  
**Product code** ADAM  
**Other Identification:** **Chemical Family:** Biostimulant & Surfactant

**Recommended use** Turf & Horticulture

**Manufacturer & Distributor information**  
**Corporate Office** **Plant Food Company, Inc.**  
 38 Hightstown-Cranbury Station Road  
 Cranbury, NJ 08512 United States  
 Information: 1-609-448-0935  
**Telephone** [www.plantfoodco.com](http://www.plantfoodco.com)  
**Website** [pfc@plantfoodco.com](mailto:pfc@plantfoodco.com)  
**E-mail** [pfc@plantfoodco.com](mailto:pfc@plantfoodco.com)  
**Contact person** **Grant Platz, Ted Platz**

**Emergency phone number** **1-800-424-9300 CCN725928**

**Call CHEMTREC Day or Night Within USA and Canada** **or +1 703-527-3887 (collect calls accepted)**  
**Other Countries** 1-609-448-0935


**2. Hazard(s) identification**

**Physical hazards** Not classified.

**Health hazards** Acute toxicity, oral  
 Serious eye damage/eye irritation  
 Specific target organ toxicity, single exposure  
 Category 4  
 Category 2A  
 Category 3  
 respiratory tract irritation  
 Category 2

**Environmental hazards** Hazardous to the aquatic environment, acute hazard

**OSHA defined hazards Label elements** Not classified.

**Label elements** 

**Signal word** **Warning**

**Hazard statement** Harmful if swallowed. Causes serious eye irritation. May cause respiratory irritation.

**Precautionary statement**

**Prevention** Use only outdoors or in a well-ventilated area. Avoid breathing mist or vapor. Wash thoroughly after handling. Do  
**Response** If swallowed: Call a poison center/doctor if you feel unwell. If inhaled: Remove person to fresh air and keep comfortable for breathing. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a poison center/doctor if you feel unwell. Rinse mouth. If eye irritation persists: Get medical advice/attention.

**Storage** Store in a well-ventilated place. Keep container tightly closed. Store locked up.

**Disposal** Dispose of contents/container in accordance with local/regional/national/international regulations.

**Hazard(s) not otherwise classified (HNOC)** None known.

**Supplemental information**

**3. Composition/information on ingredients**

<u>Chemical Name</u>	<u>Synonym Common Name</u>	<u>CAS Number</u>	<u>EINECS No.</u>
Leonardite	Humic Acid	1415-93-6	215-809-6
Ascophyllum Nodosum Extract	Kelp Extract	84775-78-0	283-907-6
Water	Water	7732-18-5	231-791-2

Other components below reportable levels

\*Designates that a specific chemical identity and/or percentage of composition has been withheld as a trade secret.

**4. First-aid measures**

**Inhalation** Remove victim from contaminated atmosphere. If breathing is labored, administer oxygen. If breathing has  
**Skin contact** Immediately flush with large quantities of water. Remove contaminated clothing under a safety shower. Continue  
**Eye contact** Immediately flush eyes with plenty of water for at least 15 minutes. Continue rinsing. Remove contact lenses, if  
**Ingestion** Rinse mouth. IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. If victim is  
**Most important symptoms/effects, acute and delayed** Irritation of eyes and mucous membranes.  
**Indication of immediate medical attention and special treatment needed** Provide general supportive measures and treat symptomatically. Keep victim warm. In case of shortness of breath, give oxygen. Keep victim under observation. Symptoms may be delayed.  
**General information** Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. In the case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

**5. Fire-fighting measures**

**Flammable Properties:** NFPA: Health - 0 Flammability - 0 Reactivity - 0  
**Suitable extinguishing media** Not flammable, use media suitable for combustibles involved in fire.  
**Unsuitable extinguishing media** Not applicable.



# SAFETY DATA SHEET

# AdamsEarth Biostimulant

<b>Specific hazards arising from the chemical</b>	During fire, gases hazardous to health may be formed. Heating (flames) of closed or sealed containers may
<b>Special protective equipment and precautions for firefighters</b>	Self-contained breathing apparatus and full protective clothing must be worn in case of fire. Move containers from fire area if you can do so without risk. Keep containers/storage vessels in fire area cooled with water spray.
<b>Fire-fighting equipment/instructions</b>	
<b>Specific methods</b>	Move container from fire area if it can be done without risk.
<b>General fire hazards</b>	Heating this product will evolve ammonia
<b>6. Accidental release measures</b>	
<b>Personal precautions, protective equipment and emergency procedures</b>	Keep people away from and upwind of spill/leak. Keep out of low areas. Keep unnecessary personnel away. Wear appropriate personal protective equipment. Do not touch damaged containers or spilled material unless wearing appropriate protective
<b>Methods and materials for containment and cleaning up</b>	Stop the flow of material, if this is without risk.  Large Spills: Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Absorb in vermiculite, dry sand or earth and place into containers. Use water spray to reduce vapors or divert vapor cloud drift. Prevent entry into waterways, sewer, basements or confined areas. Following product recovery, flush area with water.  Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination. Never return spills in original containers for re-use. For waste disposal, see section 13 of the SDS.
<b>Environmental precautions</b>	Avoid release to the environment. Contact local authorities in case of spillage to drain/aquatic environment. Prevent further leakage or spillage if safe to do so. Do not contaminate water. Avoid discharge into drains, water courses or onto the ground.
<b>7. Handling and storage</b>	
<b>Precautions for safe handling</b>	Do not taste or swallow. Avoid breathing mist or vapor. Avoid contact with eyes. Provide adequate ventilation. Wear appropriate personal protective equipment. When using, do not eat, drink or smoke. Observe good industrial hygiene practices. Wash hands thoroughly after handling. Avoid release to the environment. Do not empty into drains.
<b>Conditions for safe storage, including any incompatibilities</b>	Store locked up. Store in original tightly closed container. Store in a cool, dry place out of direct sunlight. Store away from incompatible materials (see Section 10 of the SDS).
<b>8. Exposure controls/personal protection</b>	
<b>Occupational exposure limits</b>	No exposure limits noted for ingredient(s).
<b>Biological limit values</b>	No biological exposure limits noted for the ingredient(s).
<b>Appropriate engineering controls</b>	Provide eyewash station.
<b>Individual protection measures, such as personal protective equipment</b>	
<b>Eye/face protection</b>	Wear eye/face protection. Wear safety glasses with side shields (or goggles).
<b>Skin protection</b>	
<b>Hand protection</b>	For prolonged or repeated skin contact use suitable protective gloves.
<b>Other</b>	Wear suitable protective clothing. Wash contaminated clothing prior to reuse.
<b>Respiratory protection</b>	In case of insufficient ventilation, wear suitable respiratory equipment.
<b>Thermal hazards</b>	Wear appropriate thermal protective clothing, when necessary.
<b>General hygiene considerations</b>	When using, do not eat, drink or smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.
<b>9. Physical and chemical properties</b>	
<b>Appearance</b>	Thick black liquid
<b>Physical state</b>	Liquid.
<b>Form</b>	Liquid.
<b>Color</b>	Dark Brown to Black
<b>Odor</b>	Sweet Sugary
<b>Odor threshold</b>	Not available.
<b>pH</b>	<b>6.6 - 7.0</b>
<b>Salt-Out / Crystallization Temp</b>	Not available.
<b>Melting point/freezing point</b>	32 °F (0°C) (Typical))
<b>Initial boiling point and boiling range</b>	222°F (106°C)
<b>Flash point</b>	Not available.
<b>Evaporation rate</b>	Not determined
<b>Flammability (solid, gas)</b>	Not applicable
<b>Upper/lower flammability or explosive limits</b>	Not applicable
<b>Flammability limit - lower (%)</b>	Not available.
<b>Flammability limit - upper (%)</b>	Not available.
<b>Explosive limit - lower (%)</b>	Not available.
<b>Explosive limit - upper (%)</b>	Not available.
<b>Vapor pressure</b>	Not available.
<b>Vapor density</b>	Not available.
<b>Relative density</b>	8.8 lbs/gal
<b>Solubility</b>	Complete
<b>Solubility (water)</b>	
<b>Partition coefficient (n-octanol/water)</b>	Not available.
<b>Auto-ignition temperature</b>	Not available.
<b>Decomposition temperature</b>	Data not available



# SAFETY DATA SHEET AdamsEarth Biostimulant

Viscosity Not determined  
Other information

pH in aqueous solution 6.6 - 7.0  
Pounds per gallon 8.8 lbs/gal  
Shelf life > 2 years

## 10. Stability and reactivity

**Reactivity** Avoid interaction with heat (flames), oxidizers, acids or alkalis (see details below in this section).  
**Chemical stability** Material is stable under normal conditions.  
**Possibility of hazardous reactions** Strong oxidizers such as nitrates, nitrites or chlorates can cause explosive mixtures if heated to dryness  
**Conditions to avoid** Temperatures above 120°F (49°C) and below 60°F (15°C).  
**Incompatible materials**  
**Hazardous decomposition products** Heating this product will evolve ammonia, Heating to dryness will produce ammonia, ammonium sulfate, sulfur and oxides of sulfur.

## 11. Toxicological information

**Information on likely routes of exposure**  
**Oral** Not determined  
**Inhalation** Not determined  
**Skin contact** Not determined  
**Eye contact** Not determined  
**Chronic/Carcinogenicity:** Not listed in NTP, IARC or by OSHA.  
**Teratology:** Data not available.  
**Reproduction:** Data not available.  
**Mutagenicity:** Data not available.

## 12. Ecological information

**Ecotoxicity** Not determined  
**Persistence and degradability** Not determined  
**Bioaccumulative potential** No data is available on the degradability of this product.  
**Mobility in soil** This product is not bioaccumulative.  
**Other adverse effects** Not determined

## 13. Disposal considerations

**Disposal instructions** Collect and reclaim or dispose in sealed containers at licensed waste disposal site. This material and its container must be disposed of as hazardous waste. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.  
**Hazardous waste code** The waste code should be assigned in discussion between the user, the producer and the waste disposal company.  
**Waste from residues / unused products** Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and  
**Contaminated packaging** Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

## 14. Transport information

**DOT** Not D.O.T. Regulated  
**IATA** Not regulated as dangerous goods.  
**IMDG** Not regulated as dangerous goods.

## 15. Regulatory information

**US federal regulations** This product meets the criteria of the OSHA Hazard Communication Standard, 29 CFR 1910.1200.  
**TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)** Not regulated.  
**CERCLA Hazardous Substance List (40 CFR 302.4)** Not listed.  
**SARA 304 Emergency release notification** Not regulated.  
**OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)** Not listed.  
**Superfund Amendments and Reauthorization Act of 1986 (SARA)**  
**Hazard categories** Immediate Hazard - Yes  
Delayed Hazard - No  
Fire Hazard - No  
Pressure Hazard - No  
Reactivity Hazard - No  
**SARA 302 Extremely hazardous substance** Not listed.  
**Other federal regulations**



## SAFETY DATA SHEET    AdamsEarth Biostimulant

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List	Not regulated.
Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)	Not regulated.
Safe Drinking Water Act (SDWA)	Not regulated.
US. California Proposition 65	WARNING: This product contains a chemical known to the State of California to cause birth defects or other

### 16. Other information, including date of preparation or last revision

Issue date	6/1/2015
Revision date	7/15/2013
Version #	2
Disclaimer	While the information contained herein are presented in good faith and believed to be accurate, it is provided for your guidance only. Because many factors may affect processing or application, we recommend that you make tests to determine the suitability of a product for your particular purpose prior to use. No warranties of any kind, either expressed or implied, including warranties of merchantability or fitness for a particular purpose, are made regarding products described or information set forth, or that the products, or information may be used without infringing the intellectual property rights of others. In no case shall the information provided be considered a part of our terms and conditions of sale. Further, you expressly understand and agree that the information furnished by our company hereunder are given gratis and we assume no obligation or liability for the information given or results obtained, all such being given and accepted at your risk.
Revision Information	Composition / Information on Ingredients: Ingredients Physical & Chemical Properties: Multiple Properties

**BOXER™**  
Insecticide-Miticide

INSECTICIDE MANUFACTURER GROUP  INSECTICIDE

## BOXER™ Insecticide-Miticide

For systemic two-year control of listed insects and mite pests in a variety of deciduous/coniferous ornamental trees and shrubs in utility rights-of-way, urban environments, residential and/or interior plantings.

### ACTIVE INGREDIENT:

Imidacloprid Benzene	9%
EPA Reg. No. 100563-01-01	
Spinosad	91%
Total	100%

Net Contents: 4 fl oz (120 mL). Contains 0.18 oz of spinosad active ingredient per 4 fl oz (120 mL) pack.

### DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with these directions.

The ArborSystems OneStep spray units are designed to be used only with ArborSystems chemicals. Tampering with packs or contents may cause an uncontrolled spray pattern.

### STORAGE AND DISPOSAL

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

**Pesticide Storage:** Store in original container in a cool, dry place away from children and pets from feeding.

**Pesticide Disposal:** Residues, resulting from the use of this product, may be disposed of in an approved waste disposal facility.

**Container Disposal:** Non-refillable container: do not reuse or refill this system. Carefully rinse back into application equipment, then offer for recycling. Recycle, reuse, or dispose of empty pack in a sanitary landfill.

Keep Out of Reach  
of Children

### WARNING

See label for full details.  
Precautionary Statements  
and Supplemental Instructions

Net Contents: 4 fl oz  
(120 mL) & 0.18 oz  
(5.1 g) Spinosad

 ArborSystems  
OneStep  
The One-Step System

ArborSystems is a Division  
of Insecta, Inc. ©2011

# Safety Data Sheet

## 1 IDENTIFICATION

### Product Identifier:

**Product Name:** BOXER® Insecticide-Miticide

**EPA Reg. No.:** 69117-12

**Synonyms:** None

**Recommended Use:** Systemic insecticide in ornamental trees and palms.

**Use Restrictions:** It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

**Supplier Information:** ArborSystems, Inc. d/b/a ArborSystems

10168 L Street

Omaha, NE 68127 USA

Toll Free: 800.698.4641

Phone: 402.339.4459

Fax: 402.339.5011

Email: mike@arborsystems.com

Website: www.arborsystems.com

**Emergency Phone Number:** 1.800.222.1222 (Medical)

## 2 HAZARDS IDENTIFICATION

### Classification of the substance or mixture-

#### Classification:

Classification of BOXER Insecticide-Miticide

<u>Hazard Class</u>	<u>Category</u>	<u>Hazard Statement</u>
Acute Toxicity – Oral	4	H302
Eye Irritant	2	H319
Aquatic Toxicity-Chronic	2	H411

Full text of H-phrases: see table in "Label elements" below

**Adverse physicochemical, human health and environmental effects:** No additional information available

### Label elements-

#### GHS Labeling Elements:

Hazard pictograms (CLP):



GHS07



GHS09

**Signal word:** WARNING

**Hazard statements:** H302 – Harmful if swallowed

#### GHS Labeling Elements-

H319 – Causes serious eye irritation

H411 – Toxic to aquatic life with long lasting effects

#### Precautionary statements (prevention):

P264 – Wash thoroughly after handling

P270 – Do not eat, drink or smoke when using this product

P280 – Wear eye protection/face protection

P273 – Avoid release to the environment

#### Precautionary statements (response):

P301+P312 – IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.

P330 – Rinse mouth

P305+P351+P338 – IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

# Safety Data Sheet

P337+P313 – If eye irritation persists: Get medical advice or attention.

P391 – Collect spillage

**Precautionary statements (disposal):** P501 – Dispose of contents/container in accordance with federal, state and local regulations.

## 3 COMPOSITION / INFORMATION ON INGREDIENTS

Component Name	CAS Number	Percent
Emamectin Benzoate	155569-91-8	4.00%
Other Ingredients	NA	96.00%

Contains 0.36 lb. Emamectin per gallon (43 g/L)

## 4 FIRST-AID MEASURES

### Description of first aid measures-

**IF ON SKIN OR CLOTHING:** Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

**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 poison control center or doctor for treatment advice if irritation develops or persists.

**IF SWALLOWED:** Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to by a poison control center or doctor. Do not give anything to an unconscious person

**IF INHALED:** Move to fresh air. If person is not breathing, call 911 or an ambulance, and then give artificial respiration, preferably mouth-to-mouth, if possible. Call a poison control center or doctor for treatment advice.

**First-aid measures – general:** Early signs of intoxication include dilation of pupils, muscular incoordination, and muscular tremors. Vomiting within one-half hour of exposure can minimize toxicity following accidental ingestion of the product; rapidly after exposure (<15 minutes) administer repeatedly medical charcoal in a large quantity of water or ipecac.

If toxicity from exposure has progressed to cause severe vomiting, the extent of resultant fluid and electrolyte imbalance should be gauged.

Appropriate supportive parenteral fluid replacement therapy should be given, along with other required supportive measures (such as maintenance of blood pressure levels and proper respiratory functionality) as indicated by clinical signs, symptoms, and measurements. In severe cases, observations should continue for at least several days until clinical condition is stable and normal. Since emamectin benzoate is believed to enhance GABA activity in animals, it is probably wise to avoid drugs that enhance GABA activity (barbiturates, benzodiazepines, valproic acid) in patients with potentially toxic emamectin benzoate exposure.

## 5 FIRE-FIGHTING MEASURES

### Extinguishing media-

**Suitable extinguishing media:** Use dry chemical, foam or CO2 extinguishing media

**Unsuitable extinguishing media:** High volume water jet. (Water contamination risk from runoff)

### Special hazards arising from the substance or mixture-

**Fire hazard:** Toxic and irritating compounds may be released upon exposure to fire or intense heat

**Explosion hazard:** Product is not explosive.

**Reactivity:** The product is stable at normal handling- and storage conditions.

### Advice for firefighters-

**Firefighting instructions:** Evacuate nonessential personnel from the area to prevent human exposure to fire, smoke, fumes or products of combustion. Prevent runoff from entering drains, sewers or waterways. To fight large fires, wear full protective clothing and NIOSH approved self-contained breathing apparatus with full-face piece operated in the positive pressure/demand mode. Full firefighting turnout gear (bunker gear): Any air respirator supplied with full face piece and operated in a pressure-demand or other positive pressure mode in combination with a separate escape supply. Any self-contained breathing apparatus with a full face piece.

## 6 ACCIDENTAL RELEASE MEASURES

### Personal precautions, protective equipment and emergency procedures-

**General measures:** 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, etc.)

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.

### For non-emergency personnel-

**Protective equipment:** Wear appropriate personal protective equipment (PPE): Eye and face protection, coveralls, gloves, boots.

**Emergency procedures:** Avoid contact with spilled material

### For emergency responders-

# Safety Data Sheet

**Protective equipment:** Wear appropriate personal protective equipment (PPE): Eye and face protection, coveralls, gloves, boots.

**Environmental precautions-**

Prevent material from entering sewers, waterways, or low areas. Do not allow material to contaminate water systems.

**Methods and material for containment and cleaning up-**

**Methods for cleaning up:** Ventilate air. Cleanup personnel require protective clothing and respiratory protection.

## 7 HANDLING AND STORAGE

**Precautions for safe handling-**

Wash hands thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, or using the toilet. Remove personal protective equipment immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing. Remove clothing/PPE immediately if material gets inside. Wash thoroughly and put on clean clothing.

**Conditions for safe storage, including any incompatibilities-**

**Storage conditions:** Store the material in a well-ventilated, secure area out of reach of children and domestic animals. Keep from freezing. Do not store food, beverages or tobacco products in the storage area.

## 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

**Personal protective equipment-**

**Eye/Face Protection:** To avoid contact with eyes, wear chemical goggles or shielded safety glasses. An emergency eyewash or water supply should be readily accessible to the work area.

**Skin Protection:** To avoid contact with skin, wear long pants, long-sleeved shirt, socks, shoes and chemical resistant gloves (Category C such as barrier laminate; butyl rubber  $\geq$  14 mils; nitrile rubber  $\geq$  14 mils; or neoprene rubber  $\geq$  14 mils). An emergency shower or water supply should be readily accessible to the work area.

**Respiratory Protection:** Inhalation potential is low due to the method of application. If vapors or mists are present, wear NIOSH approved air-purifying respirator with cartridges/canisters approved for use against pesticides.

**General Hygiene Considerations:** Personal hygiene is an important work practice exposure control measure and the following general measures should be taken when working with or handling this material: 1) do not store, use and/or consume foods, beverages, tobacco products, or cosmetics in areas where this material is stored; 2) wash hands and face carefully before eating, drinking, using tobacco, applying cosmetics or using the toilet.

**Exposure controls-**

Exposure limits have not been established for the active ingredients in this product. Other ingredient exposure limits are listed below, where applicable:

Tetrahydrofurfuryl alcohol (CAS No. 97-99-4)

AIAH – Workplace Environmental Exposure Levels (WEELs – TWA) – 0.5 ppm

## 9 PHYSICAL AND CHEMICAL PROPERTIES

**Information on basic physical and chemical properties -**

**Appearance:** Hazy, amber liquid

**Odor:** Mild characteristic

**pH (1%):** 5.02

**Evaporation rate (butyl acetate=1):** No data available

**Melting point:** No data available

**Freezing point:** No data available

**Initial boiling point:** No data available

**Flash point:** No flash to boiling ( $>101$  °C ( $>214$  °F))

**Auto-ignition temperature:** Not applicable

**Decomposition temperature:** No data available

**Flammability (solid, gas):** Not applicable

**Vapor density at 20 °C:** No data available

**Relative density:** No data available

**Density/bulk density:** 1.064 g/mL at 20 °C

**Solubility:** Miscible with water

**Viscosity, kinematic:** 37.3 mPa.s at 20 °C

**Viscosity, dynamic:** No data available

**Explosive limits:** Not applicable

**Upper/lower flammability:** Not flammable

**Partition coefficient: n-octanol/water:** No data available

# Safety Data Sheet

## 10 STABILITY AND REACTIVITY

**Reactivity:** The product is stable at normal handling and storage conditions.

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

**Possibility of hazardous reactions:** Hazardous polymerization will not occur.

**Conditions to avoid:** Protect from heat.

**Incompatible materials:** Strong oxidizers

**Hazardous decomposition products:** May produce toxic or irritating gases under extreme heat or fire conditions.

## 11 TOXICOLOGICAL INFORMATION

**Information on toxicological effects-**Acute toxicity data for BOXER Insecticide-Miticide are provided below:

**Oral:** LD50 rat 1098 mg/kg

**Dermal:** LD50 rabbit >2000 mg/kg

**Inhalation:** LC50 rat (4 h) >4.65 mg/L (equivalent to 18.6 mg/L – 1 hour)

**Irritation:** Skin – Not a skin irritant. Eye – Mild irritant

**Corrosivity:** Not corrosive to eyes or skin

**Sensitization:** Not a skin sensitizer

Chronic/sub-chronic toxicity data for BOXER Insecticide-Miticide is not available. Data for active ingredient is provided below:

### Emamectin Benzoate-

**Carcinogenicity:** Emamectin Benzoate is not listed as a carcinogen by IARC, NTP, OSHA or ACGIH.

**Reproductive & Developmental toxicity:** Reproductive toxin in animal studies only at doses acutely toxic to the maternal animal.

**Neurotoxicity:** Emamectin Benzoate affects the central nervous system in animals. Tremors and nerve lesions observed at lowest dose tested in rabbits.

**Mutagenicity:** Emamectin Benzoate is not genotoxic or mutagenic.

**Other:** Bladder changes reported in rats. Ingestion results in central nervous system effects such as muscle tremors, decreased activity, ataxia, and dilated pupils.

## 12 ECOLOGICAL INFORMATION (NON-MANDATORY)

### Toxicity-

**Ecotoxicological Summary:** BOXER Insecticide-Miticide is highly toxic to aquatic organisms and bees. Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate surface or ground water by cleaning equipment or disposal of wastes, including equipment wash water.

**Ecotoxicity data:** Ecotoxicity data are not available for BOXER Insecticide-Miticide. Active ingredient data are given below:

### Emamectin Benzoate

Fish (Rainbow Trout 96 hr.) LC50: 0.174 mg/L

Daphnia (48 hr.) EC50: 0.001 mg/L

Green algae (5-day) EC50: >0.0039 mg/L

Acute toxicity to Honey bee LD50 0.0036 µg/bee (Highly toxic to bees)

Acute toxicity mallard ducks, 14-day 46 mg/kg

**Persistence and degradability:** This product is not readily biodegradable.

**Bioaccumulative potential:** Aquatic hydrolysis, volatilization, adsorption to sediments, and bioconcentration are not expected to be significant.

**Mobility in soil:** No additional information available.

**Results of PBT and vPvB assessment:** No additional information available.

## 13 DISPOSAL CONSIDERATIONS (NON-MANDATORY)

### Waste treatment methods-

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

**Container Disposal:** Non-refillable container. Do not reuse or refill this container. Offer for recycling if available. Clean container promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration, if allowed by state and local authorities Stay out of smoke from burning container.

# Safety Data Sheet

## 14 TRANSPORT INFORMATION (NON-MANDATORY)

Not Regulated by US DOT or Canadian TDG for ground shipment.

Ground transport: Not Regulated by US DOT. Not Regulated by Canadian TDG.

Transport by sea (IMDG): UN 3082; ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Emamectin Benzoate); 9; III; Marine Pollutant

Air transport (IATA): UN 3082; ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Emamectin Benzoate); 9; III

Additional Air, Sea and International Transportation Information:

UN-No.: 3082

Proper Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Emamectin Benzoate)

Transport document description: UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Emamectin Benzoate), 9, III

Class (UN): 9

Hazard labels (UN): 9



Packing group (UN): III

Marine Pollutant (Y/N): Y

Dangerous for the environment:



## 15 REGULATORY INFORMATION (NON-MANDATORY)

**FIFRA Information:** This chemical is a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets, and for workplace labels of non-pesticide chemicals. Following is the hazard information as required on the pesticide label:

### PRECAUTIONARY STATEMENTS

#### HAZARDS TO HUMANS AND DOMESTIC ANIMALS

**WARNING:** Causes substantial but temporary eye injury. Harmful if swallowed. Do not get in eyes or on clothing. Wear protective eyewear such as goggles or safety glasses. Thoroughly wash with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet.

#### FIRST AID

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

#### ENVIRONMENTAL HAZARDS

This product is highly toxic to fish, mammals and aquatic invertebrates. Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwater. This product is highly toxic to bees exposed to direct treatment or residues on blooming trees. Do not apply this product to blooming trees if bees are foraging the treatment area.

**SARA 313 Regulated Chemical(s):** Not applicable

**Title III hazard classification:**

Acute Health Hazard: Yes

Chronic Health Hazard: No

Fire: No

Reactivity/Physical hazard: No

Pressure: No

**CERCLA/DOT Reportable Quantities (RQ):** Not applicable.

**Canadian Regulatory Information:** This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR. WHMIS Classification: D2B – Toxic

# Safety Data Sheet

## 16 OTHER INFORMATION

The information given here is not necessarily exhaustive but is representative of relevant, reliable data.

Follow all local/regional/national/international regulations.

Please consult supplier if further information is needed.

All tests were conducted following OECD guidelines for Good Laboratory Practices (GLP).

This Safety Data Sheet (SDS) serves different purposes than and DOES NOT REPLACE OR MODIFY THE EPA-APPROVED PRODUCT LABELING (attached to and accompanying the product container). This SDS provides important health, safety, and environmental information for employers, employees, emergency responders and others handling large quantities of the product in activities generally other than product use, while the labeling provides that information specifically for product use in the ordinary course. Use, storage and disposal of pesticide products are regulated by the EPA under the authority of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) through the product labeling, and all necessary and appropriate precautionary, use, storage, and disposal information is set forth on that labeling. It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

Although the information and recommendations set forth herein (hereinafter "Information") are presented in good faith and believed to be correct as of the date hereof, ArborSystems, Inc. makes no representations as to the completeness or accuracy thereof. Information is supplied upon the condition that the persons receiving same will make their own determination as to its suitability for the purposes prior to use. In no event will ArborSystems, Inc. be responsible for damages of any nature whatsoever resulting from the use of or reliance upon information. NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OF ANY OTHER NATURE ARE MADE HEREUNDER WITH RESPECT TO INFORMATION OR TO THE PRODUCT TO WHICH INFORMATION REFERS.

### SDS Information:

Date Prepared: 08/22/2022

Version: 3

# GreenTree Pro™ Nutriboosters™ 0-15-10

Specimen Label  
For Homeowners



P.O. Box 34645 • Omaha, NE 68134 • Toll-Free: 800-698-4641 • Phone: 402-339-4459 • Fax: 402-339-5011 • www.ArborSystems.com  
Labeled for distribution in California, USA

For use by homeowners and other non-professional applicators.

## GUARANTEED ANALYSIS

Available Phosphate (P <sub>2</sub> O <sub>5</sub> )	15.00%
Soluble Potash (K <sub>2</sub> O)	10.00%
Iron (Fe)	8.00%

Derived from: Phosphoric Acid, Potassium Hydroxide, Ferric Ammonium Citrate

Information regarding the contents and levels of metals in this product is available on the internet at <http://www.aapfco.org/metals.htm>

Package Type	Net Contents	Net Weight
15 ml bottle	1 fl oz (30 ml)	0.045 lb (20.5 g)

## TIMING

Injections may be made anytime during the growing season, preferably in the spring or early summer. Results are often seen within two weeks, especially when treatments are made in the late spring or early summer.

**NOTE:** Holes drilled in a tree are wounds. Do not drill holes in a tree more than once a year or for more than two consecutive years.

## INDICATIONS

GreenTree Pro relieves symptoms of phosphate, potash, and iron deficiency in trees, resulting in improved leaf, branch, and root growth and darker green leaves. It is ideal for use on trees exhibiting symptoms of nutrient deficiencies such as:

- Small or yellowing leaves
- Poor overall growth
- Incomplete flowering

## Nutribooster Components:

- Phosphate and potash are essential for shoot and leaf growth.
- Phosphate is essential for normal root, leaf, and flower development.
- Potash helps trees tolerate extreme weather conditions including drought.
- Iron promotes the development of darker green leaves, relieving the symptoms of chlorosis.

## BENEFITS

The nutrients in GreenTree Pro are essential for photosynthesis, leaf and branch growth, and the development of a strong root system. The results from one application generally include more vigorous leaf and branch growth and improved leaf size and color. A stronger, deeper root system helps trees withstand or recover from stress due to heat, drought, transplanting, or other conditions.

## APPLICATION RATE

Measure the circumference of tree within 12" of the ground. Apply 1 ml of GreenTree Pro for every 4" of circumference.

## DIRECTIONS FOR USE

Use the syringe and syringe tip provided in the package to deposit product into holes drilled around the base of the tree. Follow these steps.

1. Measure the circumference of tree within 12" of the ground and, using the dosage chart above, determine the correct number of application sites.
2. Using a clean, sharp 1/4" drill bit, drill a hole for each application site, spaced evenly (4" to 5" apart) around the base of the tree (within 12" of the ground). Drill holes 1" deep and at a 45° downward angle (so product will stay in the tree).
3. Place the metal syringe tip on the end of the syringe. Twist to lock tip in place.
4. Remove the tear-off covering from the metal cap on the top of the bottle exposing the rubber stopper.
5. Depress the plunger completely into the syringe.
6. Insert the syringe tip through the silicone stopper into the bottle. This may require a steady pressure.
7. Turn the bottle upside down so the product surrounds the syringe tip. Slowly pull back the plunger to draw 1 ml of product into the syringe. Red line around the syringe barrel marks the 1 ml fill line.
8. Carefully withdraw the syringe and tip from stopper.
9. Place the tip into one of the drilled holes. Slowly and completely depress plunger to deposit product into the tree.
10. Repeat process, placing 1 ml of product in each drilled hole.
11. Thoroughly water the yard area around the tree after treatment, unless it has rained recently.
12. If you have any left over product, it can be stored in the container (rubber stopper is self-sealing). Rinse the syringe and tip. Store in a cool, dry location.

## NOTICE OF WARRANTY

ArborSystems warrants that this product conforms to the chemical description on the label and is reasonably fit for use under average conditions when used strictly in accordance with the directions on the labeling. ArborSystems does not make or authorize any agent or representative to make any other warranty, guarantee or representation, express or implied, concerning this product.

GreenTree Pro™, ArborSystems™ and Nutriboosters™ are trademarks of ArborSystems.



P.O. Box 34645 • Omaha, NE 68134 • Toll-Free: 800-698-4641 • Phone: 402-339-4459 • Fax: 402-339-5011 • www.ArborSystems.com

Labeled for distribution in California, USA

## 1. PRODUCT IDENTIFICATION

**Product Name:** GreenTree Pro™ Nutriboosters™ 0-15-10

## 2. COMPOSITION/INFORMATION ON INGREDIENTS

Component Name	CAS Number	Percent
Available Phosphoric Acid (P <sub>2</sub> O <sub>5</sub> )	7664-38-2	15.0%
Soluble Potash (K <sub>2</sub> O)	1310-58-3	10.0%
Ferric Ammonium Citrate (Fe)	1185-57-5	8.0%

Derived from: Phosphoric Acid, Potassium Hydroxide, Ferric Ammonium Citrate

Information regarding the contents and levels of metals in this product is available on the internet at <http://www.aapfco.org/metals.htm>

## 3. HAZARDS IDENTIFICATION

**Primary Route of Exposure:** Ingestion

**Exposure/Health Effects:**

**Eye Contact:** Contact with eyes may cause irritation.

**Skin Contact:** Prolonged contact with skin may cause irritation.

**Respiratory/Inhalation:** No adverse effects expected.

**Ingestion:** May cause gastrointestinal tract irritation.

## 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.**

**Ingestion:** 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.

**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.

**Skin:** 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.

**Notes to Physician:** No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

## 5. FIRE FIGHTING MEASURES

**Flash Point:** Not determined

**Flammable Limits:** Not determined

**Fire Extinguishing Media:** Not considered a fire hazard. Use any means suitable for extinguishing surrounding fire.

**Fire and Explosion Hazards:** Not considered to be an explosion hazard. No unusual fire hazards.

## 6. ACCIDENTAL RELEASE MEASURES

**Action to Take for Spills:** Ventilate area of spill. Contain spill, and then soak up with absorbent material. Dispose as waste in a suitable container. Prevent runoff.

Ensure compliance with local, State, and Federal regulations.

## 7. HANDLING AND STORAGE

**Precautions to be Taken in Handling and Storage:** Keep out of reach of children. Avoid container breakage. Do not ingest. Avoid contact with skin, eyes, or clothing. Wash thoroughly with soap and water after handling. Wash exposed clothing before reuse. Store in a cool, dry area in closed container or pack.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Personal Protective Equipment (PPE):** Use safety glasses and chemical-resistant gloves when handling this product.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**Appearance:** Dark brown or dark green liquid

**Odor:** Odorless or slight ammoniacal

**Bulk Density:** 1.37 gram/ml

**Solubility in Water:** Virtually complete

**Boiling Point:** Not determined

**Melting Range:** Not applicable

**Vapor Pressure:** Not determined

**Vapor Density:** Not determined

**pH:** 3.5 to 4.5 (5%)

**Volatile Components:** Not applicable

**Freezing Point:** Not determined

**Evaporation Rate:** Not determined

## 10. STABILITY AND REACTIVITY

**Stability:** Stable under normal conditions

**Conditions to Avoid:** None known

**Incompatibility (Materials to Avoid):** None known

**Hazardous Decomposition Products:** Ammonia, oxides of phosphorous and potassium

**Hazardous Polymerization:** Does not occur

## 11. TOXICOLOGICAL INFORMATION

**General Information:** Very low toxicity for humans and animals. Health injuries are not known or expected under normal use.

**Eye:** May cause slight irritation or eye damage if untreated.

**Skin:** Prolonged exposure may cause slight skin irritation.

**Ingestion:** May cause gastrointestinal upset, abdominal pain, and diarrhea.

**Inhalation:** Vapors are unlikely due to physical properties.

## 12. ECOLOGICAL INFORMATION

**Environmental Data:** Do not apply directly to water bodies (lakes, rivers, streams) or wetlands. Do not contaminate water by cleaning of equipment or disposal of wastes.

## 13. DISPOSAL CONSIDERATIONS

**Disposal Method:** Do not contaminate water, food, or feed by storage or disposal. Wastes resulting from the use of this product may be disposed of on site per label use directions, or at an approved waste disposal facility. Follow all local, State, and Federal requirements for disposal.



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Labeled for distribution in California, USA

## 14. TRANSPORT INFORMATION

**DOT Shipping Name:** Phosphoric Acid, hazard class 8, UN number UN1805, packing group III.

**DOT Shipping Name:** Potassium hydroxide, hazard class 8, UN number UN1813, packing group II.

## 15. REGULATORY INFORMATION

### TSCA:

CAS# 7664-38-2 is listed on the TSCA inventory.

CAS# 1310-58-3 is listed on the TSCA inventory.

**Health & Safety Reporting List:** None of the chemicals are on the Health & Safety Reporting List.

**Chemical Test Rules:** None of the chemicals in this product are under a Chemical Test Rule.

**Section 12b:** None of the chemicals are listed under TSCA Section 12b.

**TSCA Significant New Use Rule:** None of the chemicals in this material have a SNUR under TSCA.

### SARA:

**Section 302 (RQ):** CAS# 7664-38-2: final RQ = 5000 lbs (2270 kg)

CAS# 1310-58-3: final RQ = 1000 lbs (454 kg)

**Section 302 (TPQ):** None of the chemicals in this product have a TPQ.

**SARA Codes:** CAS# 7664-38-2: acute. CAS# 1310-58-3: acute, reactive.

**Section 313:** No chemicals are reportable under Section 313.

**Clean Air Act:** This material does not contain any hazardous air pollutants. This material does not contain any Class 1 Ozone depleters. This material does not contain any Class 2 Ozone depleters.

**Clean Water Act:** CAS# 7664-38-2 and CAS# 1310-58-3 are listed as Hazardous Substances under the CWA. None of the chemicals in this product are listed as Priority Pollutants under the CWA. None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

**OSHA:** None of the chemicals in this product are considered highly hazardous by OSHA.

### State

CAS# 7664-38-2 and CAS# 1310-58-3 can be found on the following state right-to-know lists: California, New Jersey, Florida, Pennsylvania, Minnesota, Massachusetts.

**California No Significant Risk Level:** None of the chemicals in this product are listed.

## 16. OTHER INFORMATION

The information given here is not necessarily exhaustive but is representative of relevant, reliable data.

Follow all local/regional/national/international regulations.

Please consult supplier if further information is needed.

All tests were conducted following OECD guidelines for Good Laboratory Practices (GLP).

This Material Safety Data Sheet (MSDS) serves different purposes than and DOES NOT REPLACE OR MODIFY THE EPA-APPROVED PRODUCT LABELING (attached to and accompanying the product container). This MSDS provides important health, safety, and environmental information for employers, employees, emergency responders and others handling large quantities of the product in activities generally other than product use, while the labeling provides that information specifically for product use in the ordinary course. Use, storage and disposal of pesticide products are regulated by the EPA under the authority of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) through the product labeling, and all necessary and appropriate precautionary, use, storage, and disposal information is set forth on that labeling. It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

Although the information and recommendations set forth herein (hereinafter "Information") are presented in good faith and believed to be correct as of the date hereof, ArborSystems, Inc. makes no representations as to the completeness or accuracy thereof. Information is supplied upon the condition that the persons receiving same will make their own determination as to its suitability for the purposes prior to use. In no event will ArborSystems, Inc. be responsible for damages of any nature whatsoever resulting from the use of or reliance upon information. NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OF ANY OTHER NATURE ARE MADE HEREUNDER WITH RESPECT TO INFORMATION OR TO THE PRODUCT TO WHICH INFORMATION REFERS.

# GREYHOUND™ Insecticide

## An ArborSystems® Direct-Inject™ Chemical

For systemic insect control in ornamental trees and ornamental palm plants in utility rights-of-way, urban environments, residential areas and interior landscapes (such as those in domestic landscape/garden areas, public display plantings, recreation areas, highway and other transportation rights-of-way, scenic corridors, storage areas, forest areas, campgrounds and other uncultivated, nonagricultural areas).

For the treatment of woody trees and shrubs for the control of Elm Leaf Beetles, Lace Bugs, Leaf Miners, Mites and Pine Wilt (Pine Nematodes) and for the suppression of Aphids, Thrips and Whiteflies.

**Intended for use by professional arborists/applicators, foresters, grounds maintenance professionals and landscapers.**

To be used only with the ArborSystems® Direct-Inject™ Tree Injection System.

• Easy • No Drilling • Saves Time and Money



EPA Reg. No. 69117-2 • EPA Est. 69117-NE-1

## FIRST AID

**If Swallowed:** Immediately call a poison control center or doctor for treatment advice. Do not give any liquid to the person. 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 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 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.

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

**Notes to Physician:** Early signs of intoxication include dilation of pupils, muscular incoordination and muscular tremors. Toxicity following accidental ingestion of this product can be minimized by early administration of chemical absorbents (e.g. activated charcoal). If toxicity from exposure has progressed to cause severe vomiting, the extent of resultant fluid and electrolyte imbalance should be gauged. Appropriate supportive parenteral fluid replacement therapy should be given along with other required supportive measures (such as maintenance of blood pressure levels and proper respiratory functionality) as indicated by clinical signs, symptoms and measurements. In severe cases, observations should continue for at least several days until the clinical condition is stable and normal. Since abamectin is believed to enhance GABA activity in animals, it is probably wise to avoid drugs that enhance GABA activity (barbiturates, benzodiazepines, valproic acid) in patients with potentially toxic abamectin exposure.

## PRECAUTIONARY STATEMENTS

### HAZARDS TO HUMANS AND DOMESTIC ANIMALS

**WARNING:** May be fatal if swallowed. Causes substantial but temporary eye injury. Do not get in eyes or on clothing. Harmful if inhaled or absorbed through the skin. Avoid contact with skin. Prolonged or frequently repeated exposure may cause allergic skin reactions in some individuals. Avoid breathing vapors.

## PERSONAL PROTECTIVE EQUIPMENT (PPE)

Some materials that are chemical-resistant to this product are listed below. If you want more options, follow the instructions for category B on an EPA chemical-resistance category selection chart. Applicators and other handlers must wear:

- Long-sleeved shirt and long pants;
- Chemical-resistant gloves, such as barrier laminate or butyl rubber ≥ 14 mils;
- Socks plus shoes;
- Protective eyewear.

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product. Do not reuse them. Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

## USER SAFETY RECOMMENDATIONS

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.
- Immediately remove contaminated clothing if pesticide gets inside, then wash thoroughly and put on clean clothing.

## ENVIRONMENTAL HAZARDS

This pesticide is toxic to fish and wildlife. Do not apply directly to water. Do not contaminate water when disposing of equipment washwaters or rinsate. This product is highly toxic to bees exposed to direct treatment or residues on blooming crops or weeds. Apply only post bloom.

## PHYSICAL OR CHEMICAL HAZARDS

Do not use or store near heat or open flame.

Abamectin (CAS Nos. 65195-56-4 and 65195-55-3)	2%
<b>OTHER INGREDIENTS</b>	98%
Total	100%

**ACTIVE INGREDIENT:**  
For the treatment of woody trees and shrubs for the control of Elm Leaf Beetles, Lace Bugs, Leaf Miners, Mites and Pine Wilt (Pine Nematodes) and Aphids, Thrips and Whiteflies.

**For the treatment of ornamental trees and interior plantings:**  
For systemic insect control in ornamental trees and ornamental palm plants in utility rights-of-way, urban environments, residential areas and interior plantings.

## GREYHOUND™ Insecticide

An ArborSystems® Direct-Inject™ Chemical

For the treatment of woody trees and shrubs for the control of Elm Leaf Beetles, Lace Bugs, Leaf Miners, Mites and Pine Wilt (Pine Nematodes) and Aphids, Thrips and Whiteflies.

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# GREYHOUND™ Insecticide

## DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

**Intended for use by professional arborists/ applicators, foresters, grounds maintenance professionals and landscapers.**

### PRODUCT INFORMATION

**Do Not Inject Food Bearing Plants (including non-bearing growth stages).**

### ARBORSYSTEMS DIRECT-INJECT TREE INJECTION SYSTEM

The ArborSystems Direct-Inject Tree Injection System is a no-drill trunk injection method. Chemical is injected into the cambial area (the active vascular system) of the tree. Because the chemical is placed right where the tree can use it, effectiveness of the chemical is increased. As no drilling or implants are required, you can treat trees year after year, with no threat of long-term or permanent damage to the tree. The Direct-Inject system minimizes wounding and promotes long-term tree health and vigor.

The Direct-Inject system is easy to use. Most trees are treated in as little as five minutes or less, allowing applicators to treat trees quickly. There is no need to wait for absorption (translocation). Use in sunny or overcast conditions, rainy or dry, at any time of day.

### INDICATIONS AND TREATMENT TIMING

As a preventative, apply in the early spring prior to insect activity in the tree. As a curative, apply as needed spring through fall, provided the bark is pliable enough to accept the chemical injections. Due to toxicity to bees, apply only after the tree has finished blooming for the growing season. Pest control is anticipated to last a typical growing season, although it may be necessary to make two applications per year under severe pest pressure. This product has been evaluated for phytotoxicity on a wide range of ornamental plants. However, since all ornamental plants have not been tested, it is recommended that one plant be treated first to make certain that no phytotoxicity occurs. Do not use on sick plants or plants weakened by extreme environmental conditions such as heat, flooding, cold, etc.

### INDICATIONS

Indicated for the treatment of woody trees and shrubs for the control of Elm Leaf Beetles, Lace Bugs, Leaf Miners, Mites and Pine Wilt (Pine Nematodes) and for the suppression of Aphids, Thrips and Whiteflies.

### DOSAGE

Pine Wilt: 4-6 ml every 4" of trunk circumference measured within 12" of the ground.

**Other Insects:** 1 ml per 4" to 6" of trunk circumference measured within 12" of the ground. Dosage may be increased to 2 ml per injection site for trees with diameters over 12" or with challenging insect infestations.

**Note:** Depending on type of bark, the dosage per injection site may have to be reduced to 0.5 to 1 ml per site and the number of injection sites doubled.

### HOW TO USE ARBORSYSTEMS DIRECT-INJECT CHEMICALS WITH ARBORSYSTEMS DIRECT-INJECT TREE INJECTION SYSTEM

1. Use only ArborSystems Direct-Inject chemicals with your unit as they have been formulated specifically for the Direct-Inject system. Use of other chemicals will invalidate warranty.
2. Attach the chemical pack to the Direct-Inject unit and prepare the unit to make injections.
3. Set the delivery volume on the unit.
4. Follow the label directions in this booklet to determine the amount of chemical and number of injection sites.
5. Determine where to make injections in the bark. Generally, the injection tip is inserted into the fissure (valley) of the tree bark. Inject thin-barked trees in the thicker part of the tree bark. Thick-barked trees require a longer injection tip.
6. Make injections working around the circumference of the tree. Make Wedgle® Tip injections within 12" of the ground. Portle® Tip injection height varies depending on type of tree and location.
7. With a smooth motion, firmly squeeze the injection unit handles. This releases a pre-measured chemical dose into the tree.

8. Continue making injections moving around the tree until the entire tree trunk has been treated.
9. During use, periodically clean the Direct-Inject unit to prevent clogging.

### STORAGE AND DISPOSAL

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

**Pesticide Storage:** Store in original 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:** Non-refillable container; do not refill or reuse this container. Completely empty pack into application equipment, then offer for recycling, if available; or dispose of empty pack in a sanitary landfill; or by incineration if allowed by State and local authorities.

### NOTICE OF WARRANTY

ArborSystems warrants that this product conforms to the chemical description on the label and is reasonably fit for use under average conditions when used strictly in accordance with the directions on the labeling. To the extent consistent with applicable law, ArborSystems does not make or authorize any agent or representative to make any other warranty, guarantee or representation, express or implied, concerning this product.



Tree Injection Solutions

800-698-4641 • Fax: 402-339-5011  
10168 L Street • Omaha, NE 68127

ArborSystems®, Portle® and Wedgle® are registered trademarks of ArborSystems.

Greyhound™, Direct-Inject™ and WedgeChek™ are trademarks of ArborSystems.

Direct Inject™ unit is protected by U.S. Patent #5,901,498  
Wedgle® Tip is protected by U.S. Patent #5,239,773  
WedgeChek™ is protected by U.S. Patent #5,797,215  
Portle® Tip is protected by U.S. Patent #7,178,286

# Safety Data Sheet

## 1 IDENTIFICATION

### Product Identifier:

**Product Name:** Greyhound™ Insecticide

**EPA Reg. No.:** 69117-2

**Synonyms:** None

**Recommended Use:** For systemic insecticide control in ornamental trees and ornamental palm plants.

**Use Restrictions:** Do not inject food bearing plants (including non-bearing growth stages).

**Supplier Information:** ArborSystems, Inc. d/b/a ArborSystems

10168 L Street

Omaha, NE 68168 USA

Toll Free: 800.698.4641

Phone: 402.339.4459

Fax: 402.339.5011

Email: mike@arborsystems.com

Website: www.arborsystems.com

**Emergency Phone Number:** 1.800.222.1222 (Medical)

## 2 HAZARDS IDENTIFICATION

**Hazards Classification:** This mixture is considered hazardous by the 2012 OSHA Communication Standard (29 CFR 1910.1200).

Acute toxicity-Oral	Category 3
Acute toxicity-Inhalation (gases, vapors, dusts/mists)	Category 1
Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 2A
Carcinogenicity	Category 1B
Reproductive toxicity	Category 1B
Specific target organ toxicity (single exposure)	Category 3
Specific target organ toxicity (repeated exposure)	Category 1
Flammable liquids	Category 4

### GHS Label Elements, including Precautionary Statements:

**Signal Word:** Danger

**Hazards Statements:** Toxic if swallowed. Fatal if inhaled. Causes skin irritation and serious eye irritation. May cause cancer. May damage fertility or the unborn child. May cause respiratory irritation. Causes damage to organs through prolonged or repeated exposure. Combustible liquid.



**Appearance:** Yellow

**Physical state:** Liquid

**Odor:** Not Determined

### Precautionary Statements:

**Prevention:** Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves/clothing and eye/face protection. Thoroughly wash face, hands and any exposed skin after handling. Do not eat, drink or smoke when using this product. Do not breathe dust/fume/gas/mist/vapors/spray. Use only outdoors or in a well-ventilated area. Wear respiratory protection. Keep away from flames and hot surfaces. No smoking. Keep cool.

**Response:** If exposed or concerned, get medical advice/attention. Specific treatment is urgent (see supplemental first aid instructions).

**Eyes:** If in eyes, rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing if eye irritation persists. Get medical advice/attention.

**Skin:** If on skin, wash with plenty of soap and water. If irritation occurs, get medical advice/attention. Take off contaminated clothing and wash it before reuse.

**Inhalation:** If inhaled, remove person to fresh air and keep comfortable for breathing. Immediately call a poison control center or doctor/physician.

**Ingestion:** If swallowed, immediately call a poison control center or doctor/physician. Rinse mouth.

**Fire:** In case of fire use CO<sub>2</sub>, dry chemical or foam to extinguish.

**Storage:** Store locked up in a well-ventilated place. Keep container tightly closed.

**Disposal:** Dispose of contents/container to an approved waste disposal plant.

# Safety Data Sheet

**Other Information:** May be harmful in contact with skin. Very toxic to aquatic life with long-lasting effects.

**Unknown Acute Toxicity:** 98% of the mixture consists of ingredient(s) of unknown toxicity. 1% of the mixture consists of ingredient(s) of unknown acute oral toxicity. 71% of the mixture consists of ingredient(s) of unknown acute dermal toxicity. 98% of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (gas, vapor, dust/mist).

## 3 COMPOSITION / INFORMATION ON INGREDIENTS

Mixture:

Chemical Name	CAS Number	Percent	HMIRA* Registry No.	Date HMIRA filed and date exemption granted (if applicable)
BHT	128-37-0	70	-	-
1-Methyl-2-pyrrolidone	872-50-4	27	-	-
Abamectin	65195-55-3	2	-	-
Mineral oil	64741-88-4	1	-	-

\*Hazardous Material Information Review Act.

## 4 FIRST-AID MEASURES

**General Advice:** Show this SDS to the doctor in attendance. Immediate medical attention is required. If exposed or concerned, get medical advice/attention.

**Inhalation:** If breathing has stopped, give artificial respiration. Get immediate medical attention. Remove to fresh air. Do not use the mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. If breathing is difficult, trained personnel should give oxygen. If exposed or concerned, get medical advice/attention. Get immediate medical attention if symptoms occur.

**Eye Contact:** Immediately rinse with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Keep eye wide open while rinsing. Do not rub affected area. Get medical attention if irritation develops and persists.

**Skin Contact:** Immediately wash off with soap and plenty of water while removing all contaminated clothes and shoes. Get medical attention if irritation develops and persists.

**Ingestion:** Do **not** induce vomiting. Clean mouth with water and drink plenty of water afterwards. Never give anything by mouth to an unconscious person. Immediately call a physician or poison control center.

**Self-protection of the first aider:** Remove all sources of ignition. Ensure that medical personnel are aware of the material(s) involved. Take precautions to protect oneself and prevent spread of contamination. Do not breathe vapor or mist. Do not use the mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Use personal protective equipment as required. See Section 8 for more information. Avoid contact with skin, eyes or clothing.

**Most Important Symptoms and Effects:** Coughing and/or wheezing. Difficulty in breathing. Burning sensation.

**Note to Physician:** Treat symptomatically.

## 5 FIRE-FIGHTING MEASURES

**Suitable Extinguishing Media:** Dry chemical. Carbon dioxide (CO<sub>2</sub>). Water spray. Alcohol-resistant foam.

**Unsuitable Extinguishing Media:** CAUTION: Use of water spray when fighting fire may be inefficient.

**Specific Hazards Arising from this Mixture:** Keep product and empty containers away from heat and sources of ignition. In the event of fire, cool tanks with water spray.

**Hazardous Combustion Products:** Carbon oxides.

**Sensitivity to Mechanical Impact:** None.

**Sensitivity to Static Discharge:** Yes.

**Protective Equipment for Firefighters:** Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

## 6 ACCIDENTAL RELEASE MEASURES

**Personal Precautions:** Evacuate personnel to safe areas. Use personal protective equipment as required. See Section 8 for more information. Take precautionary measures against static discharges. Do not touch or walk through spilled material. Ensure adequate ventilation. Avoid contact with skin, eyes or clothing. Do not breathe vapor or mist. Keep people away from and upwind of spill/leak.

**Other Information:** Refer to protective measures listed in Sections 7 and 8.

**Containment Methods:** Stop leak if you can do so without risk. Do not touch or walk through spilled material. Dike far ahead of liquid spill for later disposal.

**Cleanup Methods:** Take precautionary measures against static discharges. Dam up. Soak up with inert absorbent material. Pick up and transfer to properly labeled containers.

# Safety Data Sheet

## 7 HANDLING AND STORAGE

**Precautions for Safe Handling:** Use personal protection equipment. Do not breathe vapor or mist. Keep away from heat/hot surfaces/sparks/open flames/other ignition sources. No smoking. Take precautionary measures against static discharges. Handle in accordance with good industrial hygiene and safety practices. Avoid contact with skin, eyes or clothing. In case of insufficient ventilation, wear suitable respiratory equipment. Handle product only in closed system or provide appropriate exhaust ventilation. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash before reuse. Remove contaminated clothing and shoes.

**Storage:** Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat, sparks, flame and other sources of ignition (i.e., pilot lights, electric motors and static electricity). Keep in properly labeled containers. Store in accordance with the particular national regulations. Keep out of the reach of children. Store locked up.

## 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

### Control Parameters - Exposure Limits

Chemical Name / CAS Number	ACGIH TLV	OSHA PEL	NIOSH IDLH
BHT / 128-37-0	TWA: 2 mg/m <sup>3</sup> inhalable fraction and vapor	(vacated) TWA: 10 mg/m <sup>3</sup>	TWA: 10 mg/m <sup>3</sup>

**ACGIH TLV:** American Conference of Governmental Industrial Hygienists Threshold Limit Value; **OSHA PEL:** Occupational Safety and Health Administration Permissible Exposure Limits; **NIOSH IDLH:** National Institute of Occupational Safety and Health Immediately Dangerous to Life or Health.

**Other Exposure Guidelines:** Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 995 F.2d 962 (11<sup>th</sup> Cir., 1992). See Section 15 for national exposure control parameters.

Chemical Name / CAS Number	Alberta	British Columbia	Ontario TWAEV	Quebec
BHT / 128-37-0	TWA: 10 mg/m <sup>3</sup>	TWA: 2 mg/m <sup>3</sup>	TWA: 2 mg/m <sup>3</sup>	STEL: 10 mg/m <sup>3</sup>
1-Methyl-2-pyrrolidone / 872-50-4			TWA: 400 mg/m <sup>3</sup>	

**Appropriate Engineering Controls:** Showers, eyewash stations and ventilation systems.

**Individual Protection Measures – Personal Protective Equipment:**

**Eye/Face:** Tight sealing safety goggles.

**Hand:** Wear suitable, impervious gloves.

**Skin/Body:** Wear suitable protective clothing. Long-sleeved clothing.

**Respiratory:** When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.

**General Hygiene Considerations:** Do not eat, drink or smoke when using this product. Do not allow contaminated work clothing out of the workplace. Regular cleaning of equipment, work area and clothing is recommended. Wash hands before breaks and immediately after handling the product. Avoid contact with skin, eyes or clothing. Do not breathe vapor or mist. Wear suitable gloves and eye/face protection. Remove and wash contaminated clothing and gloves, including the inside, before re-use.

## 9 PHYSICAL AND CHEMICAL PROPERTIES

Auto-ignition temperature:	N/D	Partition coefficient: n-octanol/water:	N/D
Color:	Yellow	pH:	2.6-3.6 (1% solution)
Decomposition temperature:	N/D	Physical state:	Liquid
Evaporation rate:	N/D	Relative density:	8.01 lbs/gal
Flammability (solid,gas):	N/A	Solubility(ies):	N/D
Flash point:	161°F	Upper/lower explosive limits:	N/D
Freezing point:	N/D	Upper/lower flammability limits:	N/D
Initial boiling point and range:	N/D	Vapor pressure:	N/D
Melting point:	N/A	Viscosity:	N/D
Odor:	N/D	N/A = Not Applicable	N/D = Not Determined

## 10 STABILITY AND REACTIVITY

**Reactivity:** No information available.

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

**Possibility of Hazardous Reactions:** None under normal processing.

**Hazardous Polymerization:** Does not occur.

**Conditions to Avoid:** Heat, flames and sparks. Excessive heat.

**Incompatible Materials:** Strong acids, bases, oxidizing agents.

**Hazardous Decomposition Products:** Carbon oxides.

# Safety Data Sheet

## 11 TOXICOLOGICAL INFORMATION

### Product Information:

**Inhalation:** Specific test data for the mixture is not available. Fatal if inhaled, based on components. May cause irritation of respiratory tract.

**Eye Contact:** Specific test data for the mixture is not available. Irritating to eyes, based on components. Causes serious eye irritation.

**Skin Contact:** Specific test data for the mixture is not available. Causes skin irritation, based on components.

**Ingestion:** Specific test data for the mixture is not available. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. Toxic if swallowed, based on components.

### Component Information

Chemical Name / CAS Number	Oral LD <sub>50</sub>	Dermal LD <sub>50</sub>	Inhalation LD <sub>50</sub>
BHT / 128-37-0	= 890 mg/kg (rat)	> 2000 mg/kg (rat)	-
1-Methyl-2-pyrrolidone / 872-50-4	= 3914 mg/kg (rat)	= 8 g/kg (rabbit)	> 5.1 mg/L (rat) 4h
Abamectin / 65195-55-3	-	= 400 mg/kg (rat) = 400 mg/kg (rabbit)	-
Mineral oil / 64741-88-4	> 5000 mg/kg (rat)	> 2000 mg/kg (rabbit)	= 2.18 mg/L (rat) 4h

### Information on Toxicological Effects:

**Symptoms:** Coughing and/or wheezing. Difficulty in breathing. Redness. May cause redness and tearing of eyes.

**Delayed and immediate effects as well as chronic effects from short and long-term exposure:**

**Skin corrosion/irritation:** Classification based on data available for ingredients. Irritating to skin.

**Serious eye damage/eye irritation:** Classification based on data available for ingredients. Irritating to eyes.

**Respiratory or skin sensitization:** No information available.

**Germ cell mutagenicity:** No information available.

**Carcinogenicity:** Classification based on data available for ingredients. Contains a known or suspected carcinogen. The table below indicates whether each agency has listed any ingredient as a carcinogen:

Chemical Name / CAS Number	ACGIH	IARC	NTP	OSHA
BHT / 128-37-0	-	Group 3	-	-
Mineral oil / 64741-88-4	A2	Group 1	Known	X

**ACGIH:** American Conference of Governmental Industrial Hygienists; **IARC:** International Agency for Research on Cancer; **NTP:** National Toxicology Program; **OSHA:** Occupational Safety and Health Administration. **ACGIH A2:** Suspected human carcinogen; **IARC Group 1:** Carcinogenic to humans; **Group 3:** Not classifiable as to carcinogenicity in humans. **OSHA "X":** Present.

**Reproductive Toxicity:** Classification based on data available for ingredients. Contains a known or suspected reproductive toxin.

**STOT-single exposure:** May cause respiratory irritation.

**STOT-repeated exposure:** Causes damage to organs through prolonged or repeated exposure.

**Aspiration Hazard:** No information available.

### Numerical Measures of Toxicity – Acute Toxicity:

The following values are calculated based on Chapter 3.1 of the GHS document:

ATEmix (oral): 206.00 mg/kg

ATEmix (dermal): 3,463.00 mg/kg

ATEmix (inhalation-gas): 10.00 mg/L

ATEmix (inhalation-dust/mist): 0.01 mg/L

ATEmix (inhalation-vapor): 0.05 mg/L

**Unknown Acute Toxicity:** 98% of the mixture consists of ingredient(s) of unknown toxicity. 1% of the mixture consists of ingredient(s) of unknown acute oral toxicity. 71% of the mixture consists of ingredient(s) of unknown acute dermal toxicity. 98% of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (gas, vapor, dust/mist).

# Safety Data Sheet

## 12 ECOLOGICAL INFORMATION (NON-MANDATORY)

### Exotoxicity

Very toxic to aquatic life with long-lasting effects.

Chemical Name / CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	<i>Daphnia magna</i> (water flea)
BHT / 128-37-0	72h EC <sub>50</sub> =6 mg/L ( <i>Pseudokirchneriella subcapitata</i> ) 72h EC <sub>50</sub> > 0.42 mg/L ( <i>Desmodesmus subspicatus</i> )	48h LC <sub>50</sub> =5 mg/L ( <i>Oryzias latipes</i> )	EC <sub>50</sub> =7.82 mg/L 5 min EC <sub>50</sub> =8.57 mg/L 15 min EC <sub>50</sub> =8.98 mg/L 30 min	-
1-Methyl-2-pyrrolidone / 872-50-4	72h EC <sub>50</sub> > 500 mg/L ( <i>Desmodesmus subspicatus</i> )	96h LC <sub>50</sub> =832 mg/L ( <i>Lepomis macrochirus</i> ) 96h LC <sub>50</sub> =1072 mg/L ( <i>Pimephales promelas</i> ) 96h LC <sub>50</sub> =1400 mg/L ( <i>Poecilia reticulata</i> ) 96h LC <sub>50</sub> =4000 mg/L ( <i>Leuciscus idus</i> )	-	48h EC <sub>50</sub> =4897 mg/L
Mineral oil / 64741-88-4	-	96h LC <sub>50</sub> =5000 mg/L ( <i>Oncorhynchus mykiss</i> )	-	48h EC <sub>50</sub> =1000 mg/L

**Persistence and Degradability:** No information available.

### Bioaccumulation

Chemical Name / CAS Number	Log Pow
BHT / 128-37-0	4.17
1-Methyl-2-pyrrolidone / 872-50-4	-0.46

**Mobility:** No information available.

**Other Adverse Effects:** No information available.

## 13 DISPOSAL CONSIDERATIONS (NON-MANDATORY)

### Waste Treatment Disposal Methods:

**Waste from Residues/Unused Products:** Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

**Contaminated Packaging:** Do not reuse empty containers.

## 14 TRANSPORT INFORMATION (NON-MANDATORY)

DOT, TGD, MEX, ICAO, IATA, IMDG/IMO, RID, ADR and ADN: Not regulated.

## 15 REGULATORY INFORMATION (NON-MANDATORY)

### International Regulations:

**Ozone-depleting substances:** Not applicable.

**Persistent Organic Pollutants:** Not applicable.

**Export Notification Requirements:** Not applicable.

### International Inventories:

**TSCA:** Contact supplier for inventory compliance status.

**DSL/NDSL:** Contact supplier for inventory compliance status.

**EINECS/ELINCS:** Contact supplier for inventory compliance status.

**ENCS:** Contact supplier for inventory compliance status.

**KECL:** Contact supplier for inventory compliance status.

**PICCS:** Contact supplier for inventory compliance status.

**AICS:** Contact supplier for inventory compliance status.

**TSCA:** United States Toxic Substances Control Act Section 8(b) Inventory; **DSL/NDSL:** Canadian Domestic Substances List/Non-Domestic Substances List; **EINECS/ELINCS:** European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances; **ENCS:** Japan Existing and New Chemical Substances; **KECL:** Korean Existing and Evaluated Chemical Substances; **PICCS:** Philippines Inventory of Chemicals and Chemical Substances; **AICS:** Australian Inventory of Chemical Substances.

# Safety Data Sheet

## U.S. Federal Regulations:

**SARA 313:** Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 ("SARA"). This product contains the following chemical that is subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372:

Chemical Name	CAS Number	Percent	SARA 313 Threshold Value %
1-Methyl-2-pyrrolidone	872-50-4	27	1.0

## SARA 313.312 Hazard Categories:

**Acute Health Hazard:** Yes

**Chronic Health Hazard:** Yes

**Fire Hazard:** Yes

**Sudden Release of Pressure Hazard:** No

**Reactive Hazard:** No

**CWA (Clean Water Act):** This product does not contain any substances regulated as pollutants pursuant to the CWA (40 CFR §§ 122.21 and 122.420).

**CERCLA (Comprehensive Environmental Response Compensation and Liability Act):** This material, as supplied, does not contain any substances regulated as hazardous substances under CERCLA (40 CFR Part 302) or SARA (40 CFR Part 355). There may be specific reporting requirements at the local, regional or state level pertaining to releases of this material.

**FIFRA (Federal Insecticide, Fungicide and Rodenticide Act, as Amended):** This chemical is a pesticide product registered by the United States Environmental Protection Agency and is subject to certain labeling requirements under Federal pesticide law. These requirements differ from the classification criteria and hazard information required for Safety Data Sheets ("SDSs") and for workplace labels of non-pesticide chemicals. The hazard information required on the pesticide label is reproduced below. The pesticide label also includes other important information, including Directions for Use.

## Precautionary Statements

### Hazards to Humans & Domestic Animals

**WARNING:** May be fatal if swallowed. Causes substantial but temporary eye injury. Do not get in eyes or on clothing. Harmful if inhaled or absorbed through the skin. Avoid contact with skin. Prolonged or frequently repeated exposure may cause allergic skin reactions in some individuals. Avoid breathing vapors.

### Personal Protective Equipment (PPE)

Some materials that are chemical-resistant to this product are listed below. If you want more options, follow the instructions for category B on an EPA chemical-resistance category selection chart. Applicators and other handlers must wear:

- Long-sleeved shirt and long pants;
- Chemical-resistant gloves, such as barrier laminate or butyl rubber  $\geq$  14 mils;
- Socks plus shoes;
- Protective eyewear.

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product. Do not reuse them. Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

### User Safety Recommendations

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.
- Immediately remove contaminated clothing if pesticide gets inside; then wash thoroughly and put on clean clothing.

### Environmental Hazards

This pesticide is toxic to fish and wildlife. Do not apply directly to water. Do not contaminate water when disposing of equipment washwaters or rinsate. This product is highly toxic to bees exposed to direct treatment or residues on blooming crops or weeds. Apply only post bloom.

### Physical or Chemical Hazards

Do not use or store near heat or open flame.

## U.S. State Regulations:

**California Proposition 65:** This product contains 1-Methyl-2-pyrrolidone (CAS Number 872-50-4) that is known to the state of California to cause developmental toxicity.

# Safety Data Sheet

## U.S. State Right-to-Know Regulations

Chemical Name / CAS Number	Illinois	Massachusetts	New Jersey	Pennsylvania	Rhode Island
BHT / 128-37-0		X	X	X	
1-Methyl-2-pyrrolidone / 872-50-4		X	X	X	X
Mineral oil / 64741-88-4	X				

## 16 OTHER INFORMATION

### NFPA:

Health Hazards: 4

Flammability: 2

Instability: 0

Physical and Chemical Hazards-Personal Protection: X

### HMIS:

Health Hazards: 4\*

Flammability: 2

Physical Hazard: 0

Physical and Chemical Hazards-Personal Protection: X

\*Chronic health hazard

### SDS Information:

Date Prepared: 01/09/2023

Version: 2

Greyhound™ is a trademark of ArborSystems

## DISCLAIMER

This Safety Data Sheet ("SDS") serves different purposes than, and DOES NOT REPLACE OR MODIFY, THE EPA-APPROVED PRODUCT LABELING (attached to and accompanying the product container). This SDS provides important health, safety and environmental information for employers, employees, emergency responders and others handling large quantities of the product in activities generally other than product use, while the labeling provides that information specifically for product use in the ordinary course. Use, storage and disposal of pesticide products are regulated by the EPA under the authority of FIFRA (Federal Insecticide, Fungicide and Rodenticide Act, as Amended) through the product labeling. All necessary and appropriate precautionary, use, storage and disposal information is set forth on that labeling. It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

Although the information and recommendations set for herein (hereinafter "information") are presented in good faith and believed to be correct as of the date hereof, ArborSystems makes no representations as to the completeness or accuracy thereof. Information is supplied upon the condition that the persons receiving same will make their own determination as to its suitability for the purposes prior to use. To the extent consistent with applicable law, in no event will ArborSystems be responsible for damages of any nature whatsoever resulting from the use of or reliance upon information. NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OF ANY OTHER NATURE ARE MADE HEREUNDER WITH RESPECT TO INFORMATION OR TO THE PRODUCT TO WHICH INFORMATION REFERS.



## An ArborSystems™ Direct-Inject™ Product

Relieves symptoms of iron chlorosis and manganese deficiency in trees.

For use by professional arborists/applicators with the ArborSystems Direct-Inject QC™ Tree Injection System.

### GUARANTEED ANALYSIS

Iron (Fe).....	8.50%
8.5% Chelated Iron (Fe)	
Manganese (Mn) .....	3.50%
3.5% Water Soluble Manganese (Mn)	

Derived from: Ammonium Ferric Citrate, Manganese Sulfate

Information regarding the contents and levels of metals in this product is available on the internet at <http://www.aapfco.org/metals.htm>

Package Type	Net Contents	Net Weight
120 ml pack	4 fl oz (120 ml)	0.406 lb (184 g)
1000 ml pack	1 qt 2 fl oz (1000 ml)	3.27 lb (1485.4 g)

### APPLICATION RATE

Inject 1 ml every 4" around the base (flare) of the tree. Injections should be made within 12" of the ground.

**NOTE:** Depending on type of bark, the dosage per injection site may be halved and the number of injection sites doubled.

### TIMING

Injections may be made anytime during the growing season, preferably in the spring or early summer. Results are often seen within two weeks, especially when treatments are made in the late spring or early summer. Can be applied at the same time as other ArborSystems products.

### INDICATIONS

- Iron deficiency in conifers is indicated when the needles turn yellow. In deciduous trees, the leaves yellow while the veins remain green. When fine veins become chlorotic (yellow), and/or if leaf edges are wavy, crinkled, or curled, tree may also have manganese deficiency.
- Ornamental trees sensitive to iron deficiencies include American Elm, Cottonwood, Jack Pine, London Plane Tree, Magnolia, Maples, Mountain Ash, Oaks, Walnut, White Pine, Yellow Birch.
- Ornamental trees susceptible to manganese deficiencies include Birch, Dogwood, Maples (especially Red and Sugar) Flowering Cherry, Sweetgum, and Sergeant Crab.

## GENERAL INFORMATION

### ARBORSYSTEMS DIRECT-INJECT TREE INJECTION SYSTEM

The ArborSystems Direct-Inject Tree Injection System is easy to use. Most trees are treated in as little as five minutes or less with no drilling required. Product is injected into the cambial area of the tree (the active vascular system). There is no need to wait for absorption (translocation). Because the product is placed right where the tree can use it, effectiveness of the product is increased. Use in sunny or overcast conditions, rainy or dry, at any time of day. As no drilling or implants are required, you can treat trees year after year, with no threat of long-term or permanent damage to the tree. The Direct-Inject System minimizes wounding and promotes long-term tree vigor.

### HOW TO USE ARBORSYSTEMS DIRECT-INJECT PRODUCTS WITH ARBORSYSTEMS DIRECT-INJECT UNITS

1. Use only ArborSystems Direct-Inject products with your unit as they have been formulated specifically for the Direct-Inject system. Use of other products will invalidate warranty.
2. Attach the container to the Direct-Inject unit and prepare the unit to make injections.
3. Set the delivery volume on the unit.
4. Follow the label directions to determine the amount of product and number of injection sites.
5. Determine where to make injections in the bark. Generally, the injection tip is inserted into the fissure (valley) of the tree bark. Inject thin-barked trees in the thicker part of the tree bark. Thick-barked trees require a longer injection tip.
6. Make injections working around the circumference of the tree. Make Wedgle® Tip injections within 12" of the ground. Portle® Tip injection height varies depending on type of tree and location.
7. With a smooth motion, firmly squeeze the injection unit handles. This releases a pre-measured dose into the tree.
8. Continue making injections moving around the tree until the entire tree trunk has been treated.
9. During use, periodically clean the Direct-Inject unit to prevent clogging.

### NOTICE OF WARRANTY

ArborSystems warrants that this product conforms to the description on the label and is reasonably fit for use under average conditions when used strictly in accordance with the directions on the labeling. ArborSystems does not make or authorize any agent or representative to make any other warranty, guarantee or representation, express or implied, concerning this product.

Portle® Tip and Wedgle® Tip and Nutriboosters® are registered trademarks of ArborSystems.

ArborSystems™, Direct-Inject™ and WedgeChek™ are trademarks of ArborSystems.

Wedgle® Direct Inject™ unit is protected by U.S. Patent #5,901,498

Wedgle® Tip is protected by U.S. Patent #5,239,773

WedgeChek™ is protected by U.S. Patent #5,797,215

Portle® Tip is protected by U.S. Patent #7,178,286



P.O. Box 34645 • Omaha, NE 68134 • Toll-Free: 899-698-4641 • Phone: 402-339-4459 • Fax: 402-339-5011 • www.ArborSystems.com

### 1. IDENTIFICATION

**Product Name:** Iron/Manganese Nutriboosters®

**Chemical Name:** Liquid Fertilizer Solution

### 2. HAZARD(S) IDENTIFICATION



**WARNING**

**Primary Route of Exposure:** Ingestion

**Exposure/Health Effects:**

**Eye Contact:** May cause irritation.

**Skin Contact:** May cause irritation.

**Respiratory/Inhalation:** May cause irritation.

**Ingestion:** May cause irritation.

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

Component Name	CAS Number	Percent
Iron (Fe)	1185-57-5	12.5%
Manganese (Mn)	7785-87-7	3.5%

Derived from: Ammonium Ferric Citrate, Manganese Sulfate

Information regarding the contents and levels of metals in this product is available on the Internet at <http://www.aapfco.org/metals.htm>

### 4. FIRST-AID MEASURES

**Eye Contact:** Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention if irritation occurs.

**Skin Contact:** Wash with soap and water. Cold water may be used. Cover the irritated skin with an emollient. Get medical attention if irritation develops.

**Inhalation:** If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

**Ingestion:** Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt, or waistband.

**Notes to Physician:** No specific antidote is available. Treat symptomatically.

### 5. FIRE-FIGHTING MEASURES

**Fire-Extinguishing Media:** Use any means suitable for extinguishing surrounding fire.

**Special Fire-Fighting Procedures:** In the event of a fire, wear full protective clothing and a NIOSH approved, self-contained breathing apparatus with a full face-piece operated in the pressure demand or other positive pressure mode.

**Fire and Explosion Hazards:** None known

### 6. ACCIDENTAL RELEASE MEASURES

**Action to Take for Spills:** Ventilate area of spill. Contain spill, and then soak up with absorbent material. Dispose as waste in a suitable container.

**Prevent runoff.**  
**Ensure compliance with local, state, and federal regulations.**

## 7. HANDLING AND STORAGE

**Precautions to be Taken in Handling and Storage:** Keep out of reach of children. Avoid container breakage. Avoid contact with skin, eyes, or clothing. Wash thoroughly with soap and water after handling. Wash exposed clothing before reuse. Store in a cool, dry area in closed container or pack.

## 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

**Airborne Exposure Limits:** ACGIH Threshold Limit Value (TLV) for Manganese: 5 mg (Mn)/m<sup>3</sup> (TWA) ceiling.

**Ventilation System:** A system of local and/or general exhaust is recommended to keep employee exposures below the manganese Airborne Exposure Limit. Local exhaust ventilation is preferred because it controls the emissions of the contaminate at its source, preventing dispersion into the general work area.

**Personal Protective Equipment (PPE):** Wear safety glasses, chemical-resistant gloves, and clean body-covering clothing when handling this product. Use a NIOSH approved respirator if the TLV is exceeded. Maintain eye wash fountain and quick-drench facilities in work area.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**Appearance:** Dark brown liquid

**Odor:** Odorless or slight ammoniacal

**Bulk Density:** 1.405 gram/ml

**Solubility in Water:** Virtually complete

**Boiling Point:** Not applicable

**Melting Point:** Not determined

**Percent Volatile:** Not determined

**Vapor Pressure:** Not determined

**Vapor Density:** Not determined

**pH:** Not determined

**Freezing Point:** Not determined

**Evaporation Rate:** Not determined

## 10. STABILITY AND REACTIVITY

**Stability:** Stable under normal conditions.

**Conditions to Avoid:** None known.

**Incompatibility (Materials to Avoid):** None known.

**Hazardous Decomposition Products:** Ammonia, manganese emits toxic fumes of sulfur and manganese oxides when heated to decomposition.

**Hazardous Polymerization:** Does not occur.

## 11. TOXICOLOGICAL INFORMATION

**General Information:** Very low toxicity for humans and animals. Health injuries are not known or expected under normal use.

**Eye:** May cause slight irritation or eye damage if untreated.

**Skin:** Prolonged exposure may cause slight skin irritation.

**Ingestion:** May cause gastrointestinal upset, abdominal pain, and diarrhea.

**Inhalation:** Vapors are unlikely due to physical properties.

## 12. ECOLOGICAL INFORMATION (NON-MANDATORY)

**Environmental Data:** Do not apply directly to water bodies (lakes, rivers, streams) or wetlands. Do not contaminate water by cleaning of equipment or disposal of wastes.

## 13. DISPOSAL CONSIDERATIONS (NON-MANDATORY)

**Disposal Method:** Do not contaminate water, food, or feed by storage or disposal. Wastes resulting from the use of this product may be disposed of on-site per label use directions, or at an approved waste disposal facility. Follow all local, state, and federal requirements for disposal.

#### 14. TRANSPORT INFORMATION

**DOT Classification:** Not a DOT controlled material.

**Identification:** Not applicable.

**Special Provisions for Transport:** Not applicable.

#### 15. REGULATORY INFORMATION (NON-MANDATORY)

**SARA/OSHA:** Components present in this product at a level that could require reporting under the SARA or OSHA hazardous chemical reporting requirements: None.

**Extremely Hazardous Substance (EHS):** None.

**States Right-to-Know (RTK):** No components in this product are present on state lists from CA, PA, MN, MA, FL, or NJ.

**Toxic Substance Control Act (TSCA) Status:** The ingredients of this product are on the TSCA inventory.

**CA SCAQMD Rule 443.1 VOCs:** Not presently available.

**Other Regulatory Information:** None known.

#### 16. OTHER INFORMATION

The information given here is not necessarily exhaustive but is representative of relevant, reliable data.

Follow all local/regional/national/international regulations.

Please consult supplier if further information is needed.

All tests were conducted following OECD guidelines for Good Laboratory Practices (GLP).

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Although the information and recommendations set forth herein (hereinafter "Information") are presented in good faith and believed to be correct as of the date hereof, ArborSystems, Inc. makes no representations as to the completeness or accuracy thereof. Information is supplied upon the condition that the persons receiving same will make their own determination as to its suitability for the purposes prior to use. In no event will ArborSystems, Inc. be responsible for damages of any nature whatsoever resulting from the use of or reliance upon information. NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OF ANY OTHER NATURE ARE MADE HEREUNDER WITH RESPECT TO INFORMATION OR TO THE PRODUCT TO WHICH INFORMATION REFERS.

Revision: 05/2014

Supersedes: 04/2012, 12/96, 05/06, 04/08 and 05/08 versions

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### An ArborSystems™ Direct-Inject™ Product

Relieves symptoms of iron chlorosis, the general yellowing of foliage. Works most effectively on Oak trees. Effectiveness on other varieties of trees may vary.

For use by professional arborists/applicators with the ArborSystems Direct-Inject QC™ Tree Injection System.

### GUARANTEED ANALYSIS

Iron (Fe) . . . . . 12.50%  
Derived from: Ammonium Ferric Citrate

Information regarding the contents and levels of metals in this product is available on the internet at <http://www.aapfco.org/metals.htm>

Package Type	Net Contents	Net Weight
120 ml pack	4 fl oz (120 ml)	0.366 lb (166 g)
1000 ml pack	1 qt 2 fl oz (1000 ml)	3.02 lb (1370.8 g)

### APPLICATION RATE

Inject 1 ml every 4" around the base (flare) of the tree. Injections should be made within 12" of the ground.

**NOTE:** Depending on type of bark, the dosage per injection site may be halved and the number of injection sites doubled.

### TIMING

Injections may be made anytime during the growing season, preferably in the spring or early summer. Results are often seen within two weeks, especially when treatments are made in the late spring or early summer. Can be applied at the same time as other ArborSystems products.

### INDICATIONS

- Iron deficiency in conifers is indicated when the needles turn yellow. In deciduous trees, the leaves yellow while the veins remain green. When fine veins become chlorotic (yellow), and/or if leaf edges are wavy, crinkled, or curled, tree may also have manganese deficiency.
- Ornamental trees sensitive to iron deficiencies include American Elm, Cottonwood, Jack Pine, London Plane Tree, Magnolia, Maples, Mountain Ash, Oaks, Walnut, White Pine, Yellow Birch.

### GENERAL INFORMATION

#### ARBORSYSTEMS DIRECT-INJECT TREE INJECTION SYSTEM

The ArborSystems Direct-Inject Tree Injection System is easy to use. Most trees are treated in as little as five minutes or less with no drilling required. Product is injected into the cambial area of the tree (the active vascular system). There is no need to wait for absorption (translocation). Because the product is placed right where the tree can use it, effectiveness of the product is increased. Use in sunny or overcast

conditions, rainy or dry, at any time of day. As no drilling or implants are required, you can treat trees year after year, with no threat of long-term or permanent damage to the tree. The Direct-Inject System minimizes wounding and promotes long-term tree vigor.

### HOW TO USE ARBORSYSTEMS DIRECT-INJECT PRODUCTS WITH ARBORSYSTEMS DIRECT-INJECT UNITS

1. Use only ArborSystems Direct-Inject products with your unit as they have been formulated specifically for the Direct-Inject system. Use of other products will invalidate warranty.
2. Attach the container to the Direct-Inject unit and prepare the unit to make injections.
3. Set the delivery volume on the unit.
4. Follow the label directions to determine the amount of product and number of injection sites.
5. Determine where to make injections in the bark. Generally, the injection tip is inserted into the fissure (valley) of the tree bark. Inject thin-barked trees in the thicker part of the tree bark. Thick-barked trees require a longer injection tip.
6. Make injections working around the circumference of the tree. Make Wedgle® Tip injections within 12" of the ground. Portle® Tip injection height varies depending on type of tree and location.
7. With a smooth motion, firmly squeeze the injection unit handles. This releases a pre-measured dose into the tree.
8. Continue making injections moving around the tree until the entire tree trunk has been treated.
9. During use, periodically clean the Direct-Inject unit to prevent clogging.

### NOTICE OF WARRANTY

ArborSystems warrants that this product conforms to the description on the label and is reasonably fit for use under average conditions when used strictly in accordance with the directions on the labeling. ArborSystems does not make or authorize any agent or representative to make any other warranty, guarantee or representation, express or implied, concerning this product.

Portle® Tip and Wedgle® Tip are registered trademarks of ArborSystems.

ArborSystems™, Direct-Inject™, WedgeChek™ and Nutriboosters™ are trademarks of ArborSystems.

Direct Inject™ unit is protected by U.S. Patent #5,901,498

Wedgle® Tip is protected by U.S. Patent #5,239,773

WedgeChek™ is protected by U.S. Patent #5,797,215

Portle® Tip is protected by U.S. Patent #7,178,286



### 1. IDENTIFICATION

**Product Name:** Iron Nutriboosters®

**Chemical Name:** Liquid Fertilizer Solution

### 2. HAZARD(S) IDENTIFICATION



WARNING

**Exposure/Health Effects:**

**Eye Contact:** May cause irritation.

**Skin Contact:** May cause irritation.

**Respiratory/Inhalation:** May cause irritation.

**Ingestion:** May cause irritation.

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

Component Name	CAS Number	Percent
Iron (Fe)	1185-57-5	12.5%

Derived from: Ammonium Ferric Citrate

Information regarding the contents and levels of metals in this product is available on the Internet at <http://www.aapfco.org/metals.htm>

### 4. FIRST-AID MEASURES

**Eye Contact:** Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention if irritation occurs.

**Skin Contact:** Wash with soap and water. Cold water may be used. Cover the irritated skin with an emollient. Get medical attention if irritation develops.

**Inhalation:** If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

**Ingestion:** Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt, or waistband.

**Notes to Physician:** No specific antidote is available. Treat symptomatically.

### 5. FIRE-FIGHTING MEASURES

**Fire-Extinguishing Media:** Use any means suitable for extinguishing surrounding fire.

**Special Fire-Fighting Procedures:** In the event of a fire, wear full protective clothing and a NIOSH approved, self-contained breathing apparatus with a full face-piece operated in the pressure demand or other positive pressure mode.

**Fire and Explosion Hazards:** None known.

### 6. ACCIDENTAL RELEASE MEASURES

**Action to Take for Spills:** Ventilate area of spill. Contain spill, and then soak up with absorbent material. Dispose as waste in a suitable container.

**Prevent runoff.**

**Ensure compliance with local, state, and federal regulations.**

## 7. HANDLING AND STORAGE

**Precautions to be Taken in Handling and Storage:** Keep out of reach of children. Avoid container breakage. Avoid contact with skin, eyes, or clothing. Wash thoroughly with soap and water after handling. Wash exposed clothing before reuse. Store in a cool, dry area in closed container or pack.

## 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

**Personal Protective Equipment (PPE):** Wear safety glasses, chemical-resistant gloves when handling this product.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**Appearance:** Dark brown liquid  
**Odor:** Odorless or slight ammoniacal  
**Bulk Density:** 1.265 gram/ml  
**Solubility in Water:** Virtually complete  
**Boiling Point:** Not determined  
**Melting Point:** Not determined  
**Percent Volatile:** Not determined  
**Vapor Pressure:** Not determined  
**Vapor Density:** Not determined  
**pH: 3.5 to 4.5 (5%)**  
**Volatile Components:** Not applicable  
**Freezing Point:** Not determined  
**Evaporation Rate:** Not determined

## 10. STABILITY AND REACTIVITY

**Stability:** Stable under normal conditions.  
**Conditions to Avoid:** None known.  
**Incompatibility (Materials to Avoid):** Not established.  
**Hazardous Decomposition Products:** Ammonia.  
**Hazardous Polymerization:** Will not occur.

## 11. TOXICOLOGICAL INFORMATION

**General Information:** Very low toxicity for humans and animals. Health injuries are not known or expected under normal use.  
**Eye:** May cause slight irritation or eye damage if untreated.  
**Skin:** Prolonged exposure may cause slight skin irritation.  
**Ingestion:** May cause gastrointestinal upset, abdominal pain, and diarrhea.  
**Inhalation:** Vapors are unlikely due to physical properties.

## 12. ECOLOGICAL INFORMATION (NON-MANDATORY)

**Environmental Data:** Do not apply directly to water bodies (lakes, rivers, streams) or wetlands. Do not contaminate water by cleaning of equipment or disposal of wastes.

## 13. DISPOSAL CONSIDERATIONS (NON-MANDATORY)

**Disposal Method:** Do not contaminate water, food, or feed by storage or disposal. Wastes resulting from the use of this product may be disposed of on-site per label use directions, or at an approved waste disposal facility. Follow all local, state, and federal requirements for disposal.

## 14. TRANSPORT INFORMATION

**DOT Classification:** Not a DOT controlled material.  
**Identification:** Not applicable  
**Special Provisions for Transport:** Not applicable

## 15. REGULATORY INFORMATION (NON-MANDATORY)

**SARA/OSHA:** Components present in this product at a level that could require reporting under the SARA or OSHA hazardous chemical reporting requirements: None

**Extremely Hazardous Substance (EHS):** None

**States Right-to-Know (RTK):** No components are present in this product that requires reporting under Massachusetts or Pennsylvania statutes.

**Toxic Substance Control Act (TSCA) Status:** The ingredients of this product are on the TSCA inventory.

**CA SCAQMD Rule 443.1 VOCs:** Not presently available

**Other Regulatory Information:** None known

## 16. OTHER INFORMATION

The information given here is not necessarily exhaustive but is representative of relevant, reliable data.

Follow all local/regional/national/international regulations.

Please consult supplier if further information is needed.

All tests were conducted following OECD guidelines for Good Laboratory Practices (GLP).

This Safety Data Sheet (SDS) serves different purposes than and DOES NOT REPLACE OR MODIFY THE EPA-APPROVED PRODUCT LABELING (attached to and accompanying the product container). This SDS provides important health, safety, and environmental information for employers, employees, emergency responders and others handling large quantities of the product in activities generally other than product use, while the labeling provides that information specifically for product use in the ordinary course. Use, storage and disposal of pesticide products are regulated by the EPA under the authority of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) through the product labeling, and all necessary and appropriate precautionary, use, storage, and disposal information is set forth on that labeling. It is a violation of federal law to use this product in a manner inconsistent with its labeling.

Although the information and recommendations set forth herein (hereinafter "Information") are presented in good faith and believed to be correct as of the date hereof, ArborSystems, Inc. makes no representations as to the completeness or accuracy thereof. Information is supplied upon the condition that the persons receiving same will make their own determination as to its suitability for the purposes prior to use. In no event will ArborSystems, Inc. be responsible for damages of any nature whatsoever resulting from the use of or reliance upon information. NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OF ANY OTHER NATURE ARE MADE HEREUNDER WITH RESPECT TO INFORMATION OR TO THE PRODUCT TO WHICH INFORMATION REFERS.

Revision: 05/2014

Supersedes: 04/2012, 12/96, 05/06, 04/08 and 05/08 versions

Nutriboosters® is a registered trademark of ArborSystems.



P.O. Box 34645 • Omaha, NE 68134 • Toll-Free: 800-698-4641 • Phone: 402-339-4459 • Fax: 402-339-5011 • www.ArborSystems.com

## An ArborSystems™ Direct-Inject™ Product

Relieves symptoms of manganese deficiency in trees.

For use by professional arborists/applicators with the ArborSystems Direct-Inject QC™ Tree Injection System.

### GUARANTEED ANALYSIS

Manganese (Mn) ..... 5.00%  
Derived from: Manganese Sulfate

Information regarding the contents and levels of metals in this product is available on the internet at <http://www.aapfco.org/metals.htm>

Package Type	Net Contents	Net Weight
120 ml pack	4 fl oz (120 ml)	0.384 lb (174 g)
1000 ml pack	1 qt 2 fl oz (1000 ml)	2.48 lb (1125.6 g)

### APPLICATION RATE

Inject 1 ml every 4" around the base (flare) of the tree. Injections should be made within 12" of the ground.

**NOTE:** Depending on type of bark, the dosage per injection site may be halved and the number of injection sites doubled.

### TIMING

Injections may be made anytime during the growing season. However, as summer ends, green-up will be less likely to occur because the leaves become less responsive as they age. The best time to inject is spring through early summer.

### INDICATIONS

- In deciduous trees, when fine veins become chlorotic (yellow), and/or if leaf edges are wavy, crinkled, or curled, tree may have manganese deficiency.
- Ornamental trees susceptible to manganese deficiencies include Birch, Dogwood, Maples (especially Red and Sugar) Flowering Cherry, Sweetgum, and Sergeant Crab.

### GENERAL INFORMATION

#### ARBORSYSTEMS DIRECT-INJECT TREE INJECTION SYSTEM

The ArborSystems Direct-Inject Tree Injection System is easy to use. Most trees are treated in as little as five minutes or less with no drilling required. Product is injected into the cambial area of the tree (the active vascular system). There is no need to wait for absorption (translocation). Because the product is placed right where the tree can use it, effectiveness of the product is increased. Use in sunny or overcast conditions, rainy or dry, at any time of day. As no drilling or implants are required, you can treat trees year after year, with no threat of long-term or permanent damage to the tree. The Direct-Inject System minimizes wounding and promotes long-term tree vigor.

### HOW TO USE ARBORSYSTEMS DIRECT-INJECT PRODUCTS WITH ARBORSYSTEMS DIRECT-INJECT UNITS

1. Use only ArborSystems Direct-Inject products with your unit as they have been formulated specifically for the Direct-Inject system. Use of other products will invalidate warranty.
2. Attach the container to the Direct-Inject unit and prepare the unit to make injections.
3. Set the delivery volume on the unit.
4. Follow the label directions to determine the amount of product and number of injection sites.
5. Determine where to make injections in the bark. Generally, the injection tip is inserted into the fissure (valley) of the tree bark. Inject thin-barked trees in the thicker part of the tree bark. Thick-barked trees require a longer injection tip.
6. Make injections working around the circumference of the tree. Make Wedgle® Tip injections within 12" of the ground. Portle® Tip injection height varies depending on type of tree and location.
7. With a smooth motion, firmly squeeze the injection unit handles. This releases a pre-measured dose into the tree.
8. Continue making injections moving around the tree until the entire tree trunk has been treated.
9. During use, periodically clean the Direct-Inject unit to prevent clogging.

### NOTICE OF WARRANTY

ArborSystems warrants that this product conforms to the description on the label and is reasonably fit for use under average conditions when used strictly in accordance with the directions on the labeling. ArborSystems does not make or authorize any agent or representative to make any other warranty, guarantee or representation, express or implied, concerning this product.

Portle® Tip and Wedgle® Tip are registered trademarks of ArborSystems.

ArborSystems™, Direct-Inject™, WedgeChek™ and Nutriboosters™ are trademarks of ArborSystems.

Direct Inject™ unit is protected by U.S. Patent #5,901,498  
Wedgle® Tip is protected by U.S. Patent #5,239,773  
WedgeChek™ is protected by U.S. Patent #5,797,215  
Portle® Tip is protected by U.S. Patent #7,178,286



### 1. IDENTIFICATION

**Product Name:** Manganese Nutriboosters®

**Chemical Name:** Liquid Fertilizer Solution

### 2. HAZARD(S) IDENTIFICATION



WARNING

**Primary Route of Exposure:** Ingestion

**Exposure/Health Effects:**

**Eye Contact:** May cause irritation.

**Skin Contact:** May cause irritation.

**Respiratory/Inhalation:** May cause irritation.

**Ingestion:** May cause irritation.

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

Component Name	CAS Number	Percent
Manganese (Mn)	10034-96-5	5.0%

Derived from: Manganese Sulfate

Information regarding the contents and levels of metals in this product is available on the Internet at <http://www.aapfco.org/metals.htm>

### 4. FIRST-AID MEASURES

**Eye Contact:** Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention if irritation occurs.

**Skin Contact:** Wash with soap and water. Cold water may be used. Cover the irritated skin with an emollient. Get medical attention if irritation develops.

**Inhalation:** If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

**Ingestion:** Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt, or waistband.

**Notes to Physician:** No specific antidote is available. Treat symptomatically.

### 5. FIRE-FIGHTING MEASURES

**Fire-Extinguishing Media:** Not considered a fire hazard. Use any means suitable for extinguishing surrounding fire.

**Special Fire-Fighting Procedures:** In the event of a fire, wear full protective clothing and a NIOSH approved, self-contained breathing apparatus with a full face-piece operated in the pressure demand or other positive pressure mode.

**Fire and Explosion Hazards:** Not considered to be an explosion hazard.

### 6. ACCIDENTAL RELEASE MEASURES

**Action to Take for Spills:** Ventilate area of spill. Contain spill, and then soak up with absorbent material. Dispose as waste in a suitable container.

**Prevent runoff.**

Ensure compliance with local, state, and federal regulations.

## 7. HANDLING AND STORAGE

**Precautions to be Taken in Handling and Storage:** Keep out of reach of children. Avoid container breakage. Avoid contact with skin, eyes, or clothing. Wash thoroughly with soap and water after handling. Wash exposed clothing before reuse. Store in a cool, dry area in closed container or pack.

## 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

**Airborne Exposure Limits:** ACGIH Threshold Limit Value (TLV) for Manganese: 5 mg (Mn)/m<sup>3</sup> (TWA) ceiling.

**Ventilation System:** A system of local and/or general exhaust is recommended to keep employee exposures below the manganese Airborne Exposure Limit. Local exhaust ventilation is preferred because it controls the emissions of the contaminate at its source, preventing dispersion into the general work area.

**Personal Protective Equipment (PPE):** Wear safety glasses, chemical-resistant gloves, and clean body-covering clothing when handling this product. Use a NIOSH approved respirator if the TLV is exceeded. Maintain eye wash fountain and quick-drench facilities in work area.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**Appearance:** Pale pink to clear liquid

**Odor:** Odorless

**Bulk Density:** 1.120 gram/ml

**Specific Gravity:** 1.0 (8.34 pounds/gallon)

**Solubility in Water:** Complete

**Boiling Point:** 212°F

**Melting Range:** Not applicable

**Vapor Pressure:** Not determined

**Vapor Density:** Not determined

**pH:** 7.0

**Volatile Components:** Not applicable

**Freezing Point:** 32°F

**Evaporation Rate:** Not determined

## 10. STABILITY AND REACTIVITY

**Stability:** Stable under normal conditions.

**Conditions to Avoid:** None known.

**Incompatibility (Materials to Avoid):** Powdered metals, strong oxidizers.

**Hazardous Decomposition Products:** Manganese emits toxic fumes of sulfur and manganese oxides when heated to decomposition.

**Hazardous Polymerization:** Does not occur.

## 11. TOXICOLOGICAL INFORMATION

**General Information:** Very low toxicity for humans and animals. Health injuries are not known or expected under normal use.

**Eye:** May cause slight irritation or eye damage if untreated.

**Skin:** Prolonged exposure may cause slight skin irritation.

**Ingestion:** May cause gastrointestinal upset, abdominal pain, and diarrhea.

**Inhalation:** Vapors are unlikely due to physical properties.

## 12. ECOLOGICAL INFORMATION (NON-MANDATORY)

**Environmental Data:** Do not apply directly to water bodies (lakes, rivers, streams) or wetlands. Do not contaminate water by cleaning of equipment or disposal of wastes.

## 13. DISPOSAL CONSIDERATIONS (NON-MANDATORY)

**Disposal Method:** Do not contaminate water, food, or feed by storage or disposal. Wastes resulting from the use of this product may be disposed of on-site per label use directions, or at an approved waste disposal facility. Follow all local, state, and federal requirements for disposal.

#### 14. TRANSPORT INFORMATION

**DOT Classification:** Not a DOT controlled material.

**Identification:** Not applicable.

**Special Provisions for Transport:** Not applicable.

#### 15. REGULATORY INFORMATION (NON-MANDATORY)

**SARA/OSHA:** Components present in this product at a level that could require reporting under the SARA or OSHA hazardous chemical reporting requirements: None.

**Extremely Hazardous Substance (EHS):** None.

**States Right-to-Know (RTK):** No components in this product are present on state lists from CA, PA, MN, MA, FL, or NJ.

**Toxic Substance Control Act (TSCA) Status:** The ingredients of this product are on the TSCA inventory.

**CA SCAQMD Rule 443.1 VOCs:** Not presently available.

**Other Regulatory Information:** None known.

#### 16. OTHER INFORMATION

The information given here is not necessarily exhaustive but is representative of relevant, reliable data.

Follow all local/regional/national/international regulations.

Please consult supplier if further information is needed.

All tests were conducted following OECD guidelines for Good Laboratory Practices (GLP).

This Safety Data Sheet (SDS) serves different purposes than and DOES NOT REPLACE OR MODIFY THE EPA-APPROVED PRODUCT LABELING (attached to and accompanying the product container). This SDS provides important health, safety, and environmental information for employers, employees, emergency responders and others handling large quantities of the product in activities generally other than product use, while the labeling provides that information specifically for product use in the ordinary course. Use, storage and disposal of pesticide products are regulated by the EPA under the authority of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) through the product labeling, and all necessary and appropriate precautionary, use, storage, and disposal information is set forth on that labeling. It is a violation of federal law to use this product in a manner inconsistent with its labeling.

Although the information and recommendations set forth herein (hereinafter "Information") are presented in good faith and believed to be correct as of the date hereof, ArborSystems, Inc. makes no representations as to the completeness or accuracy thereof. Information is supplied upon the condition that the persons receiving same will make their own determination as to its suitability for the purposes prior to use. In no event will ArborSystems, Inc. be responsible for damages of any nature whatsoever resulting from the use of or reliance upon information. NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OF ANY OTHER NATURE ARE MADE HEREUNDER WITH RESPECT TO INFORMATION OR TO THE PRODUCT TO WHICH INFORMATION REFERS.

Revision: 05/2014

Supersedes: 04/2012, 08/01, 04/08 and 05/08 versions

Nutriboosters® is a registered trademark of ArborSystems.

# PINSCHER® PGR

An ArborSystems® Direct-Inject™ Chemical  
• Easy • No Drilling • Saves Time and Money

For systemic chemical pinching of landscape ornamentals. Prevents flowering and fruit/seed set of landscape ornamentals. Pinches off the fruit of landscape ornamentals.

**Intended for use by professional arborists/ applicators, foresters, grounds maintenance professionals and landscapers.**

To be used only with the ArborSystems Direct-Inject Tree Injection System.



**Tree Injection Solutions**  
800-698-4641 • Fax: 402-339-5011  
10168 L Street • Omaha, NE 68127

EPA Reg. No. 69117-7  
EPA Est. 69117-NE-1

## FIRST AID

**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 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.

**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.

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. For medical emergencies call the poison control center at 1-800-222-1222.

## PRECAUTIONARY STATEMENTS

### HAZARDS TO HUMANS AND DOMESTIC ANIMALS

**CAUTION:** Causes moderate eye irritation. Avoid contact with skin, eyes or clothing.

### PERSONAL PROTECTIVE EQUIPMENT (PPE)

Mixers, loaders, applicators and other handlers must wear: Long-sleeved shirt, long pants, shoes, socks and chemical-resistant gloves made of rubber or neoprene. When making direct injections to trees, applicators must wear protective eyewear.

### USER SAFETY REQUIREMENTS

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry. Discard clothing or other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them.

### USER SAFETY RECOMMENDATIONS

Users should wash hands before eating, drinking, chewing gum, using tobacco or using the toilet. Users should immediately remove clothing/PPE if pesticide gets inside, then thoroughly wash and put on clean clothing. Users should immediately remove PPE after handling this product. Wash the outside of gloves before removing. As soon as possible, thoroughly wash and change into clean clothing.

### ENVIRONMENTAL HAZARDS

For terrestrial uses: Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters or rinsate.



**Tree Injection Solutions**

800-698-4641 • Fax: 402-339-5011  
10168 L Street • Omaha, NE 68127

## NOTICE OF WARRANTY

ArborSystems warrants that this product conforms to the chemical description on the label and is reasonably fit for use under average conditions when used strictly in accordance with the directions on the labeling. To the extent consistent with applicable law, ArborSystems does not make or authorize any agent or representative to make any other warranty, guarantee or representation, express or implied, concerning this product.

ArborSystems®, Pinscher®, Portle® and Wedge® are registered trademarks of ArborSystems.

Direct-Inject™ and WedgeChek™ are trademarks of ArborSystems.

Direct Inject™ unit is protected by U.S. Patent #5,901,498  
Wedge® Tip is protected by U.S. Patent #5,239,773  
WedgeChek™ is protected by U.S. Patent #5,797,215  
Portle® Tip is protected by U.S. Patent #7,178,286

**CAUTION**  
Keep Out of Reach of Children  
See inside for First Aid, additional Precautionary Statements and complete Directions for Use.

\*Sodium salt of 2,3,4,6-bis-O-(1-methylethyl)uridine-a-1-xylo-2-hexulofuranosonic acid  
Contains 0.2 fl oz (6 grams) active ingredient per 4 fl oz (120 ml) pack; Contains 1.7 fl oz (50 grams) active ingredient per 1 qt (2 fl oz (1000 ml) pack.

**ACTIVE INGREDIENT:** Dikegulat-sodium (CAS No. 52508-95-7) 18.5%  
**OTHER INGREDIENTS** 81.5%  
**Total** 100.0%

Intended for use by professional arborists/applicators, foresters, grounds maintenance professionals and landscapers.

For systemic chemical pinching of landscape ornamentals. Prevents flowering and fruit/seed set of landscape ornamentals. Pinches off the fruit of landscape ornamentals.

An ArborSystems® Direct-Inject™ Chemical

# PINSCHER® PGR

# PINSCHER® PGR

## DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

**Intended for use by professional arborists/ applicators, foresters, grounds maintenance professionals and landscapers.**

## PRODUCT INFORMATION

### Do Not Apply to Food Bearing Plants

**Only protected handlers may be in the area during application**

### The No-Drilling Injection Solution

#### ARBORSYSTEMS® DIRECT-INJECT™ TREE INJECTION SYSTEM

The ArborSystems Direct-Inject Tree Injection System is easy to use. Most trees are treated in as little as five minutes or less, allowing applicators to treat trees quickly. There is no need to wait for absorption (translocation). Chemical is injected into the cambial area (the active vascular system) of the tree. Because the chemical is placed right where the tree can use it, effectiveness of the chemical is increased. Use in sunny or overcast conditions, rainy or dry, at any time of day. As no drilling or implants are required, you can treat trees year after year, with no threat of long-term or permanent damage to the tree. This system minimizes wounding and promotes long-term tree vigor.

#### INDICATIONS AND TREATMENT TIMING

Ornamental trees with heavy fruit or seed production can cause turf maintenance problems that require ongoing clean-up. Pinscher PGR eliminates or greatly reduces flowering and fruit/seed set without compromising tree health. Maintenance and cleanup concerns and labor are substantially reduced.

For early fruiting trees (most deciduous trees), make first year injections in the spring **and** late summer (approximately one month before the typical first frost). In subsequent years, make injections in the late summer for control the following year. In late fruiting trees such as Locust, Walnut and

Ginko, fruiting/seeding is better controlled by injections in the early spring prior to flowering. First year applications will provide less fruit/seed reduction than subsequent applications. Apply annually for maximum effectiveness.

#### PRECAUTIONS

Repeated treatment may cause bark damage; check before retreatment. Do not inject Pinscher PGR into drought-stressed trees or trees that do not appear healthy.

#### TREE SPECIES

Ornamental trees (such as but not limited to) Cottonwood (*Populus deltoides*), Eucalyptus (*Eucalyptus* spp.), London plane tree (*Platanus acerifolia*), Maples (Bigleaf (*Acer macrophyllum*), Norway (*Acer platanoides*), Red (*Acer rubrum*) and Silver (*Acer saccharinum*)) and Sycamore (*Platanus occidentalis*)

#### APPLICATION RATES PER INJECTION SITE PER TREE

Injections spaced every 4 inches.

**Trees 18-30 inches CBH\*:** 0.5 to 1 ml

**Trees >30 inches CBH\*:** 1 to 2 ml

\*Circumference at breast height

**Note:** Depending on type of bark (e.g. thin or fragile), the dosage per injection site may be cut in half and the number of injection sites doubled.

#### HOW TO USE ARBORSYSTEMS DIRECT-INJECT CHEMICALS WITH ARBORSYSTEMS DIRECT-INJECT TREE INJECTION SYSTEM

1. Use only ArborSystems Direct-Inject chemicals with your unit as they have been formulated specifically for the Direct-Inject system. Use of other chemicals will invalidate warranty.
2. Attach the chemical pack to the Direct-Inject unit and prepare the unit to make injections.
3. Set the delivery volume on the Unit.
4. Follow the label directions in this booklet to determine the amount of chemical and number of injection sites.

5. Determine where to make injections in the bark. Generally, the injection tip is inserted into the fissure (valley) of the tree bark. Inject thin-barked trees in the thicker part of the tree bark. Thick-barked trees require a longer injection tip.
6. Make injections working around the circumference of the tree. Make Wedgle® Tip injections within 12" of the ground. Portle® Tip injection height varies depending upon how thick the bark is and where, in the tree trunk, the tree is injected.
7. With a smooth motion, firmly squeeze the injection unit handles. This releases a pre-measured chemical dose to the tree.
8. Continue making injections moving around the tree until the entire tree trunk has been treated.
9. During use, periodically clean the Direct-Inject Unit to prevent clogging.

#### STORAGE AND DISPOSAL

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

**Pesticide Storage:** Store in original 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 Handling:** Non-refillable container; do not reuse or refill this container. Completely empty pack into application equipment, then dispose of empty pack in a sanitary landfill; or if allowed by state and local authorities, by burning; if burned, stay out of smoke.



# Safety Data Sheet

## 1 IDENTIFICATION

**Product Identifier:**

**Product Name:** Pinscher® PGR  
**EPA Reg. No.:** 69117-7  
**Synonyms:** None

**Recommended Use:** Systemic plant growth regulator of landscape ornamentals.

**Use Restrictions:** Do not apply to food bearing plants. Only protected handlers may be in the area during application.

**Supplier Information:** ArborSystems, Inc. d/b/a ArborSystems  
10168 L Street  
Omaha, NE 68127 USA  
Toll Free: 800.698.4641  
Phone: 402.339.4459  
Fax: 402.339.5011  
Email: mike@arborsystems.com  
Website: www.arborsystems.com

**Emergency Phone Number:** 1.800.222.1222 (Medical)

## 2 HAZARDS IDENTIFICATION

**Hazards Classification:** This mixture is not classified by the 2012 OSHA Communication Standard (29 CFR 1910.1200) and contains no substances, at their given concentration, that are considered to be hazardous to health.

**GHS Label Elements, including Precautionary Statements:**

**Hazards Statements:** Not classified.

**Appearance:** Blue

**Physical state:** Liquid

**Odor:** None

**Unknown Acute Toxicity:** 18.5% of the mixture consists of ingredient(s) of unknown toxicity. 0% of the mixture consists of ingredient(s) of unknown acute oral toxicity. 18.5% of the mixture consists of ingredient(s) of unknown acute dermal toxicity. 18.5% of the mixture consists of ingredient(s) of unknown acute inhalation (gas, vapor, dust/mist) toxicity.

## 3 COMPOSITION / INFORMATION ON INGREDIENTS

**Mixture:** This mixture contains no substances which, at their given concentration, are considered to be hazardous to health.

## 4 FIRST-AID MEASURES

**Inhalation:** Remove to fresh air.

**Eye Contact:** Thoroughly rinse with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.

**Skin Contact:** Wash with soap and water.

**Ingestion:** Clean mouth with water and drink plenty of water afterwards.

**Most Important Symptoms and Effects:** No information available.

**Note to Physician:** Treat symptomatically.

## 5 FIRE-FIGHTING MEASURES

**Suitable Extinguishing Media:** Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

**Unsuitable Extinguishing Media:** CAUTION: Use of water spray when fighting fire may be inefficient.

**Specific Hazards Arising from this Mixture:** No information available.

**Hazardous Combustion Products:** Carbon oxides.

**Sensitivity to Mechanical Impact:** None.

**Sensitivity to Static Discharge:** None.

**Special Protective Equipment for Firefighters:** Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

# Safety Data Sheet

## 6 ACCIDENTAL RELEASE MEASURES

**Personal Precautions:** Ensure adequate ventilation.

**Containment Methods:** Prevent further leakage or spillage if safe to do so.

**Cleanup Methods:** Dam up. Soak up with inert absorbent material. Pick up and transfer to properly labeled containers.

## 7 HANDLING AND STORAGE

**Precautions for Safe Handling:** Handle in accordance with good industrial hygiene and safety practices.

**Storage Conditions:** Keep containers tightly closed in a dry, cool and well-ventilated place.

## 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

### Control Parameters - Exposure Limits

This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

**Appropriate Engineering Controls:** Showers, eyewash stations and ventilation systems.

### Individual Protection Measures – Personal Protective Equipment:

**Eye/Face:** No special protective equipment required.

**Skin/Body:** No special protective equipment required.

**Respiratory:** No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

**General Hygiene Considerations:** Handle in accordance with good industrial hygiene and safety practices.

## 9 PHYSICAL AND CHEMICAL PROPERTIES

Auto-ignition temperature:	N/D	Partition coefficient: n-octanol/water:	N/D
Color:	Blue	pH:	9.5
Decomposition temperature:	N/D	Physical state:	Liquid
Evaporation rate:	N/D	Relative density:	9.13 lbs/gal
Flammability (solid,gas):	N/A	Solubility(ies):	N/D
Flash point:	111°C	Upper/lower explosive limits:	N/D
Freezing point:	N/D	Upper/lower flammability limits:	N/D
Initial boiling point and range:	N/D	Vapor pressure:	N/D
Melting point:	N/A	Viscosity:	N/D
Odor:	None	N/A = Not Applicable	N/D = Not Determined

## 10 STABILITY AND REACTIVITY

**Reactivity:** No information available.

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

**Possibility of Hazardous Reactions:** None under normal processing.

**Hazardous Polymerization:** Does not occur.

**Conditions to Avoid:** None known based on information supplied.

**Incompatible Materials:** None known based on information supplied.

**Hazardous Decomposition Products:** Carbon oxides.

## 11 TOXICOLOGICAL INFORMATION

### Information on Likely Routes of Exposure – Product Information:

**Inhalation:** Specific test data for the mixture is not available.

**Eye Contact:** Specific test data for the mixture is not available.

**Skin Contact:** Specific test data for the mixture is not available.

**Ingestion:** Specific test data for the mixture is not available.

### Information on Toxicological Effects:

**Symptoms:** No information available.

# Safety Data Sheet

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## Numerical Measures of Toxicity – Acute Toxicity:

The following value is calculated based on Chapter 3.1 of the GHS document:

ATEmix (oral): 97,297.00 mg/kg

**Unknown Acute Toxicity:** 18.5% of the mixture consists of ingredient(s) of unknown toxicity. 0% of the mixture consists of ingredient(s) of unknown acute oral toxicity. 18.5% of the mixture consists of ingredient(s) of unknown acute dermal toxicity. 18.5% of the mixture consists of ingredient(s) of unknown acute inhalation (gas, vapor, dust/mist) toxicity.

## Delayed and Immediate Effects as well as Chronic Effects from Short- and Long-term Exposure:

**Skin corrosion/irritation:** No information available.

**Serious eye damage/eye irritation:** No information available.

**Respiratory or Skin Sensitization:** No information available.

**Germ cell mutagenicity:** No information available.

**Carcinogenicity:** No information available.

**Reproductive Toxicity:** No information available.

**STOT-Single Exposure:** No information available.

**STOT-Repeated Exposure:** No information available.

**Aspiration Hazard:** No information available.

## 12 ECOLOGICAL INFORMATION (NON-MANDATORY)

**Exotoxicity:** The environmental impact of this product has not been fully investigated.

**Persistence and Degradability:** No information available.

**Bioaccumulation:** There is no data for this product.

**Mobility:** No information available.

**Other Adverse Effects:** No information available.

## 13 DISPOSAL CONSIDERATIONS (NON-MANDATORY)

### Waste Treatment Methods:

**Waste from Residues/Unused Products:** Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

**Contaminated Packaging:** Do not reuse empty containers.

**California Hazardous Waste Code:** 232

## 14 TRANSPORT INFORMATION (NON-MANDATORY)

**DOT:**

**Proper Shipping Name:** Consumer Commodity

**Hazard Class:** ORM-D

**Description:** Consumer Commodity, ORM-D

**TGD, MEX, ICAO, IATA, IMDG/IMO, RID, ADR and ADN:** Not regulated.

## 15 REGULATORY INFORMATION (NON-MANDATORY)

### International Regulations:

**Ozone Depleting Substances:** Not Applicable

**Persistent Organic Pollutants:** Not Applicable

**Export Notification Requirements:** Not Applicable

### International Inventories:

**TSCA, DSL/NDSL, EINECS/ELINCS, ENCS, KECL, PICCS and AICS:** Contact supplier for inventory compliance status.

**TSCA:** United States Toxic Substances Control Act Section 8(b) Inventory; **DSL/NDSL:** Canadian Domestic Substances List/Non-Domestic Substances List; **EINECS/ELINCS:** European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances; **ENCS:** Japan Existing and New Chemical Substances; **KECL:** Korean Existing and Evaluated Chemical Substances; **PICCS:** Philippines Inventory of Chemicals and Chemical Substances; and **AICS:** Australian Inventory of Chemical Substances.

# Safety Data Sheet

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## U.S. Federal Regulations:

**SARA 313:** Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 ("SARA"). This product does not contain any chemicals that are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

## SARA 313.312 Hazard Categories:

**Acute Health Hazard:** No

**Chronic Health Hazard:** No

**Fire Hazard:** No

**Sudden Release of Pressure Hazard:** No

**Reactive Hazard:** No

**CWA (Clean Water Act):** This product does not contain any substances regulated as pollutants pursuant to the CWA (40 CFR §§ 122.21 and 122.42).

**CERCLA (Comprehensive Environmental Response Compensation and Liability Act):** This material, as supplied, does not contain any substances regulated as hazardous substances under CERCLA (40 CFR Part 302) of the Superfund Amendments and Reauthorization Act (SARA) (40 CFR Part 355). There may be specific reporting requirements at the local, regional or state level pertaining to releases of this material.

**FIFRA (Federal Insecticide, Fungicide and Rodenticide Act, as Amended):** This chemical is a pesticide product registered by the United States Environmental Protection Agency and is subject to certain labeling requirements under Federal pesticide law. These requirements differ from the classification criteria and hazard information required for Safety Data Sheets ("SDSs") and for workplace labels of non-pesticide chemicals. The hazard information required on the pesticide label is reproduced below. The pesticide label also includes other important information, including Directions for Use.

## Precautionary Statements

### Hazards to Humans & Domestic Animals

**CAUTION:** Causes moderate eye irritation. Avoid contact with skin, eyes or clothing.

### Personal Protective Equipment (PPE)

Mixers, loaders, applicators and other handlers must wear: Long-sleeved shirt, long pants, shoes, socks and chemical-resistant gloves made of rubber or neoprene. When making direct injections to trees, applicators must wear protective eyewear.

### User Safety Requirements

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry. Discard clothing or other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them.

### User Safety Recommendations

Users should wash hands before eating, drinking, chewing gum, using tobacco or using the toilet. Users should immediately remove clothing/PPE if pesticide gets inside, then thoroughly wash and put on clean clothing. Users should immediately remove PPE after handling this product. Wash the outside of gloves before removing. As soon as possible, thoroughly wash and change into clean clothing.

### Environmental Hazards

For terrestrial uses: Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwater or rinsate.

## U.S. State Regulations:

**California Proposition 65:** This product does not contain any Proposition 65 chemicals.

## U.S. State Right-to-Know Regulations

This product does not contain any substances above threshold limits that are regulated by state right-to-know regulations.

## 16 OTHER INFORMATION

### NFPA:

**Health Hazards:** 0

**Flammability:** 0

**Instability:** 0

**Physical and Chemical Hazards-Personal Protection:** X

# Safety Data Sheet

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**HMIS:****Health Hazards:** 0**Flammability:** 0**Physical Hazard:** 0**Physical and Chemical Hazards-Personal Protection:** X**SDS Information:**

Date Prepared: 01/03/2023

Version: 2

Pincher® is a registered trademark of ArborSystems

**DISCLAIMER**

This Safety Data Sheet ("SDS") serves different purposes than, and DOES NOT REPLACE OR MODIFY, THE EPA-APPROVED PRODUCT LABELING (attached to and accompanying the product container). This SDS provides important health, safety and environmental information for employers, employees, emergency responders and others handling large quantities of the product in activities generally other than product use, while the labeling provides that information specifically for product use in the ordinary course. Use, storage and disposal of pesticide products are regulated by the EPA under the authority of FIFRA (Federal Insecticide, Fungicide and Rodenticide Act, as Amended) through the product labeling. All necessary and appropriate precautionary, use, storage and disposal information is set forth on that labeling. It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

Although the information and recommendations set for herein (hereinafter "information") are presented in good faith and believed to be correct as of the date hereof, ArborSystems makes no representations as to the completeness or accuracy thereof. Information is supplied upon the condition that the persons receiving same will make their own determination as to its suitability for the purposes prior to use. To the extent consistent with applicable law, in no event will ArborSystems be responsible for damages of any nature whatsoever resulting from the use of or reliance upon information. NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OF ANY OTHER NATURE ARE MADE HEREUNDER WITH RESPECT TO INFORMATION OR TO THE PRODUCT TO WHICH INFORMATION REFERS.



# Safety Data Sheet

## 1 IDENTIFICATION

**Product Identifier:**

**Product Name:** PKPro® Nutriboosters® 0-36-23  
**Product Code:** 1424270  
**Synonyms:** None  
**Recommended Use:** Fertilizer  
**Use Restrictions:** No information available  
**Supplier Information:** ArborSystems, Inc. d/b/a ArborSystems  
PO Box 34645  
Omaha, NE 68134 USA  
Toll Free: 800.698.4641  
Phone: 402.339.4459  
Fax: 402.339.5011  
Email: mike@arborsystems.com  
Website: www.arborsystems.com

**Emergency Phone Number:** 1.800.222.1222 (Medical)

## 2 HAZARDS IDENTIFICATION

**Classification:**

Acute toxicity-Oral Category 2  
Acute toxicity-Dermal Category 3

**GHS Label Elements, including Precautionary Statements:**

**Signal Word:** Danger

**Hazards Statements:** Fatal if swallowed. Toxic in contact with skin.



**Appearance:** Clear to slightly cloudy

**Physical state:** Liquid

**Odor:** No information available

**Precautionary Statements:**

**Prevention:** Wash face, hands and any exposed skin thoroughly after handling. Do not eat, drink or smoke when using this product. Wear protective gloves/protective clothing.

**Response:** Specific treatment (see supplemental first aid instructions on this label).

**Skin:** IF ON SKIN: Wash with plenty of water and soap. Call a POISON CENTER or doctor if you feel unwell. Take off immediately all contaminated clothing and wash it before reuse.

**Ingestion:** IF SWALLOWED: immediately call a POISON CENTER or doctor. Rinse mouth.

**Storage:** Store locked up.

**Disposal:** Dispose of contents/container to an approved waste disposal plant.

**Other information:** Harmful to aquatic life with long lasting effects. Very toxic to aquatic life.

**Unknown Acute Toxicity:** 62% of the mixture consists of ingredient(s) of unknown toxicity. 26% of the mixture consists of ingredient(s) of unknown acute oral toxicity. 26% of the mixture consists of ingredient(s) of unknown acute dermal toxicity. 62% of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (gas). 62% of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (vapor). 62% of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (dust/mist).

## 3 COMPOSITION / INFORMATION ON INGREDIENTS

**Substance:** Not applicable.

Chemical Name	CAS Number	Percent	HMIRA* Registry No.	Date HMIRA filed and date exemption granted (if applicable)
Phosphorus	7723-14-0	36	-	-

\*Hazardous Material Information Review Act.

# Safety Data Sheet

## 4 FIRST-AID MEASURES

**General Advice:** Immediate medical attention is required. Show this safety data sheet to the doctor in attendance.

**Inhalation:** Remove to fresh air.

**Eye Contact:** Get immediate medical advice/attention. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Keep eye wide open while rinsing.

**Skin Contact:** Get immediate medical advice/attention. Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes.

**Ingestion:** Get immediate medical advice/attention. Do NOT induce vomiting. Clean mouth with water and drink afterwards plenty of water. Never give anything by mouth to an unconscious person.

**Self-protection of the first aider:** Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. Wear personal protective clothing (see section 8). Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation.

**Most Important Symptoms and Effects, both acute and delayed:** No information available.

**Indication of any immediate medical attention and special treatment needed:**

**Note to Physicians:** Treat symptomatically.

## 5 FIRE-FIGHTING MEASURES

**Suitable Extinguishing Media:** Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

**Unsuitable Extinguishing Media:** CAUTION: Use of water spray when fighting fire may be inefficient.

**Specific Hazards Arising from this Chemical:** No information available.

**Hazardous Combustion Products:** Carbon oxides.

**Explosion Data; Sensitivity to Mechanical Impact:** None. **Sensitivity to Static Discharge:** None.

**Special Protective Equipment for Firefighters:** Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

## 6 ACCIDENTAL RELEASE MEASURES

**Personal precautions, protective equipment and emergency procedures:**

**Personal Precautions:** Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Use personal protective equipment as required. Evacuate personnel to safe areas.

**Other Information:** Refer to protective measures listed in Sections 7 and 8.

**Methods and material for containment and cleaning up:**

**Methods for containment:** Prevent further leakage or spillage if safe to do so.

**Methods for clean up:** Dam up. Soak up with inert absorbent material. Pick up and transfer to properly labeled containers.

## 7 HANDLING AND STORAGE

**Precautions for Safe Handling**

**Advice on safe handling:** Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Take off contaminated clothing and wash before reuse.

**Conditions for safe storage, including any incompatibilities:**

**Storage Conditions:** Store locked up. Keep containers tightly closed in a dry, cool and well-ventilated place. Keep out of the reach of children.

## 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

**Control Parameters - Exposure Limits**

Chemical name	ACGIH TLV	OSHA PEL	NIOSH IDLH	
Phosphorus 7723-14-0	-	(vacated) TWA: 0.1 mg/m <sup>3</sup> Phosphorus (yellow)		
Chemical name	Alberta	British Columbia	Ontario TWAEV	Quebec
Phosphorus 7723-14-0	TWA: 0.1 mg/m <sup>3</sup>			TWA: 0.1 mg/m <sup>3</sup>

**Other Exposure Guidelines:** Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962 (11th Cir., 1992).

**Appropriate engineering controls:**

**Engineering controls:** Showers. Eyewash stations. Ventilation systems.

# Safety Data Sheet

## Individual protection measures, such as personal protective equipment:

**Eye/face protection:** Wear safety glasses with side shields (or goggles).

**Hand protection:** Wear suitable gloves. Impervious gloves.

**Skin and body protection:** Wear suitable protective clothing. Long-sleeved clothing. Chemical resistant apron.

**Respiratory protection:** No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

**General hygiene considerations:** Do not eat, drink or smoke when using this product. Wash hands before breaks and immediately after handling the product. Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Regular cleaning of equipment, work area and clothing is recommended. Handle in accordance with good industrial hygiene and safety practice.

## 9 PHYSICAL AND CHEMICAL PROPERTIES

### Physical and Chemical Properties

Physical state	Liquid
Appearance	Clear to slightly cloudy
Odor	No information available
Color	No information available
Odor Threshold	Not applicable

<u>Property</u>	<u>Values</u>	<u>Remarks</u>	<u>Method</u>
pH	UNKNOWN		
Melting / freezing point	No data available	None known	
Boiling point / boiling range	No data available	None known	
Flash Point	No data available	None known	
Evaporation Rate	No data available	None known	
Flammability (solid, gas)	No data available	None known	
Flammability Limit in Air		None known	
Upper flammability limit	No data available		
Lower flammability limit	No data available		
Vapor pressure	No data available	None known	
Vapor density	No data available	None known	
Relative density	1.523		
Water Solubility	Very soluble		
Solubility(ies)	No data available	None known	
Partition coefficient: n-octanol/water	Not available		
Autoignition temperature	No data available	None known	
Decomposition temperature	No data available	None known	
Kinematic viscosity	No data available	None known	
Dynamic viscosity	No data available	None known	

### Other Information

Explosive properties	No information available
Oxidizing properties	No information available
Softening Point	No information available
Molecular Weight	No information available
VOC Content (%)	No information available
Liquid Density	No information available
Bulk Density	No information available
Particle Size	No information available
Particle Size Distribution	No information available

## 10 STABILITY AND REACTIVITY

**Reactivity:** No information available.

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

**Possibility of Hazardous Reactions:** None under normal processing.

**Hazardous Polymerization:** Hazardous polymerization does not occur.

**Conditions to Avoid:** None known based on information supplied.

**Incompatible Materials:** None known based on information supplied.

**Hazardous Decomposition Products:** Carbon oxides.

# Safety Data Sheet

## 11 TOXICOLOGICAL INFORMATION

### Information on Likely Routes of Exposure – Product Information:

**Inhalation:** Specific test data for the substance or mixture is not available.

**Eye Contact:** Specific test data for the substance or mixture is not available.

**Skin Contact:** Specific test data for the substance or mixture is not available. Toxic in contact with skin. (based on components).

**Ingestion:** Specific test data for the substance or mixture is not available. Fatal if swallowed. (based on components).

### Information on Toxicological Effects:

**Symptoms:** No information available.

### Numerical Measures of Toxicity – Acute Toxicity:

The following values are calculated based on Chapter 3.1 of the GHS document:

ATEmix (oral): 6.23 mg/kg

ATEmix (dermal): 206.00 mg/kg

**Unknown Acute Toxicity:** 62% of the mixture consists of ingredient(s) of unknown toxicity. 26% of the mixture consists of ingredient(s) of unknown acute oral toxicity. 26% of the mixture consists of ingredient(s) of unknown acute dermal toxicity. 62% of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (gas). 62% of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (vapor). 62% of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (dust/mist).

### Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Phosphorus	= 3030 µg/kg ( Rat )	= 100 mg/kg ( Rat )	= 4.3 mg/L ( Rat ) 1 h

### Delayed and Immediate Effects as well as Chronic Effects from Short- and Long-term Exposure:

**Skin corrosion/irritation:** No information available.

**Serious eye damage/eye irritation:** No information available.

**Respiratory or Skin Sensitization:** No information available.

**Germ cell mutagenicity:** No information available.

**Carcinogenicity:** No information available.

**Reproductive Toxicity:** No information available.

**STOT-Single Exposure:** No information available.

**STOT-Repeated Exposure:** No information available.

**Aspiration Hazard:** No information available.

## 12 ECOLOGICAL INFORMATION (NON-MANDATORY)

### Exotoxicity:

Very toxic to aquatic life. Harmful to aquatic life with long lasting effects.

Chemical Name / CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	<i>Daphnia magna</i> (water flea)
Phosphorus	-	96h LC50: 0.0017 - 0.0035 mg/L (Lepomis macrochirus) 96h LC50: 0.001 - 0.004 mg/L (Lepomis macrochirus) 96h LC50: > 100 mg/L (Brachydanio rerio) 96h LC50: 0.015 - 0.032 mg/L (Oncorhynchus mykiss) 96h LC50: 0.011 - 0.028 mg/L (Pimephales promelas)	-	48h EC50: 0.025 - 0.037 mg/L 48h EC50: = 0.03 mg/L -

**Persistence and Degradability:** No information available.

**Bioaccumulation:** There is no data for this product.

**Mobility:** No information available.

**Other Adverse Effects:** No information available.

# Safety Data Sheet

## 13 DISPOSAL CONSIDERATIONS (NON-MANDATORY)

### Waste Treatment Methods:

**Waste from Residues/Unused Products:** Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

**Contaminated Packaging:** Do not reuse empty containers.

This product contains one or more substances that are listed with the State of California as a hazardous waste.

Chemical name	California Hazardous Waste
Phosphorus 7723-14-0	Toxic Ignitable Reactive

## 14 TRANSPORT INFORMATION (NON-MANDATORY)

**DOT:** NOT REGULATED

**Proper Shipping Name:** NON- REGULATED

**Hazard Class:** N/A

**TGD:** Not regulated.

**Marine pollutant:** This product contains a chemical which is listed as a severe marine pollutant according to TDG.

**MEX:** Not regulated.

**ICAO:** Not regulated.

**IATA:** Not regulated.

**Proper Shipping Name:** NON- REGULATED

**Hazard Class:** N/A

**IMDG/IMO:** Not regulated.

**Hazard Class:** N/A

**Marine pollutant:** This product contains a chemical which is listed as a severe marine pollutant according to IMDG/IMO.

**RID:** Not regulated.

**ADR:** Not regulated.

**ADN:** Not regulated.

## 15 REGULATORY INFORMATION (NON-MANDATORY)

**Safety, health and environmental regulations/legislation specific for the substance or mixture.**

**International Regulations:**

**Ozone Depleting Substances (ODS):** Not Applicable

**Persistent Organic Pollutants:** Not Applicable

**Export Notification Requirements:** Not Applicable

**International Inventories:**

**TSCA, DSL/NDL, EINECS/ELINCS, ENCS, KECL, PICCS and AICS:** Contact supplier for inventory compliance status.

**TSCA:** United States Toxic Substances Control Act Section 8(b) Inventory; **DSL/NDL:** Canadian Domestic Substances List/Non-Domestic Substances List; **EINECS/ELINCS:** European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances; **ENCS:** Japan Existing and New Chemical Substances; **KECL:** Korean Existing and Evaluated Chemical Substances; **PICCS:** Philippines Inventory of Chemicals and Chemical Substances; and **AICS:** Australian Inventory of Chemical Substances.

**U.S. Federal Regulations:**

**SARA 313:** Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 ("SARA"). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

Chemical name	CAS-No	Percent	SARA 313 - Threshold Values %
Phosphorus - 7723-14-0	7723-14-0	36	1.0

**Acute Health Hazard:** Yes

**Chronic Health Hazard:** No

**Fire Hazard:** No

**Sudden Release of Pressure Hazard:** No

**Reactive Hazard:** No

# Safety Data Sheet

**CWA (Clean Water Act):** This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

Chemical name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Phosphorus 7723-14-0	1 lb			X

**CERCLA:** This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302).

Chemical name	Hazardous Substances RQs	Extremely Hazardous Substances RQs	RQ
Phosphorus 7723-14-0	1 lb	1 lb	RQ 1 lb final RQ RQ 0.454 kg final RQ

## U.S. State Regulations:

**California Proposition 65:** This product does not contain any Proposition 65 chemicals.

## U.S. State Right-to-Know Regulations

This product may contain substances regulated by state right-to-know regulations.

Chemical name	New Jersey	Massachusetts	Pennsylvania	Rhode Island	Illinois
Phosphorus 7723-14-0	X	X	X	X	X

## 16 OTHER INFORMATION

### NFPA:

Health Hazards: 3

Flammability: 0

Instability: 0

Physical and Chemical Hazards-Personal Protection: X

### HMIS:

Health Hazards: 3

Flammability: 0

Physical Hazard: 0

Physical and Chemical Hazards-Personal Protection: X

### SDS Information:

Date Prepared: 11/02/2017

Version: 2

PKPro® Nutriboosters® 0-36-23 is a registered trademark of ArborSystems

### DISCLAIMER

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

Although the information and recommendations set for herein (hereinafter "information") are presented in good faith and believed to be correct as of the date hereof, ArborSystems makes no representations as to the completeness or accuracy thereof. Information is supplied upon the condition that the persons receiving same will make their own determination as to its suitability for the purposes prior to use. To the extent consistent with applicable law, in no event will ArborSystems be responsible for damages of any nature whatsoever resulting from the use of or reliance upon information. NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OF ANY OTHER NATURE ARE MADE HEREUNDER WITH RESPECT TO INFORMATION OR TO THE PRODUCT TO WHICH INFORMATION REFERS.



10168 L Street • Omaha, NE 68127 • Toll-Free: 800-698-4641 • Phone: 402-339-4459 • Fax: 402-339-5011 • www.ArborSystems.com

### An ArborSystems® Direct-Inject™ Product

PK Pro helps trees overcome symptoms of stress resulting from drought, transplanting, or insect damage. PK Pro also benefits trees that have depleted, or have restricted access to, natural resources, such as trees planted in vaults.

For use by professional arborists/applicators with the ArborSystems Direct-Inject QC™ Tree Injection System.

### GUARANTEED ANALYSIS

Available Phosphate (P<sub>2</sub>O<sub>5</sub>) . . . . . 36.00%  
Soluble Potash (K<sub>2</sub>O) . . . . . 23.00%

Derived from: Phosphoric Acid, Potassium Hydroxide

Information regarding the contents and levels of metals in this product is available on the internet at <http://www.aapfco.org/metals.htm>

Package Type	Net Contents	Net Weight
120 ml pack	4 fl oz (120 ml)	0.406 lb (184 g)
1000 ml pack	1 qt 2 fl oz (1000 ml)	2.91 lb (1320.6 g)

### APPLICATION RATE

Inject 1 ml every 4" around the base (flare) of the tree. Injections should be made within 12" of the ground.

**NOTE:** Depending on type of bark, the dosage per injection site may be halved and the number of injection sites doubled.

### TIMING

Injections may be made anytime during the growing season, preferably in the spring or early summer. Do not apply more than once a year. Can be applied at the same time as other ArborSystems products.

### INDICATIONS

- PK Pro Nutriboosters 0-36-23 is used to counter the effects of stress due to drought, transplanting, or insect damage by providing the nutrients needed to encourage leaf, branch, and root growth. PK Pro is also ideal for trees grown in vaults, containers, or other areas without natural nutrient resources.
- Phosphorus encourages stem elongation and is essential for root growth, vegetative growth, and flower development.
- Potash helps trees tolerate extreme weather conditions and promotes overall tree nutrient health.

### COMBINE WITH CURATIVE TREATMENTS

Inject PK Pro along with other curative treatments to speed tree recovery. Make PK Pro a regular part of your tree recovery program.

### GENERAL INFORMATION

#### ARBORSYSTEMS DIRECT-INJECT TREE INJECTION SYSTEM

The ArborSystems Direct-Inject Tree Injection System is easy to use. Most trees are treated in as little as five minutes or less with no drilling required. Product is injected into the cambial area of the tree (the active vascular system). There is no need to wait for absorption (translocation). Because the product is placed right where the tree can use it, effectiveness of the product is increased. Use in sunny or overcast conditions, rainy or dry, at any time of day. As no drilling or implants are required, you can treat trees year after year, with no threat of long-term or permanent damage to the tree. The Direct-Inject System minimizes wounding and promotes long-term tree vigor.

#### HOW TO USE ARBORSYSTEMS DIRECT-INJECT PRODUCTS WITH ARBORSYSTEMS DIRECT-INJECT UNITS

1. Use only ArborSystems Direct-Inject products with your unit as they have been formulated specifically for the Direct-Inject system. Use of other products will invalidate warranty.
2. Attach the container to the Direct-Inject unit and prepare the unit to make injections.
3. Set the delivery volume on the unit.
4. Follow the label directions to determine the amount of product and number of injection sites.
5. Determine where to make injections in the bark. Generally, the injection tip is inserted into the fissure (valley) of the tree bark. Inject thin-barked trees in the thicker part of the tree bark. Thick-barked trees require a longer injection tip.
6. Make injections working around the circumference of the tree. Make Wedgle® Tip injections within 12" of the ground. Portle® Tip injection height varies depending on type of tree and location.
7. With a smooth motion, firmly squeeze the injection unit handles. This releases a pre-measured dose into the tree.
8. Continue making injections moving around the tree until the entire tree trunk has been treated.
9. During use, periodically clean the Direct-Inject unit to prevent clogging.

#### NOTICE OF WARRANTY

ArborSystems warrants that this product conforms to the description on the label and is reasonably fit for use under average conditions when used strictly in accordance with the directions on the labeling. ArborSystems does not make or authorize any agent or representative to make any other warranty, guarantee or representation, express or implied, concerning this product.

ArborSystems® · Nutriboosters® · PK Pro®, Portle® Tip and Wedgle® Tip are registered trademarks of ArborSystems.

Direct Inject™ is a trademark of ArborSystems.

Direct Inject™ unit is protected by U.S. Patent #5,901,498

Wedgle® Tip is protected by U.S. Patent #5,239,773

Portle® Tip is protected by U.S. Patent #7,178,286

# POINTER® Insecticide

An ArborSystems® Direct-Inject™ Chemical  
• Easy • No Drilling • Saves Time and Money

For systemic insect control in a wide variety of ornamental trees in utility rights-of-way, urban environments, residential areas and interior landscapes (such as those in domestic landscape/garden areas, public display plantings, recreation areas, highway and other transportation rights-of-way, scenic corridors, forest areas, campgrounds and other uncultivated, nonagricultural areas).

Intended for use by professional arborists/applicators, foresters, grounds maintenance professionals and landscapers.

To be used only with the ArborSystems Direct-Inject Tree Injection System.



The No-Drill Injection Solution

800-698-4641 • Fax: 402-339-5011  
10168 L Street • Omaha, NE 68127

EPA Reg. No. 69117-1  
EPA Est. 69117-NE-1

## PRECAUTIONARY STATEMENTS

### HAZARDS TO HUMANS AND DOMESTIC ANIMALS

**WARNING:** Harmful if **swallowed**, inhaled or absorbed through skin. Causes substantial but temporary eye injury. Do not get in eyes or on clothing. Wear safety glasses. Thoroughly wash with soap and water after handling. Remove contaminated clothing and wash clothing before reuse.

#### FIRST AID

**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.

**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 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.

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

### ENVIRONMENTAL HAZARDS

This product is highly toxic to fish and aquatic invertebrates. Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters or rinsate. This product is highly toxic to bees exposed to direct treatment or residues on blooming plants or weeds. Do not apply this product to blooming plants or weeds if bees are foraging the treatment area.



The No-Drill Injection Solution

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### NOTICE OF WARRANTY

ArborSystems warrants that this product conforms to the chemical description on the label and is reasonably fit for use under average conditions when used strictly in accordance with the directions on the labeling. ArborSystems does not make or authorize any agent or representative to make any other warranty, guarantee or representation, express or implied, concerning this product.

ArborSystems®, Pointer®, Portle® and Wedgle® are registered trademarks of ArborSystems.

Direct-Inject™ and WedgeChek™ are trademarks of ArborSystems.

Direct Inject™ unit is protected by U.S. Patent #5,901,498  
Wedgle® Tip is protected by U.S. Patent #5,239,773  
WedgeChek™ is protected by U.S. Patent #5,797,215  
Portle® Tip is protected by U.S. Patent #7,178,286

**WARNING**  
Keep Out of Reach of Children  
See inside for First Aid, additional  
Precautionary Statements and complete  
Directions for Use.

Net Contents: 4 fl oz (120 ml); Contains 0.2 oz (6 grams)  
active ingredient per 4 fl oz (120 ml) pack.  
Net Contents: 1 qt 2 fl oz (1000 ml); Contains 1.8 oz (50.1  
grams) active ingredient per 1 qt 2 fl oz (1000 ml) pack.

**ACTIVE INGREDIENT:**  
Imidacloprid (CAS No. 138261-41-3)..... 5%  
**OTHER INGREDIENTS:**  
..... 96%  
**Total**..... 100%

For systemic insect control in a wide variety of ornamental trees in utility rights-of-way, urban environments, residential areas and interior landscapes.

An ArborSystems® Direct-Inject™ Chemical  
**POINTER® Insecticide**

# POINTER® Insecticide

## DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

Intended for use by professional arborists/ applicators, foresters, grounds maintenance professionals and landscapers.

Do not inject food bearing plants.

Do not apply this product by any application method to linden, basswood or other Tilia species in the State of Oregon.

## ARBORSYSTEMS® DIRECT-INJECT™ TREE INJECTION SYSTEM

The ArborSystems Direct-Inject Tree Injection System is easy to use. Most trees are treated in as little as five minutes or less, allowing applicators to treat trees quickly. There is no need to wait for absorption (translocation). Chemical is injected into the cambial area (the active vascular system) of the tree. Because the chemical is placed right where the tree can use it, effectiveness of the chemical is increased. Use in sunny or over-cast conditions, rainy or dry, at any time of day. As no drilling or implants are required, you can treat trees year after year, with no threat of long-term or permanent damage to the tree. This system minimizes wounding and promotes long-term tree vigor.

## INDICATIONS

As a preventative, apply in the early spring prior to insect activity in the tree. As a remedial (on trees already showing symptoms of infestation), apply as needed spring through fall, provided the bark is pliable enough to accept the chemical injections.

## DOSAGE

1 ml per 4" to 6" of trunk circumference measured within 12" of the ground. Dosage may be increased to a maximum of 2 ml per injection site for trees with diameters over 12" or with challenging insect infestations (such as Asian Longhorned Beetle, Citrus Borers, Emerald Ash Borer or Hemlock Woolly Adelgids).

**NOTE:** Younger or small trees with thinner bark may be less able to retain the full dose per injection site; in such cases, to obtain the appropriate per-tree dosage, reduce the dosage per injection site to 0.5 to 1 ml and increase the number of injection sites accordingly.

## PEST CONTROLLED

- Adelgids (including Hemlock Woolly Adelgids)
- Aphids
- Armored Scales (suppression)
- Asiatic Garden Beetles
- Bark Beetles (including Asian Longhorned Beetle, Citrus Longhorned Beetle and IPS)
- Black Vine Weevil Larvae
- Chafers
- Elm Leaf Beetles
- Eucalyptus Longhorned Borer
- Flatheaded Borers (including Alder-Birch Borer, Bronze Birch Borer and Emerald Ash Borer)
- Japanese Beetles
- Japanese Beetle Larvae
- Lacebugs
- Leafhoppers
- Leafminers
- Mealybugs
- Oriental Beetles
- Pine Bark Beetles
- Pine Tip Moth Larvae
- Psyllids
- Royal Palm Bugs
- Sawfly Larvae
- Soft Scale Insects
- Thrips (suppression)
- Whiteflies

## PERSONAL PROTECTIVE EQUIPMENT (PPE)

Use protective eyewear and gloves when handling ArborSystems Direct-Inject chemicals. Use chemical-resistant gloves made of any waterproof material such as barrier laminate, butyl rubber, nitrile rubber, neoprene rubber, natural rubber, polyethylene, polyvinylchloride (PVC) or viton.

## HOW TO USE ARBORSYSTEMS DIRECT-INJECT CHEMICALS WITH ARBORSYSTEMS DIRECT-INJECT TREE INJECTION SYSTEM

1. Use only ArborSystems Direct-Inject chemicals with your unit as they have been formulated specifically for the Direct-Inject system. Use of other chemicals will invalidate warranty.
2. Attach the chemical pack to the Direct-Inject unit and prepare the unit to make injections.
3. Set the delivery volume on the unit.
4. Follow the label directions in this booklet label to determine the amount of chemical and number of injection sites.
5. Determine where to make injections in the bark. Generally, the injection tip is inserted into the fissure (valley) of the tree bark. Inject thin-barked trees in the thicker part of the tree bark. Thick-barked trees require a longer injection tip.
6. Make injections working around the circumference of the tree. Make Wedgle® Tip injections within 12" of the ground. Portle® Tip injection height varies depending on type of tree and location.
7. When treating hardwoods, use Wedgle® Tips and make injections within 12" of the ground. Initially, use the shorter Wedgle Tip; if no resistance is met after this initial insertion past the bark (i.e., if the tip does not reach the outer xylem ring), withdraw the Tip. Replace the short Tip with the longer Tip to ensure the Tip fully penetrates the bark to reach the outer xylem ring. Use Portle® Tips when treating conifers and Palm Tips when treating palms.

8. When the Tip is correctly inserted, firmly-squeeze the injection unit handles using a smooth, slow motion. This releases a pre-measured chemical dose into the tree.
9. Continue making injections moving around the tree until the entire tree trunk has been treated.
10. During use, periodically clean the Direct-Inject unit to prevent clogging.

## STORAGE AND DISPOSAL

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

**Pesticide Storage:** Store above 65°F in original 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:** Non-refillable container; do not reuse or refill this container. Completely empty pack into application equipment, then offer for recycling if available; otherwise dispose of empty pack in a sanitary landfill.



# Safety Data Sheet

## 1 IDENTIFICATION

**Product Identifier:**

**Product Name:** Pointer® Insecticide  
**EPA Reg. No.:** 69117-1  
**Synonyms:** None

**Recommended Use:** Tree injected systemic insecticide

**Use Restrictions:** Do not inject food bearing plants. Do not apply this product by any application method to linden, basswood or other *Tilia* species in the State of Oregon.

**Supplier Information:** ArborSystems, Inc. d/b/a ArborSystems  
10168 L Street  
Omaha, NE 68127 USA  
Toll Free: 800.698.4641  
Phone: 402.339.4459  
Fax: 402.339.5011  
Email: mike@arborsystems.com  
Website: www.arborsystems.com

**Emergency Phone Number:** 1.800.222.1222 (Medical)

## 2 HAZARDS IDENTIFICATION

**Hazards Classification:** This mixture is considered hazardous by the 2012 OSHA Communication Standard (29 CFR 1910.1200).

Acute toxicity-Oral	Category 4
Serious eye damage/eye irritation	Category 2A
Reproductive toxicity	Category 1B
Flammable liquids	Category 4

**GHS Label Elements, including precautionary statements, Emergency Overview:**

**Signal Word:** Danger

**Hazards Statements:** Harmful if swallowed. Causes serious eye irritation. May damage fertility or the unborn child. Combustible liquid.



**Appearance:** Amber

**Physical state:** Liquid

**Odor:** Alcohol

**Precautionary Statements:**

**Prevention:** Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use personal protective equipment as required. Thoroughly wash face, hands and any exposed skin after handling. Do not eat, drink or smoke when using this product. Wear eye/face protection.

**Response:** If exposed or concerned, get medical advice/attention.

**Eyes:** If in eyes, rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing if eye irritation persists. Get medical advice/attention.

**Ingestion:** If swallowed, call a poison control center or doctor/physician if you feel unwell. Rinse mouth.

**Storage:** Store locked up.

**Disposal:** Dispose of contents/container to an approved waste disposal plant.

**Hazards Not Otherwise Classified:** Not Applicable

**Unknown Toxicity:** 0% of the mixture consists of ingredient(s) of unknown toxicity.

**Other Information:** Toxic to aquatic life with long-lasting effects. Prolonged or repeated contact may dry skin and cause irritation.

**Interactions with Other Chemicals:** No information available.

# Safety Data Sheet

## 3 COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	CAS Number	Weight - %	Trade Secret
Tetrahydrofurfuryl alcohol	97-99-4	60 to 100	*
1H-Imidazol-2-amine, 1-[(6-chloro-3-pyridinyl)methyl]-4,5-dihydro-N-nitro-	138261-41-3	3 to 7	*
Acrylic acid	79-10-7	0.1 to 1	*

\*The exact percentage (concentration) of composition has been withheld as a trade secret.

## 4 FIRST-AID MEASURES

**General Advice:** Show this SDS to the doctor in attendance.

**Eye Contact:** Immediately rinse with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Keep eye wide open while rinsing. Do not rub affected area. Get medical attention if irritation develops and persists.

**Skin Contact:** Wash with soap and water.

**Inhalation:** Remove to fresh air. If not breathing, give artificial respiration. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation. If breathing is difficult, trained personnel should give oxygen.

**Ingestion:** Immediately rinse mouth and drink plenty of water. Never give anything by mouth to an unconscious person. Do **not** induce vomiting. Call a physician.

**Self-protection of the first aider:** Ensure that medical personnel are aware of the material(s) involved. Take precautions to protect oneself and prevent spread of contamination. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation.

**Most Important Symptoms and Effects:** Burning sensation.

**Note to Physician:** Treat symptomatically.

## 5 FIRE-FIGHTING MEASURES

**Suitable Extinguishing Media:** Water spray, fog or regular foam. Move containers from fire area if you can do so without risk. Dike fire control water for later disposal; do not scatter the material. Use water spray or fog; do not use straight streams.

**Unsuitable Extinguishing Media:** CAUTION: Use of water spray when fighting fire may be inefficient.

**Specific Hazards Arising from this Mixture:** Runoff may pollute waterways.

**Uniform Fire Code:** Irritant: Liquid Combustible Liquid: III-A

**Hazardous Combustion Products:** Carbon oxides.

**Sensitivity to Mechanical Impact:** No

**Sensitivity to Static Discharge:** Yes

**Protective Equipment and Precautions for Firefighters:** As in any fire, wear self-contained breathing apparatus, pressure-demand, MSHA/NIOSH-approved (or equivalent) and full protective gear

## 6 ACCIDENTAL RELEASE MEASURES

**Personal Precautions:** Stop leak if you can do so without risk.

**Other Information:** Do not get water inside containers.

**Environmental Precautions:** Prevent entry into waterways, sewers, basements or confined areas.

**Containment Methods:** Cover with plastic sheet to prevent spreading. Absorb or cover with dry earth, sand or other non-combustible material and transfer to properly labeled containers.

**Cleanup Methods:** Pick up and transfer to properly labeled containers. Take precautionary measures against static discharges. Dam up. Soak up with inert absorbent material.

## 7 HANDLING AND STORAGE

**Precautions for Safe Handling:** Handle in accordance with good industrial hygiene and safety practices. Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash before reuse. Use personal protection equipment. Keep away from heat/sparks/open flames/hot surfaces. No smoking. Take precautionary measures against static discharges. Use with local exhaust ventilation. Do not breathe dust/fume/gas/mist/vapors/spray.

**Storage:** Keep containers tightly closed in a dry, cool and well-ventilated place. Keep out of the reach of children. Store locked up. Keep away from heat, sparks, flame and other sources of ignition (i.e., pilot lights, electric motors and static electricity). Keep in properly labeled containers. Store in accordance with the applicable national and local regulations.

**Incompatible Products:** None known based on information supplied.

# Safety Data Sheet

## 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

### Control Parameters - Exposure Guidelines

The following ingredients are the only ingredients of the product above the cut-off level (or level that contributes to the mixture's hazard classification) that have an exposure limit applicable in the region for which this SDS is intended or other recommended limit. At this time, the other relevant constituents have no known exposure limits from the sources listed here.

Chemical Name / CAS Number	ACGIH TLV	OSHA PEL	NIOSH IDLH
Acrylic acid / 79-10-7	TWA: 2 ppm S*	(vacated) TWA: 10 ppm (vacated) TWA: 30 mg/m <sup>3</sup> (vacated) S*	TWA: 2 ppm TWA: 6 mg/m <sup>3</sup>

ACGIH TLV: American Conference of Governmental Industrial Hygienists Threshold Limit Value; OSHA PEL: Occupational Safety and Health Administration Permissible Exposure Limits; NIOSH IDLH: National Institute of Occupational Safety and Health Immediately Dangerous to Life or Health.

**Other Exposure Guidelines:** Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 995 F.2d 962 (11<sup>th</sup> Cir., 1992).

**Appropriate Engineering Controls – Engineering Measures:** Showers, eyewash stations and ventilation systems.

**Individual Protection Measures – Personal Protective Equipment:**

**Eye/Face:** If splashes are likely to occur: None required for consumer use. Tight sealing safety goggles.

**Skin/Body:** Wear protective gloves and protective clothing.

**Respiratory:** No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

**Hygiene Measures:** Handle in accordance with good industrial hygiene and safety practices. Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product. Wash hands before breaks and immediately after handling the product. Do not allow contaminated work clothing out of the workplace. Regular cleaning of equipment, work area and clothing is recommended.

## 9 PHYSICAL AND CHEMICAL PROPERTIES

Auto-ignition temperature:	N/D	Partition coefficient: n-octanol/water:	N/D
Color:	Amber	pH:	N/A
Decomposition temperature:	N/D	Physical state:	Liquid
Evaporation rate:	N/D	Relative density:	8.94 lbs/gal (1.079 g/mL)
Flammability (solid, gas):	N/A	Solubility(ies):	Complete in water
Flash point:	165°F	Upper/lower explosive limits:	N/D
Freezing point:	N/D	Upper/lower flammability limits:	N/D
Initial boiling point and range:	N/D	Vapor pressure:	N/D
Melting point:	N/A	Viscosity:	< 150 cPS
Odor:	Alcohol	N/A = Not Applicable	N/D = Not Determined

## 10 STABILITY AND REACTIVITY

**Reactivity:** No data available.

**Chemical Stability:** Stable under recommended storage conditions.

**Possibility of Hazardous Reactions:** None under normal processing.

**Hazardous Polymerization:** Does not occur.

**Conditions to Avoid:** Heat, flames and sparks.

**Incompatible Materials:** None known based on information provided.

**Hazardous Decomposition Products:** Carbon oxides.

## 11 TOXICOLOGICAL INFORMATION

**Product Information:**

**Inhalation:** Specific test data for the substance or mixture is not available. May cause irritation of respiratory tract.

**Eye Contact:** Corneal involvement or irritation cleared in 8 to 21 days.

**Skin Contact:** Primary irritation score was 0.4 (mild or slight irritation). Not a primary irritant.

**Ingestion:** Specific test data for the substance or mixture is not available. Ingestion may cause irritation to mucous membranes. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. Harmful if swallowed, based on components.

# Safety Data Sheet

## Component Information

Chemical Name / CAS Number	Oral LD50	Dermal LD50	Inhalation LD50
Tetrahydrofurfuryl alcohol / 97-99-4	= 1600 mg/kg (rat)	-	-
1H-Imidazol-2-amine, 1-[(6-chloro-3-pyridinyl)methyl]-4,5-dihydro-N-nitro- / 138261-41-3	= 410 mg/kg (rat)	-	-
Acrylic acid / 79-10-7	= 913 mg/kg (rat) = 33500 µg/kg (rat)	= 295 mg/kg (rabbit) = 280 µL/kg (rabbit)	= 3.6 mg/L (rat) 4h -11.1 mg/L (rat) 1h

## Information on Toxicological Effects:

**Symptoms:** May cause redness and tearing of eyes.

**Delayed and immediate effects as well as chronic effects from short and long-term exposure:**

**Sensitization:** No information available.

**Mutagenic Effects:** No information available.

**Carcinogenicity:** The table below indicates whether each agency has listed any ingredients as a carcinogen:

Chemical Name	ACGIH	IARC	NTP	OSHA
1H-Imidazol-2-amine, 1-[(6-chloro-3-pyridinyl)methyl]-4,5-dihydro-N-nitro- / 138261-41-3		Group 2A		X
Acrylic acid / 79-10-7		Group 3		

**ACGIH:** American Conference of Governmental Industrial Hygienists; **IARC:** International Agency for Research on Cancer; **NTP:** National Toxicology Program; **OSHA:** Occupational Safety and Health Administration. **IARC Group 2A:** Probably carcinogenic to humans; **Group 3:** Not classifiable as to carcinogenicity in humans. **OSHA "X":** Present.

**Reproductive Toxicity:** Contains a known or suspected reproductive toxin.

**STOT-single exposure:** No information available.

**STOT-repeated exposure:** No information available.

**Chronic Toxicity:** No known effect based on information supplied. Contains a known or suspected carcinogen and reproductive toxin. Possible risk of irreversible effects.

**Target Organ Effects:** Eyes, reproductive system, spleen and testes.

**Aspiration Hazard:** No information available.

**Numerical Measures of Toxicity – Product Information:**

The following value is calculated based on Chapter 3.1 of the GHS document: ATEmix (oral): 1,399.00 mg/kg

## 12 ECOLOGICAL INFORMATION (NON-MANDATORY)

### Exotoxicity

Toxic to aquatic life with long-lasting effects.

Chemical Name / CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	<i>Daphnia magna</i> (water flea)
Tetrahydrofurfuryl alcohol / 97-99-4		48h LC <sub>50</sub> =3400 mg/L ( <i>Chaetodonoides</i> )		
Acrylic acid / 79-10-7	72h EC <sub>50</sub> =0.04 mg/L ( <i>Desmodesmus subspicatus</i> ) 96h EC <sub>50</sub> =0.17 mg/L ( <i>Pseudokirchneriella subcapitata</i> )	96h LC <sub>50</sub> =222 mg/L ( <i>Brachydanio rerio</i> )		24h LC <sub>50</sub> =270 mg/L 48h EC <sub>50</sub> =95 mg/L

**Persistence and Degradability:** No information available.

### Bioaccumulation

Chemical Name / CAS Number	Log Pow
Acrylic acid / 79-10-7	0.46

**Other Adverse Effects:** No information available.

# Safety Data Sheet

## 13 DISPOSAL CONSIDERATIONS (NON-MANDATORY)

**Waste Treatment Disposal Methods:** This material, as supplied, is a hazardous waste according to Federal regulations (40 CFR Part 261).

**Contaminated Packaging:** Dispose of contents/containers in accordance with local regulations.

**US EPA Waste Number:** U008

**This product contains the following substance that is listed with the State of California as a hazardous waste:**

Chemical Name / CAS Number	California Hazardous Waste
1H-Imidazol-2-amine, 1-[(6-chloro-3-pyridinyl)methyl]-4,5-dihydro-N-nitro- / 138261-41-3	Toxic

## 14 TRANSPORT INFORMATION (NON-MANDATORY)

**DOT:**

**Proper Shipping Name:** Pesticide, Liquid, Toxic, N.O.S.

**Hazard Class:** 6.1

**Description:** UN2902, Pesticide, Liquid, Toxic, N.O.S.

**Emergency Response Guide Number:** 151

**TGD, MEX and ICAO:**

**UN-No.:** UN2902

**Proper Shipping Name:** Pesticide, Liquid, Toxic, N.O.S.

**Hazard Class:** 6.1

**Packing Group:** III

**Description:** UN2902, Pesticide, Liquid, Toxic, N.O.S. (1H-Imidazol-2-amine, 1-[(6-chloro-3-pyridinyl)methyl]-4,5-dihydro-N-nitro-, Acrylic Acid), 6.1, III

**IATA:**

**UN-No.:** UN2902

**Proper Shipping Name:** Pesticide, Liquid, Toxic, N.O.S.

**Hazard Class:** 6.1

**Packing Group:** III

**ERG Code:** 6L

**Description:** UN2902, Pesticide, Liquid, Toxic, N.O.S. (1H-Imidazol-2-amine, 1-[(6-chloro-3-pyridinyl)methyl]-4,5-dihydro-N-nitro-, Acrylic Acid), 6.1, III

**IMDG/IMO:**

**UN-No.:** UN2902

**Proper Shipping Name:** Pesticide, Liquid, Toxic, N.O.S.

**Hazard Class:** 6.1

**EmS-No.:** F-A, S-A

**Description:** UN2902, Pesticide, Liquid, Toxic, N.O.S. (1H-Imidazol-2-amine, 1-[(6-chloro-3-pyridinyl)methyl]-4,5-dihydro-N-nitro-, Acrylic Acid), 6.1, III, Marine Pollutant

**RID:**

**UN-No.:** UN2902

**Proper Shipping Name:** Pesticide, Liquid, Toxic, N.O.S.

**Hazard Class:** 6.1

**Packing Group:** III

**Classification Code:** T6

**Description:** UN2902, Pesticide, Liquid, Toxic, N.O.S. (1H-Imidazol-2-amine, 1-[(6-chloro-3-pyridinyl)methyl]-4,5-dihydro-N-nitro-, Acrylic Acid), 6.1, III, Environmentally Hazardous

**ADR:**

**UN-No.:** UN2902

**Proper Shipping Name:** Pesticide, Liquid, Toxic, N.O.S.

**Hazard Class:** 6.1

**Packing Group:** III

**Classification Code:** T6

**Tunnel Restriction Code:** (E)

**Description:** UN2902, Pesticide, Liquid, Toxic, N.O.S. (1H-Imidazol-2-amine, 1-[(6-chloro-3-pyridinyl)methyl]-4,5-dihydro-N-nitro-, Acrylic Acid), 6.1, III, (E), Environmentally Hazardous

# Safety Data Sheet

**ADN:**  
**UN-No.:** UN2902  
**Proper Shipping Name:** Pesticide, Liquid, Toxic, N.O.S.  
**Hazard Class:** 6.1  
**Packing Group:** III  
**Classification Code:** T6  
**Special Provisions:** 276, 61, 648, 802  
**Description:** UN2902, Pesticide, Liquid, Toxic, N.O.S. (1H-Imidazol-2-amine, 1-[(6-chloro-3-pyridinyl)methyl]-4,5-dihydro-N-nitro-, Acrylic Acid), 6.1, III, Environmentally Hazardous  
**Hazard Labels:** 6.1  
**Limited Quantity:** 5 L  
**Ventilation:** VE02

## 15 REGULATORY INFORMATION (NON-MANDATORY)

### International Inventories:

**TSCA:** Not Determined

**DSL:** Not Determined

### IECSC

**TSCA:** *United States Toxic Substances Control Act Section 8(b) Inventory*; **DSL/NDL:** *Canadian Domestic Substances List/Non-Domestic Substances List*

### U.S. Federal Regulations:

**SARA 313:** Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 ("SARA"). This product contains the following chemical that is subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372:

Chemical Name	CAS Number	Weight %	SARA 313 Threshold Value %
Acrylic acid	79-10-7	0.1 to 1	1.0

### SARA 313.312 Hazard Categories:

**Acute Health Hazard:** Yes

**Chronic Health Hazard:** Yes

**Fire Hazard:** Yes

**Sudden Release of Pressure Hazard:** No

**Reactive Hazard:** No

**CWA (Clean Water Act):** This product contains the following substance regulated as pollutants pursuant to the CWA (40 CFR 122.21 and 122.42):

**CERCLA (Comprehensive Environmental Response Compensation and Liability Act):** This material, as supplied, contains the following substance regulated as hazardous under CERCLA (40 CFR 302):

Chemical Name / CAS Number	Hazardous Substances RQs	Extremely Hazardous Substances RQs	RQ
Acrylic acid / 79-10-7	5000 lbs		RQ 5000 lbs final RQ RQ 2270 kg final RQ

**FIFRA (Federal Insecticide, Fungicide and Rodenticide Act, as Amended):** This chemical is a pesticide product registered by the United States Environmental Protection Agency and is subject to certain labeling requirements under Federal pesticide law. These requirements differ from the classification criteria and hazard information required for Safety Data Sheets ("SDSs") and for workplace labels of non-pesticide chemicals. The hazard information required on the pesticide label is reproduced below. The pesticide label also includes other important information, including Directions for Use.

### Precautionary Statements

#### Hazards to Humans & Domestic Animals

**WARNING:** Harmful if swallowed, inhaled or absorbed through skin. Causes substantial but temporary eye injury. Do not get in eyes or on clothing. Wear safety glasses. Thoroughly wash with soap and water after handling. Remove contaminated clothing and wash clothing before reuse.

**First Aid: 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. **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 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.

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

# Safety Data Sheet

**Environmental Hazards:** This product is highly toxic to fish and aquatic invertebrates. Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high-water mark. Do not contaminate water when disposing of equipment washwaters or rinsate. This product is highly toxic to bees exposed to direct treatment or residues on blooming plants or weeds. Do not apply this product to blooming plants or weeds if bees are foraging the treatment area.

**U.S. State Regulations:**

**California Proposition 65:** This product does not contain any Proposition 65 chemicals.

**U.S. State Right-to-Know Regulations**

Chemical Name / CAS Number	Illinois	Massachusetts	New Jersey	Pennsylvania	Rhode Island
Tetrahydrofurfuryl alcohol / 97-99-4		X		X	
1H-Imidazol-2-amine, 1-[(6-chloro-3-pyridinyl) methyl]-4,5-dihydro-N-nitro- / 138261-41-3	X				
Acrylic acid / 79-10-7	X	X	X	X	X

**International Regulations:**

**Canada WHMIS Class:** Not Determined

## 16 OTHER INFORMATION

**NFPA:**

**Health Hazards:** 2

**Flammability:** 2

**Instability:** 0

**Physical and Chemical Hazards-Personal Protection:** X

**HMIS:**

**Health Hazards:** 2

**Flammability:** 2

**Physical Hazard:** 0

**Physical and Chemical Hazards-Personal Protection:** X

**SDS Information:**

Date Prepared: 01/03/2023

Version: 2

Pointer® is a registered trademark of ArborSystems

### DISCLAIMER

This Safety Data Sheet ("SDS") serves different purposes than, and DOES NOT REPLACE OR MODIFY, THE EPA-APPROVED PRODUCT LABELING (attached to and accompanying the product container). This SDS provides important health, safety and environmental information for employers, employees, emergency responders and others handling large quantities of the product in activities generally other than product use, while the labeling provides that information specifically for product use in the ordinary course. Use, storage and disposal of pesticide products are regulated by the EPA under the authority of FIFRA (Federal Insecticide, Fungicide and Rodenticide Act, as Amended) through the product labeling. All necessary and appropriate precautionary, use, storage and disposal information is set forth on that labeling. It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

Although the information and recommendations set for herein (hereinafter "information") are presented in good faith and believed to be correct as of the date hereof, ArborSystems makes no representations as to the completeness or accuracy thereof. Information is supplied upon the condition that the persons receiving same will make their own determination as to its suitability for the purposes prior to use. To the extent consistent with applicable law, in no event will ArborSystems be responsible for damages of any nature whatsoever resulting from the use of or reliance upon information. NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OF ANY OTHER NATURE ARE MADE HEREUNDER WITH RESPECT TO INFORMATION OR TO THE PRODUCT TO WHICH INFORMATION REFERS.

# RETRIEVER® Insecticide

Tree injection treatment of listed pests in ornamental or non-bearing fruit and nut trees.



## Tree Injection Solutions

800-698-4641 • Fax: 402-339-5011  
10168 L Street • Omaha, NE 68127

EPA Reg. No. 69117-14  
EPA Est. 69117-NE-1

## FIRST AID

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

**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 Inhaled:** Move person to fresh air. If person is not breathing, call 9-1-1 or an ambulance, then give artificial respiration (preferably mouth-to-mouth) if possible. Call a poison control center or doctor for further treatment advice.

Hot Line Number  
Have the product container or label with you when calling a poison control center or doctor, or going for treatment. For non-emergency information, on product usage for example, call the National Pesticides Information Center at 1-800-858-7378. For medical emergencies call the poison control center at 1-800-222-1222.

**Note to Physician:** There is no specific antidote. All treatment should be based on observed signs and symptoms of distress in the patient.

## PRECAUTIONARY STATEMENTS

### Hazards to Humans & Domestic Animals

**CAUTION:** Harmful if swallowed, absorbed through skin or inhaled. Avoid breathing vapors or spray mist. Avoid contact with skin or clothing.

### Personal Protective Equipment (“PPE”)

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants;
- Chemical-resistant gloves made of barrier laminate, butyl rubber  $\geq$  14 mils, nitrile rubber  $\geq$  14 mils, neoprene rubber  $\geq$  14 mils, polyvinyl chloride (PVC)  $\geq$  14 mils or viton  $\geq$  14 mils;
- Shoes plus socks.

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate; do not reuse them.

Follow manufacturer's instructions for cleaning/maintaining PPE. If there are no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

When handlers use closed systems, enclosed cabs or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (“WPS”) for agricultural pesticides (40 CFR 170.240(d)(4-6)), the handler PPE requirements may be reduced or modified as specified in the WPS.

### User Safety Recommendations

#### Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.
- Immediately remove clothing if pesticide gets inside; then thoroughly wash and put on clean clothing.
- Immediately remove PPE after handling this product.
- Wash the outside of gloves before removing.
- As soon as possible, thoroughly wash and change into clean clothing.

### Physical or Chemical Hazards

Do not mix or allow product to come into contact with oxidizing agents; hazardous chemical reaction may occur.

### Environmental Hazards

This product is toxic to wildlife. This product is toxic to bees and other pollinating insects exposed to direct treatment. Do not apply this product while bees or other pollinating insects are foraging in the treated area. Risk to managed bees and native pollinators from contact with pesticide spray or residues can be minimized when applications are made at dawn or dusk or when temperature is below 55°F at the site of application. Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment wash-water or rinsate. Do not contaminate water used for irrigation or domestic purposes.

### Endangered Species Protection Requirements

This product may have effects on endangered species. When using this product you must follow the measures contained in the Endangered Species Protection Bulletin for the county in which you are applying the product. To obtain Bulletins, no more than six months before using this product, consult <http://www.epa.gov/espp/> or call 1-844-447-3813. You must use the Bulletin valid for the month in which you will apply the product.

Keep Out of Reach of Children  
See inside for First Aid,  
additional Precautionary Statements  
and complete Directions for Use.

Tree injection treatment of listed pests in ornamental or non-bearing fruit and nut trees.  
ACTIVE INGREDIENT:  
Acetamiprid  
(CAS No. 135410-20-7) ..... 8.5%  
OTHER INGREDIENTS ..... 19.5%  
Total ..... 100.0%  
Contains 0.76 lb of Acetamiprid per gallon  
Net Contents: 4 fl oz (120 ml)  
Net Contents: 1 qt 2 fl oz (1000 ml)

RETRIEVER®  
Insecticide



## Tree Injection Solutions

800-698-4641 • Fax: 402-339-5011  
10168 L Street • Omaha, NE 68127

ArborSystems®, Retriever® and Wedgle® are registered trademarks of ArborSystems. Direct-Inject™ is a trademark of ArborSystems.

# RETRIEVER® Insecticide

## DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

Read entire label before using this product. Do NOT use this product for woodland or forest management. Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

### Resistance Management

This product has acetamiprid as its active ingredient and is a Group 4A neonicotinoid, a class of insecticides. Resistance can develop if products that have the same mode of action are applied repeatedly. The use of this product should follow resistance management procedures in your area. The local resistance management practices and strategies of your agricultural advisor, extension personnel, university or professional crop advisor should be consulted to minimize the likelihood of resistance development in pests. These strategies may include limiting the number of consecutive applications of this product to two before rotating applications with insecticides that have different modes of action. Avoid foliar application of this product on crops treated with a Group 4A insecticide seed treatment or soil-applied application if a non-Group 4A insecticide has not been applied between these applications. Avoid applications below the minimum rate listed for each crop/pest combination as this can enhance resistance development. For best results, your pest management systems should use the practices recommended for IPM.

### Product Specific Use Directions

This product is intended to be applied by only professional applicators for insect control on Ornamental and Non-bearing Deciduous and Evergreen Fruit and Nut Trees. "Non-bearing" means crops that will not produce a harvestable raw product in the season that product is applied.

### Tree Injection Treatment of Ornamental or Non-Bearing Fruit and Nut Trees

This product may be applied as an injection treatment using an injection system (the Wedgle® Direct-Inject™ system).

**Pests:** Borers (including Flathead apple but not Emerald ash or Asian longhorned beetles), Hemlock wooly adelgids, Scale insects (including Azalea bark, Calico, Gloomy).

### Application Use Rate and Instructions:

More than one injection site may be necessary; refer to the instructions for the specific injection equipment being used. Determine the number of injection holes by doing the following:

- Measure diameter breast high (DBH) using a standard forestry tape.
- For circumference, divide by six to determine the number of injection holes.
- For diameter, divide by two to determine the number of holes.

Consult with your local agricultural expert to determine the appropriate timing for the pest being targeted and the management goals. Space injections evenly around the tree in active sapwood in the root buttress region being sure to avoid root valleys.

### Application Instructions:

Depending on target insect, treatments may begin at bud break through full leaf expansion in early- to mid-May based on local extension service recommendations. Make applications as required for preventative or curative pest management.

## Storage and Disposal

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

**Pesticide Storage:** Do not store in or around the home. Store unused product in a cool, ventilated, dry, locked area. Do not allow prolonged storage in areas where temperatures frequently exceed 115°F (46°C). **Never transfer this product to another container for storage.**

**Pesticide Disposal:** Contamination with this product will render water, food or feed unfit for human or animal consumption. Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

**Container Handling:** Non-refillable container; do not reuse or refill this container. Completely empty pack into application equipment, then offer for recycling if available; otherwise dispose of empty pack in a sanitary landfill.

### Conditions of Sale and Limitation of Warranty and Liability

The Directions for Use of this product must be carefully followed. It is impossible to eliminate all risks inherently associated with the use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of such factors as manner of use or application, weather or crop conditions, presence of other materials, resistant strains or other influencing factors in the use of the product, which are beyond the control of ArborSystems or Seller. All such risks shall be assumed by Buyer and User, and Buyer and User agree to hold ArborSystems and Seller harmless for any claims relating to such factors. To the extent allowed by applicable laws, ArborSystems warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated in the Directions for Use, subject to the inherent risks referred to above, when used in accordance with directions under normal use conditions.

This warranty does not extend to the use of the product contrary to label instructions, or under abnormal conditions or under conditions not reasonably foreseeable to or beyond the control of ArborSystems or Seller and Buyer and User assume the risk of any such use.

TO THE EXTENT ALLOWABLE BY APPLICABLE LAWS, ARBORSYSTEMS MAKES NO WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE OR ANY OTHER EXPRESS OR IMPLIED WARRANTY EXCEPT AS STATED ABOVE.

To the extent allowed by applicable laws, in no event shall ArborSystems or Seller be liable for any incidental, consequential or special damages resulting from the use or handling of this product. TO THE EXTENT ALLOWABLE BY APPLICABLE LAWS, THE EXCLUSIVE REMEDY OF THE BUYER OR USER AND THE EXCLUSIVE LIABILITY OF ARBORSYSTEMS AND SELLER FOR ANY AND ALL CLAIMS, LOSSES, INJURIES OR DAMAGES (INCLUDING CLAIMS BASED ON BREACH OF WARRANTY, CONTRACT, NEGLIGENCE, TORT, STRICT LIABILITY OR OTHERWISE) RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT, SHALL BE THE RETURN OF THE PURCHASE PRICE OF THE PRODUCT OR, AT THE ELECTION OF ARBORSYSTEMS OR SELLER, THE REPLACEMENT OF THE PRODUCT.

ArborSystems and Seller offer this product, and Buyer and User accept it, subject to the foregoing conditions of sale and limitations of warranty and liability, which may not be modified except by written agreement signed by a duly authorized representative of ArborSystems.

EPA Reg. No. 69117-14  
EPA Est. 69117-NE-1

ArborSystems®

Tree Injection Solutions

800-698-4641 • Fax: 402-339-5011  
10168 L Street • Omaha, NE 68127



# Safety Data Sheet

## 1 IDENTIFICATION

**Product Identifier:**

**Product Name:** Retriever® Insecticide  
**EPA Reg. No.:** 69117-14  
**Synonyms:** None

**Recommended Use:** Tree injection treatment of listed pests in ornamental and non-bearing fruit and nut trees

**Use Restrictions:** Do not inject food bearing plants. Do not use this product for woodland or forest management.

**Supplier Information:** ArborSystems, Inc. d/b/a ArborSystems  
10168 L. Street  
Omaha, NE 68127 USA  
Toll Free: 800.698.4641  
Phone: 402.339.4459  
Fax: 402.339.5011  
Email: mike@arborsystems.com  
Website: www.arborsystems.com

**Emergency Phone Number:** 1.800.222.1222 (Medical)

## 2 HAZARDS IDENTIFICATION

**Hazards Statements:** Harmful if swallowed. Harmful to aquatic life.



## 3 COMPOSITION / INFORMATION ON INGREDIENTS

Common Name	Chemical Name	CAS Number	Composition
Acetamiprid	(E)-N-[(6-chloro-3-pyridyl)methyl]-N-cyano-N-methyl acetamidine	135410-20-7	8.5%

## 4 FIRST-AID MEASURES

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact the 1-800-222-1222 for emergency medical treatment information.

**If Swallowed:** Immediately call a doctor or poison control center. Do not induce vomiting unless told to do so by a poison control center or doctor.

Have person sip a glass of water if able to swallow. Do not give anything by mouth to an unconscious person.

**Note to Physician:** There is no specific antidote. All treatment should be based on observed signs and symptoms of distress in the patient.

Overexposure to materials other than this product may have occurred.

## 5 FIRE-FIGHTING MEASURES

**Flash Point:** > 110°C (> 230°F)

**Fire and Explosion Hazards:** Thermal decomposition may produce toxic fumes (see Section 10).

**Extinguishing Medium:** Water fog, foam, dry chemical or carbon dioxide (CO<sub>2</sub>).

**Fire Fighting Equipment:** Firefighters should be equipped with self-contained positive pressure breathing apparatus and full bunker gear.

**Fire Fighting Instructions:** Evacuate area of all unnecessary personnel and fight fire from a safe distance upwind. Contain contaminated water / firefighting water; do not allow to enter drains or waterways. Foam or dry chemical fire extinguishing systems are preferred to prevent environmental damage from excessive water runoff.

**Combustion Hazards:** The potential for fire or explosion is low as the solvents have a low vapor pressure. However, this product when heated or atomized in the presence of an ignition source may cause explosion.

**NFPA Ratings:** Health – 1 / Flammability – 1 / Reactivity – 0

# Safety Data Sheet

## 6 ACCIDENTAL RELEASE MEASURES

**Personal Precautions:** Isolate area and keep unnecessary and unprotected personnel from entering. Wear suitable personal protective clothing and equipment as described in Section 8 of this document.

**Environmental Precautions:** Prevent material from entering public sewer systems or any waterways. Do not flush to drain. Large spills to soil or similar surfaces may necessitate removal of topsoil. The affected area should be removed and placed in an appropriate container for disposal.

**Spill Cleanup:** Dike spill, using suitable absorbent or impervious materials such as earth, sand, or clay. Collect and contain contaminated absorbent and place in an appropriate container for disposal. Pump any free liquid into an appropriate closed container and decontaminate tools and equipment following cleanup. Collect washings for disposal.

## 7 HANDLING AND STORAGE

**Handling:** Avoid breathing vapors or spray mist. Avoid contact with skin or clothing. Wash hands thoroughly with soap and water after handling and before eating, drinking, chewing gum, or using tobacco. Keep out of reach of children and domestic animals.

**Storage:** Do not store in or around the home. Store unused product in a cool, ventilated, dry, locked area. Do not allow prolonged storage in areas where temperatures frequently exceed 115°F (46°C). NEVER TRANSFER THIS PRODUCT TO ANOTHER CONTAINER FOR STORAGE.

## 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

**Engineering Controls:** Facilities storing or utilizing this material should be equipped with an eyewash station and a safety shower.

**Protective Clothing:** Applicators and other handlers must wear long-sleeved shirt and long pants, chemical resistant gloves, and shoes plus socks.

**General:** Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them. Follow manufacturer's instructions for cleaning/maintaining PPE. If there are no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

## 9 PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE:	Dark green liquid
ODOR:	Slightly sour
FLASHPOINT:	> 110°C (> 230°F)
pH:	4.8 (corrected to 25°C)
DENSITY:	9.14 lbs./gal (@ 25°C)
SOLUBILITY:	Soluble

## 10 STABILITY AND REACTIVITY

**Conditions to Avoid:** Excessive heat, do not store near heat or flame.

**Chemical Stability:** Stable under all normal use and storage conditions.

**Incompatibility with Other Materials:** Strong oxidizing agents, acids and bases.

**Hazardous Decomposition Products:** This product is chemically stable and no hazardous reactions should occur if stored and handled as prescribed / indicated. When thermally decomposed, may release oxides of carbon, hydrogen, nitrogen, hydrogen cyanide, and hydrochloric acid.

**Hazardous Polymerization:** Will not occur.

## 11 TOXICOLOGICAL INFORMATION

**Oral Toxicity (RAT LD<sub>50</sub>):** 500 – 2,000 mg/kg

**Dermal Toxicity (RAT LD<sub>50</sub>):** > 2,000 mg/kg

**Inhalation Toxicity (RAT LC<sub>50</sub>):** > 4.81 mg/L (4-hour)

**Eye Irritation:** Rabbit - Non irritating

**Skin Irritation:** Rabbit - Non irritating

**Skin Sensitization:** Guinea pig – Not a contact sensitizer

**Carcinogenicity:**

**EPA:** Not Listed

**NTP:** Not Listed

**ACGIH:** Not Listed

**OSHA:** Not Listed

**IARC:** Not Listed

**Mutagenic Toxicity:** No evidence of mutagenic effects during *in vivo* and *in vitro* assays.

**Reproductive Toxicity:** Not known to cause reproductive or birth defects at normal exposure levels.

# Safety Data Sheet

## 12 ECOLOGICAL INFORMATION (NON-MANDATORY)

The following information is for the active ingredient, Acetamiprid:

### Aquatic Toxicity

Carp (96-hour LC<sub>50</sub>): > 100 mg/L  
Daphnia (48-hour EC<sub>50</sub>): 49.8 mg/L  
Algae (72-hour EC<sub>50</sub>): > 98.3 mg/L

### Avian Toxicity

Bobwhite Quail (LC<sub>50</sub>): > 5,000 mg/kg  
Mallard Duck (LD<sub>50</sub>): 98 mg/kg

### Other Toxicity

Honey Bee (oral LD<sub>50</sub>): > 14.5 µg/bee

## 13 DISPOSAL CONSIDERATIONS (NON-MANDATORY)

**Pesticide Disposal:** Contamination with this product will render water, food or feed unfit for human or animal consumption. Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

**Container Disposal:** Nonrefillable container. Do not reuse or refill this container. Refer to the product label for specific container disposal instructions.

## 14 TRANSPORT INFORMATION (NON-MANDATORY)

### U.S. DOT:

Not regulated by DOT.

## 15 REGULATORY INFORMATION (NON-MANDATORY)

**FIFRA (Federal Insecticide, Fungicide and Rodenticide Act, as Amended):** This chemical is a pesticide product registered by the United States Environmental Protection Agency and is subject to certain labeling requirements under Federal pesticide law. These requirements differ from the classification criteria and hazard information required for Safety Data Sheets (SDSs) and for workplace labels of non-pesticide chemicals. The hazard information required on the pesticide label is reproduced below. The pesticide label also includes other important information including Directions for Use.

### Precautionary Statements

#### Hazards to Humans & Domestic Animals

**CAUTION:** Harmful if swallowed, absorbed through skin or inhaled. Avoid breathing vapors or spray mist. Avoid contact with skin or clothing.

#### Personal Protective Equipment ("PPE")

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants;
- Chemical-resistant gloves made of barrier laminate, butyl rubber ≥ 14 mils, nitrile rubber ≥ 14 mils, neoprene rubber ≥ 14 mils, polyvinyl chloride (PVC) ≥ 14 mils or viton ≥ 14 mils;
- Shoes plus socks.

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate; do not reuse them. Follow manufacturer's instructions for cleaning/maintaining PPE. If there are no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

When handlers use closed systems, enclosed cabs or aircraft in a manner that meets the requirements listed in the Worker Protection Standard ("WPS") for agricultural pesticides (40 CFR 170.240(d)(4-6)), the handler PPE requirements may be reduced or modified as specified in the WPS.

### User Safety Recommendations

#### Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.
- Immediately remove clothing if pesticide gets inside; then thoroughly wash and put on clean clothing.
- Immediately remove PPE after handling this product.
- Wash the outside of gloves before removing.
- As soon as possible, thoroughly wash and change into clean clothing.

### Physical or Chemical Hazards

Do not mix or allow product to come into contact with oxidizing agents; hazardous chemical reaction may occur.

### ENVIRONMENTAL HAZARDS

This product is toxic to wildlife. This product is toxic to bees and other pollinating insects exposed to direct treatment. Do not apply this product while bees or other pollinating insects are foraging in the treated area. Risk to managed bees and native pollinators from contact with pesticide spray or residues can be minimized when applications are made at dawn or dusk or when temperature is below 55°F at the site of application. Do not apply

# Safety Data Sheet

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directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwater or rinsate. Do not contaminate water used for irrigation or domestic purposes.

## Endangered Species Protection Requirements

This product may have effects on endangered species. When using this product you must follow the measures contained in the Endangered Species Protection Bulletin for the county in which you are applying the product. To obtain Bulletins, no more than six months before using this product, consult <http://www.epa.gov/espp/> or call 1-844-447-3813. You must use the Bulletin valid for the month in which you will apply the product.

The regulatory information presented below is pertinent only when this product is handled outside of the normal use and application as a pesticide. This product is excluded from listing requirements under EPA/TSCA.

## SARA Title III – Section 302 Extremely Hazardous Substances

Not listed

## SARA Title III – Section 311/312 Hazard Categories

Immediate

## SARA Title III – Section 312 Threshold Planning Quantity

The threshold planning quantity (TPQ) for this product treated as a mixture is 10,000 lbs. This product contains no ingredients with a TPQ of less than 10,000 lbs.

## SARA Title III – Section 313 Reportable Ingredients

None

## CERCLA Reportable Quantity (RQ) –

None

## California Prop 65 Status –

This product does not contain any chemicals known to the state of California to cause cancer or reproductive harm.

## Canada –

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the SDS contains all of the information required by CPR.

## 16 OTHER INFORMATION

### SDS Information:

Date Prepared: 12/29/2022

Version: 2

Retriever® is a registered trademark of ArborSystems

### DISCLAIMER

This Safety Data Sheet (SDS) serves different purposes than, and DOES NOT REPLACE OR MODIFY, THE EPA APPROVED PRODUCT LABELING (attached to and accompanying the product container). This SDS provides important health, safety, and environmental information for employers, employees, emergency responders and others handling large quantities of the product in activities generally other than product use, while the labeling provides that information specifically for product use in the ordinary course.

Although the information and recommendations set forth herein (hereinafter "Information") are presented in good faith and believed to be correct as of the date hereof, ArborSystems makes no representations as to the completeness or accuracy thereof. Information is supplied upon the condition that the persons receiving same will make their own determination as to its suitability for the purposes prior to use. In no event will ArborSystems be responsible for damages of any nature whatsoever resulting from the use of or reliance upon information. NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OF ANY OTHER NATURE ARE MADE HEREUNDER WITH RESPECT TO INFORMATION OR TO THE PRODUCT TO WHICH INFORMATION REFERS.

## HOW TO INJECT PALMS WITH ARBORSYSTEMS DIRECT-INJECT TREE INJECTION SYSTEM

1. Use only ArborSystems Direct-Inject chemicals with your unit as they have been formulated specifically for the Direct-Inject System.
2. Measure the circumference of the palm at chest height. Follow the label directions and application dosages in this booklet to determine the number of injection sites and the amount of chemical to be injected at each site.
3. Palms are treated using ArborSystems Palm or Portle Injection Tips, depending on the husk density. Choose which injection tips will work best for the palm you are treating and attach the appropriate tip to the ArborSystems Tip Setter. Using multiple tips will speed the injection process.
4. At chest height, tap the injection tip into the palm using the Tip Setter, then disconnect the setter from the tip leaving the tip in the palm. Repeat until all tips are set in the palm. **Do not attempt to insert or remove tips with the injection unit as that is likely to damage the injection unit.**
5. Connect the Direct-Inject unit to one of the tips already inserted in the palm.
6. With a smooth motion, firmly squeeze the injection unit handles. Apply equal pressure on both handles—unequal pressure may bend or break the tip. The injection unit is preset to deliver a 1 ml dose of chemical with each full stroke of the handles. Repeat until the required amount of chemical has been injected at the injection site.
7. Remove the injection unit from the tip leaving the tip in the palm.
8. Move to the next tip and attach the injection unit to the tip. Continue making injections at all injection sites. After all injections have been completed, use the Tip Setter to remove the tips from the tree, use a straight rearward motion. Avoid rocking motions as that may damage tips.

9. Clean tips after each use by submerging in alcohol or diluted bleach.
10. At the end of the day, water flush the Direct-Inject unit to prevent clogging.

**Avoiding chemical waste:** Any time you remove a chemical pack (after making injections), there is approximately 2.5 ml of chemical retained in the injection unit. To avoid wasting this chemical, remove the chemical pack before making your final injections. You will be able to make two additional 1 ml doses with the chemical remaining in the injection unit.

### STORAGE AND DISPOSAL

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

**Pesticide Storage:** Store in a cool (>45°F) place with containers in an upright position. Do not expose material to high temperatures (>85°F) for prolonged periods.

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

**Container Handling:** Non-refillable container; do not reuse or refill this container. Completely empty pack into application equipment, then offer for recycling, if available, or dispose of empty pack in a sanitary landfill or by incineration.



### NOTICE OF WARRANTY

ArborSystems warrants that this product conforms to the chemical description on the label and is reasonably fit for use when used strictly in accordance with the directions on the labeling. To the extent consistent with applicable law, ArborSystems does not make or authorize any agent or representative to make any other warranty, guarantee or representation, express or implied, concerning this product.

ArborSystems®, Portle® and Wedgle® are registered trademarks of ArborSystems.

Springer™, Direct-Inject™ and WedgeChek™ are trademarks of ArborSystems.

Direct-Inject™ unit is protected by U.S. Patent #5,901,498  
Wedgle® Tip is protected by U.S. Patent #5,239,773  
WedgeChek™ is protected by U.S. Patent #5,797,215  
Portle® Tip is protected by U.S. Patent #7,178,286

Use within 6 months of the container-stamped packaged date.

See inside for First Aid, additional Precautions for Use.

**CAUTION**  
Keep Out of Reach of Children

**ACTIVE INGREDIENT:**  
Oxytetracycline hydrochloride ..... 4.3%  
**OTHER INGREDIENTS** ..... 95.7%  
**Total** ..... 100.0%

**For seasonal suppression of lethal yellows (*Phytoplasma* disease) on palms.**

**An ArborSystems® Direct-Inject™ Chemical  
• Easy • No Drilling • Saves Time and Money**

# SPRINGER™ Systemic Antibiotic

## THIS PANEL GLUES TO CHEMICAL PACK

# SPRINGER™ Systemic Antibiotic

An ArborSystems® Direct-Inject™ Chemical  
• Easy • No Drilling • Saves Time and Money

For seasonal suppression of lethal yellows (phytoplasma disease) on palms.

Intended for use by arborists/applicators, grounds maintenance personnel and landscapers.

To be used only with the ArborSystems Direct-Inject™ Tree Injection System.



EPA Reg. No. 69117-10 EPA Est. 69117-NE-1

## FIRST AID

**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 a poison control center or doctor. Do not give anything by mouth to an unconscious person.

**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 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.

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

For non-emergency information concerning this product, call the National Pesticides Information Center (NPIC) at 1.800.858.7378 (NPIC website: www.npic.orst.edu).

**Note to Physician:** There is no specific antidote available. Treat patient symptomatically.

## PRECAUTIONARY STATEMENTS

### HAZARDS TO HUMANS AND DOMESTIC ANIMALS

**CAUTION:** Harmful if swallowed. Avoid contact with skin or clothing. Causes moderate eye irritation. Thoroughly wash with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet. Wear long-sleeved shirt and long pants, socks, shoes and chemical-resistant gloves (such as barrier laminate, butyl rubber, nitrile rubber, neoprene rubber, polyvinyl chloride (PVC), Viton, Selection Category C). Avoid contact with eyes or clothing. Wear protective eyewear such as goggles or shielded safety glasses. Prolonged or frequently repeated skin contact may cause allergic reaction in some individuals.

### PERSONAL PROTECTIVE EQUIPMENT

Some materials that are chemical-resistant to this product are listed below. Applicators and other handlers must wear: Long-sleeved shirt and long pants, shoes plus socks, chemical-resistant gloves, such as polyethylene, butyl rubber, neoprene rubber or Viton and protective eyewear such as goggles, face shield or safety glasses.

### USER SAFETY REQUIREMENTS

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

### USER SAFETY RECOMMENDATIONS

**Users should:**

- Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.
- Immediately remove clothing/PPE if pesticide gets inside; then thoroughly wash and put on clean clothing.
- Immediately remove PPE after handling this product. Wash the outside of gloves before removing. As soon as possible, thoroughly wash and change into clean clothing.

### ENVIRONMENTAL HAZARDS

Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters or rinsate.

### PHYSICAL OR CHEMICAL HAZARDS

Do not use or store near heat or open flame.

## DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application.

### ARBORSYSTEMS® DIRECT-INJECT™ TREE INJECTION SYSTEM

The ArborSystems® Direct-Inject™ Tree Injection System, along with ArborSystems patented Portle® Tips and Palm Tips, is the ideal way to treat palms. This no-drill trunk injection method is easy to use. Palm and Portle Tips have been designed to penetrate the thick outer husks of palms. Several tip options are available allowing you to choose the tip best suited to treat palms of various husk density.

Most palms can be treated in as little as five minutes or less, allowing applicators to make treatments quickly. There is no need to wait for absorption (translocation); chemical is injected into the active portion of the palm without drilling. Because the chemical is placed right where the palm can use it, effectiveness of the chemical is increased. Use in sunny or overcast conditions, rainy or dry, at any time of day. As no drilling or implants are required, you can treat palms repeatedly with no threat of long-term or permanent damage. This system minimizes wounding and promotes long-term plant health and vigor.

### RESTRICTIONS

This product is not to be used on palms that will produce food within the year following treatment. Do not use any part of treated palms as food or feed.

This product contains the antibiotic oxytetracycline. To reduce the development of drug-resistant bacteria and maintain the effectiveness of this and other antibacterial products, this product should be used only to treat or prevent infections that are proven or strongly suspected to be caused by bacteria. This material is not to be used for medical or veterinary purposes.

### PRODUCT INFORMATION

SPRINGER™ Systemic Antibiotic is a ready-to-use antibiotic for use on palms. SPRINGER™ Systemic Antibiotic provides suppression of lethal yellows disease (*phytoplasma* disease) in palms.

### SYMPTOMS

Symptoms vary significantly based on the palm species, but generally occur in sequence; fruit drop, flower/seed wilt, excessive yellowing of the canopy starting with the newest fronds and finally death of the palm bud leading to death of the entire plant. Sometimes a younger frond will yellow early in the process. This "flag leaf" is often an early visual symptom, but not present in every case.

### TREATMENT

Preventative treatments are more effective than therapeutic treatment in palms showing disease symptoms.

**As a therapeutic measure,** immediately begin applications to palms exhibiting symptoms and continue on a 3- to 4-month treatment schedule. Palms with over 25% discolored leaves are unlikely to respond to treatment.

**Preventive treatments** are recommended to protect palms in areas where lethal yellowing is known or likely to occur. Apply preventive treatments any time during the growing season once every 3 to 4 months.

Tree	Disease	Dosage per Injection Site
Palm	For suppression of Palm Lethal Yellows disease (Phytoplasma disease)	6 ml per 6" of trunk circumference measured at chest height.

Palms Susceptible to Lethal Yellowing	
This chart is only intended as a general guide. Susceptibility may vary depending on your location and evolving conditions. Contact a trained arborist familiar with conditions in the area to determine treatment strategies.	
High susceptibility	Coconut Palm, all cultivars, <i>Cocos nucifera</i> Christmas Palm, <i>Adonia merrillii</i> Loula/Konna Palm, <i>Pritchardia affinis</i> Thurston Fan Palm, <i>Pritchardia thurstonii</i> Tonga/Figi Fan Palm, <i>Pritchardia pacifica</i>
High/medium susceptibility	Canary Island Date Palm, <i>Phoenix canariensis</i> Clustering Fishtail Palm, <i>Caryota mitis</i> Medjool Date Palm, <i>Phoenix dactylifera</i> Sylvester/Wild Date Palm, <i>Phoenix sylvestris</i>
Medium susceptibility	Aricuriroba, <i>Syragus schizophylla</i> Palmyra Palm, <i>Borassus flabellifer</i> Princess Palm, <i>Dictosperma album</i> Senegal Date Palm, <i>Phoenix reclinata</i> Windmill Palm, <i>Trachycarpus fortunei</i>
Medium/low susceptibility	Chinese Fan Palm, <i>Livistonia chinensis</i> Latan Palm, <i>Latania lontaroides</i> Queen Palm, <i>Syragus romanzoffiana</i> Spindle Palm, <i>Hyophorbe verschaffeltii</i>
Low susceptibility	Washingtonia/Mexican Fan, <i>Washingtonia robusta</i> Triangle Palm, <i>Dypsis decaryi</i>
Undetermined level of susceptibility	Belmore Sentry, Cabada, Cabbage/Sabal, Cliff Date, Footstool, Gebang/Buri, Giant Fishtail, Kentia, Mazari, Miniature Sugar, Palma De Lluvia, Rootspine, Seashore
Species thought to be resistant to Lethal Yellows	Bizmarckai, Foxtail, Royal, Solitaire

# Safety Data Sheet

## 1 IDENTIFICATION

**Product Identifier:**

**Product Name:** Springer™ Systemic Antibiotic  
**EPA Reg. No.:** 69117-10  
**Synonyms:** None

**Recommended Use:** For suppression of certain diseases on ornamental trees.

**Use Restrictions:** Do not use on palms that will produce food within the year following treatment; during the year following treatment, do not use any part of the treated palms as food or feed. Use only to treat or prevent infections that are proven or strongly suspected to be caused by bacteria. Do not use this product for medical or veterinary purposes.

**Supplier Information:** ArborSystems, Inc. d/b/a ArborSystems  
10168 L Street  
Omaha, NE 68127 USA  
Toll Free: 800.698.4641  
Phone: 402.339.4459  
Fax: 402.339.5011  
Email: mike@arborsystems.com  
Website: www.arborsystems.com

**Emergency Phone Number:** 1.800.222.1222 (Medical)

## 2 HAZARDS IDENTIFICATION

**Hazards Classification:** This mixture is considered hazardous by the 2012 OSHA Communication Standard (29 CFR 1910.1200).

Acute toxicity-Oral	Category 4
Serious eye damage/eye irritation	Category 2A
Reproductive toxicity	Category 1B

**GHS Label Elements, including precautionary statements:**

**Signal Word:** Danger

**Hazards Statements:** Harmful if swallowed. Causes serious eye irritation. May damage fertility or the unborn child.



**Appearance:** Amber

**Physical state:** Liquid

**Odor:** Alcohol

**Precautionary Statements:**

**Prevention:** Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use protective gloves/clothing and eye/face protection. Thoroughly wash face, hands and any exposed skin after handling. Do not eat, drink or smoke when using this product.

**Response:** If exposed or concerned, get medical advice/attention.

**Eyes:** If in eyes, rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing if eye irritation persists. Get medical advice/attention.

**Ingestion:** If swallowed, call a poison control center or doctor/physician if you feel unwell. Rinse mouth.

**Storage:** Store locked up.

**Disposal:** Dispose of contents/container to an approved waste disposal plant.

**Unknown Acute Toxicity:** 100% of the mixture consists of ingredient(s) of unknown toxicity. 4.3% of the mixture consists of ingredient(s) of unknown acute oral toxicity. 100% of the mixture consists of ingredient(s) of unknown acute dermal toxicity. 100% of the mixture consists of ingredient(s) of unknown acute inhalation (gas, vapor, dust/mist) toxicity.

# Safety Data Sheet

## 3 COMPOSITION / INFORMATION ON INGREDIENTS

Mixture:

Chemical Name	CAS Number	Percent	HMIRA* Registry No.	Date HMIRA filed and date exemption granted (if applicable)
Tetrahydrofurfuryl alcohol	97-99-4	95.7	-	-

\*Hazardous Material Information Review Act.

## 4 FIRST-AID MEASURES

**General Advice:** Show this SDS to the doctor in attendance.

**Inhalation:** Remove to fresh air.

**Eye Contact:** Immediately rinse with plenty of water, also under the eyelids, for at least 15 minutes. Keep eye wide open while rinsing. Do not rub affected area. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.

**Skin Contact:** Wash skin with soap and water.

**Ingestion:** Clean mouth with water and drink plenty of water afterwards. Never give anything by mouth to an unconscious person. Do **not** induce vomiting. Call a physician.

**Self-protection of the first aider:** Avoid contact with skin, eyes or clothing. Wear personal protective clothing (see Section 8).

**Most Important Symptoms and Effects:** Burning sensation.

**Note to Physician:** Treat symptomatically.

## 5 FIRE-FIGHTING MEASURES

**Suitable Extinguishing Media:** Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

**Unsuitable Extinguishing Media:** CAUTION: Use of water spray when fighting fire may be inefficient.

**Specific Hazards Arising from this Mixture:** No information available.

**Hazardous Combustion Products:** Carbon oxides.

**Sensitivity to Mechanical Impact:** None.

**Sensitivity to Static Discharge:** None.

**Protective Equipment for Firefighters:** Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

## 6 ACCIDENTAL RELEASE MEASURES

**Personal Precautions:** Avoid contact with skin, eyes or clothing. Use personal protective equipment as required.

**Other Information:** Refer to protective measures listed in Sections 7 and 8.

**Containment Methods:** Prevent further leakage or spillage if safe to do so.

**Cleanup Methods:** Dam up. Soak up with inert absorbent material. Pick up and transfer to properly labeled containers.

## 7 HANDLING AND STORAGE

**Precautions for Safe Handling:** Handle in accordance with good industrial hygiene and safety practices. Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke when using this product. Remove contaminated clothing and shoes.

**Storage:** Keep containers tightly closed in a dry, cool and well-ventilated place. Keep out of the reach of children. Store locked up.

## 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

### Control Parameters - Exposure Limits

This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

**Appropriate Engineering Controls:** Showers, eyewash stations and ventilation systems.

### Individual Protection Measures – Personal Protective Equipment:

**Eye/Face:** If splashes are likely to occur, wear safety glasses with side-shields.

**Hand:** Wear suitable gloves.

**Skin/Body:** Wear suitable protective clothing.

**Respiratory:** No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

**Hygiene Considerations:** Do not eat, drink or smoke when using this product. Wash hands before breaks and immediately after handling the product. Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection.

# Safety Data Sheet

## 9 PHYSICAL AND CHEMICAL PROPERTIES

Auto-ignition temperature:	N/D	Partition coefficient: n-octanol/water:	N/D
Color:	Amber	pH:	3.18 @ 25°C
Decomposition temperature:	N/D	Physical state:	Liquid
Evaporation rate:	N/D	Relative density:	9.1 lbs/gal
Flammability (solid,gas):	N/A	Solubility(ies):	Complete in water
Flash point:	> 208°F (> 98°C)	Upper/lower explosive limits:	N/D
Freezing point:	N/D	Upper/lower flammability limits:	N/D
Initial boiling point and range:	N/D	Vapor pressure:	N/D
Melting point:	N/A	Viscosity:	N/D
Odor:	Alcohol	N/A = Not Applicable	N/D = Not Determined

## 10 STABILITY AND REACTIVITY

**Reactivity:** No information available.

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

**Possibility of Hazardous Reactions:** None under normal processing.

**Hazardous Polymerization:** Does not occur.

**Conditions to Avoid:** None known based on information provided.

**Incompatible Materials:** None known based on information provided.

**Hazardous Decomposition Products:** Carbon oxides.

## 11 TOXICOLOGICAL INFORMATION

### Product Information:

**Inhalation:** Specific test data for the mixture is not available. May cause irritation of respiratory tract.

**Eye Contact:** Specific test data for the mixture is not available. Causes serious eye irritation, based on components. May cause redness, itching and pain.

**Skin Contact:** Specific test data for the mixture is not available. May cause irritation. Prolonged contact may cause redness and irritation.

**Ingestion:** Specific test data for the mixture is not available. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. Harmful if swallowed, based on components.

### Component Information

Chemical Name / CAS Number	Oral LD50	Dermal LD50	Inhalation LD50
Tetrahydrofurfuryl alcohol / 97-99-4	= 1600 mg/kg (rat)	-	-

### Information on Toxicological Effects:

**Symptoms:** May cause redness and tearing of the eyes.

### Delayed and immediate effects as well as chronic effects from short and long-term exposure:

**Skin corrosion/irritation:** May cause skin irritation.

**Serious eye damage/irritation:** Classification based on data available for ingredients. Irritating to eyes.

**Respiratory or skin sensitization:** No information available.

**Germ cell mutagenicity:** No information available.

**Carcinogenicity:** No information available.

**Reproductive toxicity:** Classification based on data available for ingredients. Contains a known or suspected reproductive toxin.

**STOT-single exposure:** No information available.

**STOT-repeated exposure:** No information available.

**Aspiration hazard:** No information available.

### Numerical Measures of Toxicity – Acute Toxicity:

The following value is calculated based on Chapter 3.1 of the GHS document: ATEmix (oral): 1,672.00 mg/kg

**Unknown acute toxicity:** 100% of the mixture consists of ingredient(s) of unknown toxicity. 4.3% of the mixture consists of ingredient(s) of unknown acute oral toxicity. 100% of the mixture consists of ingredient(s) of unknown acute dermal toxicity. 100% of the mixture consists of ingredient(s) of unknown acute inhalation (gas, vapor, dust/mist) toxicity.

# Safety Data Sheet

## 12 ECOLOGICAL INFORMATION (NON-MANDATORY)

### Exotoxicity

Chemical Name / CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	<i>Daphnia magna</i> (water flea)
Tetrahydrofurfuryl alcohol / 97-99-4	-	48h LC <sub>50</sub> =3400 mg/L ( <i>Chaetodonoides</i> )	-	-

**Persistence and Degradability:** No information available.

**Bioaccumulation:** There is no data for this product.

**Mobility:** No information available.

**Other Adverse Effects:** No information available.

## 13 DISPOSAL CONSIDERATIONS (NON-MANDATORY)

**Waste Treatment Disposal Methods – Waste from residues/unused product:** Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

**Contaminated Packaging:** Do not reuse empty containers.

## 14 TRANSPORT INFORMATION (NON-MANDATORY)

DOT, TGD, MEX, ICAO, IATA, IMDG/IMO, RID, ADR and ADN: Not regulated.

## 15 REGULATORY INFORMATION (NON-MANDATORY)

### International Regulations:

**Ozone-depleting substances:** Not applicable.

**Persistent Organic Pollutants:** Not applicable.

**Export Notification Requirements:** Not applicable.

### International Inventories:

**TSCA, DSL/NDSL, EINECS/ELINCS, ENCS, KECL, PICCS and AICS:** Contact supplier for inventory compliance status.

**TSCA:** *United States Toxic Substances Control Act Section 8(b) Inventory*; **DSL/NDSL:** *Canadian Domestic Substances List/Non-Domestic Substances List*; **EINECS/ELINCS:** *European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances*; **ENCS:** *Japan Existing and New Chemical Substances*; **KECL:** *Korean Existing and Evaluated Chemical Substances*; **PICCS:** *Philippines Inventory of Chemicals and Chemical Substances*; and **AICS:** *Australian Inventory of Chemical Substances*.

### U.S. Federal Regulations:

**SARA 313:** Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 ("SARA"). This product does not contain any chemicals that are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

### SARA 313.312 Hazard Categories:

**Acute Health Hazard:** Yes

**Chronic Health Hazard:** Yes

**Fire Hazard:** No

**Sudden Release of Pressure Hazard:** No

**Reactive Hazard:** No

**CWA (Clean Water Act):** This product does not contain any substances regulated as pollutants pursuant to the CWA (40 CFR §§ 122.21 and 122.42).

**CERCLA (Comprehensive Environmental Response Compensation and Liability Act):** This material, as supplied, does not contain any substances regulated as hazardous substances under CERCLA (40 CFR Part 302) or the Superfund Amendments and Reauthorization Act (SARA-40 CFR Part 355). There may be specific reporting requirements at the local, regional or state level pertaining to releases of this material.

**FIFRA (Federal Insecticide, Fungicide and Rodenticide Act, as Amended):** This chemical is a pesticide product registered by the United States Environmental Protection Agency and is subject to certain labeling requirements under Federal pesticide law. These requirements differ from the classification criteria and hazard information required for Safety Data Sheets ("SDSs") and for workplace labels of non-pesticide chemicals. The hazard information required on the pesticide label is reproduced below. The pesticide label also includes other important information, including Directions for Use.

### Precautionary Statements

#### Hazards to Humans & Domestic Animals

# Safety Data Sheet

**CAUTION:** Harmful if swallowed. Avoid contact with skin or clothing. Causes moderate eye irritation. Thoroughly wash with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet. Wear long-sleeved shirt and long pants, socks, shoes and chemical-resistant gloves (such as barrier laminate, butyl rubber, nitrile rubber, neoprene rubber, polyvinyl chloride (PVC), Viton, Selection Category C). Avoid contact with eyes or clothing. Wear protective eyewear such as goggles or shielded safety glasses. Prolonged or frequently repeated skin contact may cause allergic reaction in some individuals.

## Personal Protective Equipment

Some materials that are chemical-resistant to this product are listed below. Applicators and other handlers must wear: Long-sleeved shirt and long pants, shoes plus socks, chemical-resistant gloves, such as polyethylene, butyl rubber, neoprene rubber or Viton and protective eyewear such as goggles, face shield or safety glasses.

## User Safety Requirements

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

## User Safety Recommendations

### Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.
- Immediately remove clothing/PPE if pesticide gets inside; then thoroughly wash and put on clean clothing.
- Immediately remove PPE after handling this product. Wash the outside of gloves before removing. As soon as possible, thoroughly wash and change into clean clothing.

## Environmental Hazards

Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters or rinsate.

## Physical or Chemical Hazards

Do not use or store near heat or open flame.

## U.S. State Regulations:

**California Proposition 65:** This product contains the following Proposition 65 chemical: Oxytetracycline hydrochloride, CAS Number 2058-46-0, Developmental.

## U.S. State Right-to-Know Regulations

Chemical Name / CAS Number	Illinois	Massachusetts	New Jersey	Pennsylvania	Rhode Island
Tetrahydrofurfuryl alcohol / 97-99-4		X		X	

## 16 OTHER INFORMATION

### NFPA:

Health Hazards: 2

Flammability: 1

Instability: 0

Physical and Chemical Hazards-Personal Protection: X

### HMIS:

Health Hazards: 2\*

Flammability: 1

Physical Hazard: 0

Physical and Chemical Hazards-Personal Protection: X

\*Chronic Health Hazard

## SDS Information:

Date Prepared: 12/27/2022

Version: 2

Springer™ is a trademark of ArborSystems

# Safety Data Sheet

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## DISCLAIMER

This Safety Data Sheet ("SDS") serves different purposes than, and DOES NOT REPLACE OR MODIFY, THE EPA-APPROVED PRODUCT LABELING (attached to and accompanying the product container). This SDS provides important health, safety and environmental information for employers, employees, emergency responders and others handling large quantities of the product in activities generally other than product use, while the labeling provides that information specifically for product use in the ordinary course. Use, storage and disposal of pesticide products are regulated by the EPA under the authority of FIFRA (Federal Insecticide, Fungicide and Rodenticide Act, as Amended) through the product labeling. All necessary and appropriate precautionary, use, storage and disposal information is set forth on that labeling. It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

Although the information and recommendations set for herein (hereinafter "information") are presented in good faith and believed to be correct as of the date hereof, ArborSystems makes no representations as to the completeness or accuracy thereof. Information is supplied upon the condition that the persons receiving same will make their own determination as to its suitability for the purposes prior to use. To the extent consistent with applicable law, in no event will ArborSystems be responsible for damages of any nature whatsoever resulting from the use of or reliance upon information. NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OF ANY OTHER NATURE ARE MADE HEREUNDER WITH RESPECT TO INFORMATION OR TO THE PRODUCT TO WHICH INFORMATION REFERS.

## DISEASE NOTES

1. **Bacterial Leaf Scorch (BLS)** is a bacterial plant disease caused by a vascular clogging bacterium (*Xylella fastidiosa*) that rapidly multiplies within active plant xylem. Distinct scorch-like leaf symptoms are followed by twig and branch death leading to plant decline and death. BLS bacterium is spread from diseased to healthy plant material during feeding by common urban xylem-feeding insects such as leafhoppers and treehoppers.
2. **Elms with phloem necrosis** exhibit leaves which turn yellow (out of season) and may drop prematurely. On trees that survive over winter, leaves in the spring are small and sparse. Symptoms are quite similar to Dutch Elm Disease, however it is important to distinguish between the two diseases as treatments are different. In Elms with phloem necrosis the entire crown is likely to show symptoms at the same time with symptoms appearing from July to late September. With Dutch Elm Disease, usually one or several small branches in the upper crown show earlier symptoms, which may appear anytime during the growing season.

## HOW TO APPLY ARBORSYSTEMS DIRECT-INJECT CHEMICALS WITH ARBORSYSTEMS DIRECT-INJECT TREE INJECTION SYSTEM

1. Use only ArborSystems Direct-Inject chemicals with your unit as they have been formulated specifically for the Direct-Inject system.
2. Measure the circumference of the tree within 12" of the ground. Follow the label directions and application dosages in this booklet to determine the number of injection sites and the amount of chemical to be injected at each site.
3. Choose which style and length of Arbor-Systems Injection Tip is most appropriate for type of tree you are treating.
4. The injection unit is preset to deliver a 1 ml dose of chemical with each full stroke of the handles. If you need to inject a 0.5 ml dose of chemical, move the dose adjustment ring to the 0.5 ml dose adjustment groove.

5. Make injections working around base (or flare) of the tree. All injections should be made within 12" of the ground unless otherwise noted.
6. With a smooth motion, firmly squeeze the injection unit handles to deliver chemical into tree. Apply equal pressure on both handles—unequal pressure may bend or break the tip.
7. Continue making injections moving around the tree until the entire tree trunk has been treated.
8. When removing tips from the tree, use a straight rearward motion. Avoid rocking motions as that may damage tips or the injection unit.
9. Tips should be cleaned after each use by submerging in alcohol or diluted bleach.
10. At the end of the day, water flush the Wedgle Direct-Inject unit to prevent clogging.

**Avoiding chemical waste:** Any time you remove a chemical pack (after making injections), there is approximately 2.5 ml of chemical retained in the injection unit. To avoid wasting this chemical, remove the chemical pack before making your final injections. You will be able to make two additional 1 ml doses with the chemical remaining in the injection unit.

### STORAGE AND DISPOSAL

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

**Pesticide Storage:** Store in a cool (>45°F) place with containers in an upright position. Do not expose material to high temperatures (>85°F) for prolonged periods.

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

**Container Handling:** Non-refillable container; do not reuse or refill this container. Completely empty pack into application equipment, then offer for recycling, if available, or dispose of empty pack in a sanitary landfill or by incineration.

Use within 6 months of the container-stamped packaged date.

See inside for First Aid, additional Precautionary Statements and complete Directions for Use.

**CAUTION**  
Keep Out of Reach of Children

**ACTIVE INGREDIENT:**  
Oxytetracycline hydrochloride..... 4.3%  
**OTHER INGREDIENTS**..... 95.7%  
Total..... 100.0%

and phloem necrosis on ornamental trees. For suppression of certain diseases including bacterial leaf scorch, fire blight, yellow diseases

An ArborSystems® Direct-Inject™ Chemical

**TERRIER™**  
**Systemic Antibiotic**



## NOTICE OF WARRANTY

ArborSystems warrants that this product conforms to the chemical description on the label and is reasonably fit for use when used strictly in accordance with the directions on the labeling. To the extent consistent with applicable law, ArborSystems does not make or authorize any agent or representative to make any other warranty, guarantee or representation, express or implied, concerning this product.

ArborSystems®, Wedgle® and Portle® are registered trademarks of ArborSystems.

Terrier™, Direct-Inject™ and WedgeChek™ are trademarks of ArborSystems.

Direct-Inject™ unit is protected by U.S. Patent #5,901,498  
Wedgle® Tip is protected by U.S. Patent #5,239,773  
WedgeChek™ is protected by U.S. Patent #5,797,215  
Portle® Tip is protected by U.S. Patent #7,178,286

THIS PANEL  
GLUES TO  
CHEMICAL PACK

# TERRIER™ Systemic Antibiotic

An ArborSystems® Direct-Inject™ Chemical  
• Easy • No Drilling • Saves Time and Money

For suppression of certain diseases including bacterial leaf scorch, fire blight, yellows diseases and phloem necrosis on ornamental trees.

**Intended for use by arborists/applicators, grounds maintenance personnel and landscapers.**

**To be used only with the ArborSystems Direct-Inject™ Tree Injection System.**



Tree Injection Solutions  
800-698-4641 • Fax: 402-339-5011  
10168 L Street • Omaha, NE 68127

EPA Reg. No. 69117-10 EPA Est. 69117-NE-1

## FIRST AID

**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 a poison control center or doctor. Do not give anything by mouth to an unconscious person.

**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 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.

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

For non-emergency information concerning this product, call the National Pesticide Information Center (NPIC) at 1.800.858.7378 (NPIC website: [www.npic.orst.edu](http://www.npic.orst.edu)).

**Note to Physician:** There is no specific antidote available. Treat patient symptomatically.

## PRECAUTIONARY STATEMENTS

### HAZARDS TO HUMANS AND DOMESTIC ANIMALS

**CAUTION:** Harmful if swallowed. Avoid contact with skin or clothing. Causes moderate eye irritation. Thoroughly wash with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet. Wear long-sleeved shirt and long pants, socks, shoes and chemical-resistant gloves (such as barrier laminate, butyl rubber, nitrile rubber, neoprene rubber, polyvinyl chloride (PVC), Viton, Selection Category C). Avoid contact with eyes or clothing. Wear protective eyewear such as goggles or shielded safety glasses. Prolonged or frequently repeated skin contact may cause allergic reaction in some individuals.

### PERSONAL PROTECTIVE EQUIPMENT

Some materials that are chemical-resistant to this product are listed below. Applicators and other handlers must wear: Long-sleeved shirt and long pants, shoes plus socks, chemical-resistant gloves, such as polyethylene, butyl rubber, neoprene rubber or Viton and protective eyewear such as goggles, face shield or safety glasses.

### USER SAFETY REQUIREMENTS

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

### USER SAFETY RECOMMENDATIONS Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.
- Immediately remove clothing/PPE if pesticide gets inside; then thoroughly wash and put on clean clothing.
- Immediately remove PPE after handling this product. Wash the outside of gloves before removing. As soon as possible, thoroughly wash and change into clean clothing.

### ENVIRONMENTAL HAZARDS

Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters or rinsate.

### PHYSICAL OR CHEMICAL HAZARDS

Do not use or store near heat or open flame.

## DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application.

### ARBORSYSTEMS® DIRECT-INJECT™ TREE INJECTION SYSTEM

The ArborSystems® Direct-Inject™ Tree Injection System is a no-drill trunk injection method that is easy to use. Most trees are treated in as little as 5 minutes or less, allowing applicators to treat trees quickly. There is no need to wait for absorption (translocation); chemical is injected into the cambial area (the active vascular system) of the tree. Because the chemical is placed right where the tree can use it, effectiveness of the chemical is increased. Use in sunny or overcast conditions, rainy or dry, at any time of day. As no drilling or implants are required, you can treat trees year after year, with no threat of long-term or permanent damage to the tree. This system minimizes wounding and promotes long-term tree health and vigor.

### RESTRICTIONS





This product is not to be used on trees or shrubs that will produce food within the year following treatment; during the year following treatment, do not use any part of treated trees or shrubs, including sap, as food or feed. Do not inject trees that are less than two inches in diameter.

This product contains the antibiotic oxytetracycline. To reduce the development of drug-resistant bacteria and maintain the effectiveness of this and other antibacterial products, this product should be used only to treat or prevent infections that are proven or strongly suspected to be caused by bacteria. This material is not to be used for medical or veterinary purposes.

### PRODUCT INFORMATION

TERRIER™ Systemic Antibiotic is a ready-to-use antibiotic for non-crop bearing ornamental trees and large woody shrubs. TERRIER™ Systemic Antibiotic provides seasonal suppression of a variety of diseases including bacterial leaf scorch, fire blight, yellows diseases, phloem necrosis, mycoplasmas, xylem-limited bacteria (*Xylella fastidiosa*, BLS) and some bacterial blight diseases. Late summer or early fall applications provide disease suppression the following season. Some diseases may require repeated yearly application.

Preventative application is more effective than therapeutic treatment in trees showing disease symptoms. Apply as a preventative when other trees in the area are showing symptoms. In trees showing symptoms, begin treatment as soon as possible. Trees in advanced stages of disease development may not respond to treatment. Infected trees will absorb the chemical more slowly due to the vascular damage caused by the disease. If TERRIER™ Systemic Antibiotic is not absorbed within 24 hours, the tree is considered high risk and has a poor chance of survival.

Dosage		
<b>Inject 1 to 2 ml per every 4" of trunk circumference</b> measured within 12" of the ground using the Direct-Inject Tree Injection System. Use Portle® Tips for injecting Sycamores or thick-barked hardwoods such as elms. For other trees, use Wedgle® Tips. Make all injections around the base (or flare) of the tree.		
Diseases Treated	Application Timing	
<b>Bacterial Leaf Scorch</b> in Elm, Oak, Sycamore, Oleander, Sweet Gum (Liquidambar) (1)	Apply in late summer or early fall for preventive suppression the following season. Applications made in spring (April or May) will suppress current year symptoms.	
<b>Fire Blight</b> in Mountain Ash	Applications are most successful when made in early spring (January through May depending upon location) prior to or during bloom period. Applications made after bloom period will still prevent secondary twig infections. Fall applications are NOT recommended for fire blight suppression.	
<b>Ash Yellows</b> in Ash	Applications for treatment of ash yellows are most successful in the spring and early summer when leafout has reached at least 50% or more as adequate foliage is needed to assure translocation.	
<b>Phloem Necrosis</b> in Elm, also called Elm Yellow (2)	If phloem necrosis has been identified in nearby trees it is preferable to treat unaffected trees in late summer or early fall for preventive suppression the following season. Applications made in spring MAY suppress current year symptoms, however results on trees with symptoms is inconsistent.	

# Safety Data Sheet

## 1 IDENTIFICATION

**Product Identifier:**

**Product Name:** Terrier™ Systemic Antibiotic  
**EPA Reg. No.:** 69117-10  
**Synonyms:** None

**Recommended Use:** For suppression of certain diseases on ornamental trees.

**Use Restrictions:** Do not use on trees or shrubs that will produce food within the year following treatment; during the year following treatment, do not use any part of the treated trees or shrubs, including sap, as food or feed. Do not inject trees that are less than two inches in diameter. Use only to treat or prevent infections that are proven or strongly suspected to be caused by bacteria. Do not use this product for medical or veterinary purposes.

**Supplier Information:** ArborSystems, Inc. d/b/a ArborSystems  
10168 L Street  
Omaha, NE 68127 USA  
Toll Free: 800.698.4641  
Phone: 402.339.4459  
Fax: 402.339.5011  
Email: mike@arborsystems.com  
Website: www.arborsystems.com

**Emergency Phone Number:** 1.800.222.1222 (Medical)

## 2 HAZARDS IDENTIFICATION

**Hazards Classification:** This mixture is considered hazardous by the 2012 OSHA Communication Standard (29 CFR 1910.1200).

Acute toxicity-Oral	Category 4
Serious eye damage/eye irritation	Category 2A
Reproductive toxicity	Category 1B

**GHS Label Elements, including precautionary statements:**

**Signal Word:** Danger

**Hazards Statements:** Harmful if swallowed. Causes serious eye irritation. May damage fertility or the unborn child.



**Appearance:** Amber

**Physical state:** Liquid

**Odor:** Alcohol

**Precautionary Statements:**

**Prevention:** Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use protective gloves/clothing and eye/face protection. Thoroughly wash face, hands and any exposed skin after handling. Do not eat, drink or smoke when using this product.

**Response:** If exposed or concerned, get medical advice/attention.

**Eyes:** If in eyes, rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing if eye irritation persists. Get medical advice/attention.

**Ingestion:** If swallowed, call a poison control center or doctor/physician if you feel unwell. Rinse mouth.

**Storage:** Store locked up.

**Disposal:** Dispose of contents/container to an approved waste disposal plant.

**Unknown Acute Toxicity:** 100% of the mixture consists of ingredient(s) of unknown toxicity. 4.3% of the mixture consists of ingredient(s) of unknown acute oral toxicity. 100% of the mixture consists of ingredient(s) of unknown acute dermal toxicity. 100% of the mixture consists of ingredient(s) of unknown acute inhalation (gas, vapor, dust/mist) toxicity.

# Safety Data Sheet

## 3 COMPOSITION / INFORMATION ON INGREDIENTS

Mixture:

Chemical Name	CAS Number	Percent	HMIRA* Registry No.	Date HMIRA filed and date exemption granted (if applicable)
Tetrahydrofurfuryl alcohol	97-99-4	95.7	-	-

\*Hazardous Material Information Review Act.

## 4 FIRST-AID MEASURES

**General Advice:** Show this SDS to the doctor in attendance.

**Inhalation:** Remove to fresh air.

**Eye Contact:** Immediately rinse with plenty of water, also under the eyelids, for at least 15 minutes. Keep eye wide open while rinsing. Do not rub affected area. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.

**Skin Contact:** Wash skin with soap and water.

**Ingestion:** Clean mouth with water and drink plenty of water afterwards. Never give anything by mouth to an unconscious person. Do **not** induce vomiting. Call a physician.

**Self-protection of the first aider:** Avoid contact with skin, eyes or clothing. Wear personal protective clothing (see Section 8).

**Most Important Symptoms and Effects:** Burning sensation.

**Note to Physician:** Treat symptomatically.

## 5 FIRE-FIGHTING MEASURES

**Suitable Extinguishing Media:** Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

**Unsuitable Extinguishing Media:** CAUTION: Use of water spray when fighting fire may be inefficient.

**Specific Hazards Arising from this Mixture:** No information available.

**Hazardous Combustion Products:** Carbon oxides.

**Sensitivity to Mechanical Impact:** None.

**Sensitivity to Static Discharge:** None.

**Protective Equipment for Firefighters:** Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

## 6 ACCIDENTAL RELEASE MEASURES

**Personal Precautions:** Avoid contact with skin, eyes or clothing. Use personal protective equipment as required.

**Other Information:** Refer to protective measures listed in Sections 7 and 8.

**Containment Methods:** Prevent further leakage or spillage if safe to do so.

**Cleanup Methods:** Dam up. Soak up with inert absorbent material. Pick up and transfer to properly labeled containers.

## 7 HANDLING AND STORAGE

**Precautions for Safe Handling:** Handle in accordance with good industrial hygiene and safety practices. Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke when using this product. Remove contaminated clothing and shoes.

**Storage:** Keep containers tightly closed in a dry, cool and well-ventilated place. Keep out of the reach of children. Store locked up.

## 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

### Control Parameters - Exposure Limits

This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

**Appropriate Engineering Controls:** Showers, eyewash stations and ventilation systems.

### Individual Protection Measures – Personal Protective Equipment:

**Eye/Face:** If splashes are likely to occur, wear safety glasses with side-shields.

**Hand:** Wear suitable gloves.

**Skin/Body:** Wear suitable protective clothing.

**Respiratory:** No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

**Hygiene Considerations:** Do not eat, drink or smoke when using this product. Wash hands before breaks and immediately after handling the product. Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection.

# Safety Data Sheet

## 9 PHYSICAL AND CHEMICAL PROPERTIES

Auto-ignition temperature:	N/D	Partition coefficient: n-octanol/water:	N/D
Color:	Amber	pH:	3.18 @ 25°C
Decomposition temperature:	N/D	Physical state:	Liquid
Evaporation rate:	N/D	Relative density:	9.1 lbs/gal
Flammability (solid,gas):	N/A	Solubility(ies):	Complete in water
Flash point:	> 208°F (> 98°C)	Upper/lower explosive limits:	N/D
Freezing point:	N/D	Upper/lower flammability limits:	N/D
Initial boiling point and range:	N/D	Vapor pressure:	N/D
Melting point:	N/A	Viscosity:	N/D
Odor:	Alcohol	N/A = Not Applicable	N/D = Not Determined

## 10 STABILITY AND REACTIVITY

**Reactivity:** No information available.

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

**Possibility of Hazardous Reactions:** None under normal processing.

**Hazardous Polymerization:** Does not occur.

**Conditions to Avoid:** None known based on information provided.

**Incompatible Materials:** None known based on information provided.

**Hazardous Decomposition Products:** Carbon oxides.

## 11 TOXICOLOGICAL INFORMATION

### Product Information:

**Inhalation:** Specific test data for the mixture is not available. May cause irritation of respiratory tract.

**Eye Contact:** Specific test data for the mixture is not available. Causes serious eye irritation, based on components. May cause redness, itching and pain.

**Skin Contact:** Specific test data for the mixture is not available. May cause irritation. Prolonged contact may cause redness and irritation.

**Ingestion:** Specific test data for the mixture is not available. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. Harmful if swallowed, based on components.

### Component Information

Chemical Name / CAS Number	Oral LD50	Dermal LD50	Inhalation LD50
Tetrahydrofurfuryl alcohol / 97-99-4	= 1600 mg/kg (rat)	-	-

### Information on Toxicological Effects:

**Symptoms:** May cause redness and tearing of the eyes.

### Delayed and immediate effects as well as chronic effects from short and long-term exposure:

**Skin corrosion/irritation:** May cause skin irritation.

**Serious eye damage/irritation:** Classification based on data available for ingredients. Irritating to eyes.

**Respiratory or skin sensitization:** No information available.

**Germ cell mutagenicity:** No information available.

**Carcinogenicity:** No information available.

**Reproductive toxicity:** Classification based on data available for ingredients. Contains a known or suspected reproductive toxin.

**STOT-single exposure:** No information available.

**STOT-repeated exposure:** No information available.

**Aspiration hazard:** No information available.

### Numerical Measures of Toxicity – Acute Toxicity:

The following value is calculated based on Chapter 3.1 of the GHS document: ATEmix (oral): 1,672.00 mg/kg

**Unknown acute toxicity:** 100% of the mixture consists of ingredient(s) of unknown toxicity. 4.3% of the mixture consists of ingredient(s) of unknown acute oral toxicity. 100% of the mixture consists of ingredient(s) of unknown acute dermal toxicity. 100% of the mixture consists of ingredient(s) of unknown acute inhalation (gas, vapor, dust/mist) toxicity.

# Safety Data Sheet

## 12 ECOLOGICAL INFORMATION (NON-MANDATORY)

### Exotoxicity

Chemical Name / CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	<i>Daphnia magna</i> (water flea)
Tetrahydrofurfuryl alcohol / 97-99-4	-	48h LC <sub>50</sub> =3400 mg/L ( <i>Chaetodonoides</i> )	-	-

**Persistence and Degradability:** No information available.

**Bioaccumulation:** There is no data for this product.

**Mobility:** No information available.

**Other Adverse Effects:** No information available.

## 13 DISPOSAL CONSIDERATIONS (NON-MANDATORY)

**Waste Treatment Disposal Methods – Waste from residues/unused product:** Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

**Contaminated Packaging:** Do not reuse empty containers.

## 14 TRANSPORT INFORMATION (NON-MANDATORY)

DOT, TGD, MEX, ICAO, IATA, IMDG/IMO, RID, ADR and ADN: Not regulated.

## 15 REGULATORY INFORMATION (NON-MANDATORY)

### International Regulations:

**Ozone-depleting substances:** Not applicable.

**Persistent Organic Pollutants:** Not applicable.

**Export Notification Requirements:** Not applicable.

### International Inventories:

**TSCA, DSL/NDSL, EINECS/ELINCS, ENCS, KECL, PICCS and AICS:** Contact supplier for inventory compliance status.

**TSCA:** *United States Toxic Substances Control Act Section 8(b) Inventory*; **DSL/NDSL:** *Canadian Domestic Substances List/Non-Domestic Substances List*; **EINECS/ELINCS:** *European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances*; **ENCS:** *Japan Existing and New Chemical Substances*; **KECL:** *Korean Existing and Evaluated Chemical Substances*; **PICCS:** *Philippines Inventory of Chemicals and Chemical Substances*; and **AICS:** *Australian Inventory of Chemical Substances*.

### U.S. Federal Regulations:

**SARA 313:** Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 ("SARA"). This product does not contain any chemicals that are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

### SARA 313.312 Hazard Categories:

**Acute Health Hazard:** Yes

**Chronic Health Hazard:** Yes

**Fire Hazard:** No

**Sudden Release of Pressure Hazard:** No

**Reactive Hazard:** No

**CWA (Clean Water Act):** This product does not contain any substances regulated as pollutants pursuant to the CWA (40 CFR §§ 122.21 and 122.42).

**CERCLA (Comprehensive Environmental Response Compensation and Liability Act):** This material, as supplied, does not contain any substances regulated as hazardous substances under CERCLA (40 CFR Part 302) or the Superfund Amendments and Reauthorization Act (SARA-40 CFR Part 355). There may be specific reporting requirements at the local, regional or state level pertaining to releases of this material.

**FIFRA (Federal Insecticide, Fungicide and Rodenticide Act, as Amended):** This chemical is a pesticide product registered by the United States Environmental Protection Agency and is subject to certain labeling requirements under Federal pesticide law. These requirements differ from the classification criteria and hazard information required for Safety Data Sheets ("SDSs") and for workplace labels of non-pesticide chemicals. The hazard information required on the pesticide label is reproduced below. The pesticide label also includes other important information, including Directions for Use.

# Safety Data Sheet

## Precautionary Statements

### Hazards to Humans & Domestic Animals

**CAUTION:** Harmful if swallowed. Avoid contact with skin or clothing. Causes moderate eye irritation. Thoroughly wash with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet. Wear long-sleeved shirt and long pants, socks, shoes and chemical-resistant gloves (such as barrier laminate, butyl rubber, nitrile rubber, neoprene rubber, polyvinyl chloride (PVC), Viton, Selection Category C). Avoid contact with eyes or clothing. Wear protective eyewear such as goggles or shielded safety glasses. Prolonged or frequently repeated skin contact may cause allergic reaction in some individuals.

### Personal Protective Equipment

Some materials that are chemical-resistant to this product are listed below. Applicators and other handlers must wear: Long-sleeved shirt and long pants, shoes plus socks, chemical-resistant gloves, such as polyethylene, butyl rubber, neoprene rubber or Viton and protective eyewear such as goggles, face shield or safety glasses.

### User Safety Requirements

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

### User Safety Recommendations

#### Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.
- Immediately remove clothing/PPE if pesticide gets inside; then thoroughly wash and put on clean clothing.
- Immediately remove PPE after handling this product. Wash the outside of gloves before removing. As soon as possible, thoroughly wash and change into clean clothing.

### Environmental Hazards

Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters or rinsate.

### Physical or Chemical Hazards

Do not use or store near heat or open flame.

### U.S. State Regulations:

**California Proposition 65:** This product contains the following Proposition 65 chemical: Oxytetracycline hydrochloride, CAS Number 2058-46-0, Developmental.

### U.S. State Right-to-Know Regulations

Chemical Name / CAS Number	Illinois	Massachusetts	New Jersey	Pennsylvania	Rhode Island
Tetrahydrofurfuryl alcohol / 97-99-4		X		X	

## 16 OTHER INFORMATION

### NFPA:

Health Hazards: 2

Flammability: 1

Instability: 0

Physical and Chemical Hazards-Personal Protection: X

### HMIS:

Health Hazards: 2\*

Flammability: 1

Physical Hazard: 0

Physical and Chemical Hazards-Personal Protection: X

\*Chronic Health Hazard

### SDS Information:

Date Prepared: 12/27/2022

Version: 2

Terrier™ is a trademark of ArborSystems

# Safety Data Sheet

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## DISCLAIMER

This Safety Data Sheet ("SDS") serves different purposes than, and DOES NOT REPLACE OR MODIFY, THE EPA-APPROVED PRODUCT LABELING (attached to and accompanying the product container). This SDS provides important health, safety and environmental information for employers, employees, emergency responders and others handling large quantities of the product in activities generally other than product use, while the labeling provides that information specifically for product use in the ordinary course. Use, storage and disposal of pesticide products are regulated by the EPA under the authority of FIFRA (Federal Insecticide, Fungicide and Rodenticide Act, as Amended) through the product labeling. All necessary and appropriate precautionary, use, storage and disposal information is set forth on that labeling. It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

Although the information and recommendations set for herein (hereinafter "information") are presented in good faith and believed to be correct as of the date hereof, ArborSystems makes no representations as to the completeness or accuracy thereof. Information is supplied upon the condition that the persons receiving same will make their own determination as to its suitability for the purposes prior to use. To the extent consistent with applicable law, in no event will ArborSystems be responsible for damages of any nature whatsoever resulting from the use of or reliance upon information. NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OF ANY OTHER NATURE ARE MADE HEREUNDER WITH RESPECT TO INFORMATION OR TO THE PRODUCT TO WHICH INFORMATION REFERS.

# WHIPPET® Fungicide

An ArborSystems® Direct-Inject™ Chemical  
• Easy • No Drilling • Saves Time and Money

For systemic fungicide control of Sudden Oak Death, Sycamore Anthracnose, Stem and Canker Blights, Pine Pitch Canker, Beech Decline and *Phytophthora* spp. diseases in a wide variety of trees and palm plants in urban environmental, residential areas and interior landscapes (such as those in domestic landscape/garden areas, public display plantings, recreation areas, highway and other transportation rights-of-way, scenic corridors, storage areas, forest areas and campgrounds).

To be used only with the ArborSystems Direct-Inject Tree Injection System.

800-698-4641 • Fax: 402-339-5011  
10168 L Street • Omaha, NE 68127



Tree Injection Solutions

EPA Reg. No. 69117-5

EPA Est. 69117-NE-1

Net Contents: 4 fl oz (120 ml)

Net Contents: 1 qt 2 fl oz (1000 ml)

## FIRST AID

**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 to an unconscious person.

**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 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.

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. For non-emergency information on product usage call 800-698-4641, Monday through Friday, 9 am to 5 pm (Central time). For medical emergencies call the National Poison Control Center at 1-800-222-1222.

## PRECAUTIONARY STATEMENTS

### HAZARDS TO HUMANS AND DOMESTIC ANIMALS

**CAUTION:** Harmful if swallowed, absorbed through skin or inhaled. Causes moderate eye irritation. Avoid contact with skin, eyes or clothing. Thoroughly wash with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet. Remove and wash contaminated clothing before reuse.

### PERSONAL PROTECTIVE EQUIPMENT (PPE)

Wear protective eyewear and rubber or neoprene gloves when handling ArborSystems Direct-Inject chemicals.

### ENVIRONMENTAL HAZARDS

Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters or rinsate.

See inside for First Aid, additional Precautionary Statements and complete Directions for Use.

## CAUTION

Keep Out of Reach of Children

Net Contents: 1 qt 2 fl oz (1000 ml)  
Net Contents: 4 fl oz (120 ml)  
2 fl oz (1000 ml) pack.  
Contains 20 fl oz (575 grams) active ingredient per 1 qt (120 ml) pack.  
Contains 2.4 fl oz (69 grams) active ingredient per 4 fl oz  
\*Equivalent to 3.35 lbs Phosphorous Acid/gallon.  
Total  
100.0%  
54.2%  
45.8%  
OTHER INGREDIENTS  
of Phosphorous Acid  
\* Mono- and di-potassium salts  
ACTIVE INGREDIENTS:

For systemic fungicide control of Sudden Oak Death, Sycamore Anthracnose, Stem and Canker Blights, Pine Pitch Canker, Beech Decline and *Phytophthora* spp. diseases in a wide variety of trees and palm plants in urban environmental, residential areas and interior landscapes.

An ArborSystems® Direct-Inject™ Chemical  
WHIPPET® Fungicide



Tree Injection Solutions

800-698-4641 • Fax: 402-339-5011  
10168 L Street • Omaha, NE 68127

## NOTICE OF WARRANTY

ArborSystems warrants that this product conforms to the chemical description on the label and is reasonably fit for use under average conditions when used strictly in accordance with the directions on the labeling. To the extent consistent with applicable law, ArborSystems does not make or authorize any agent or representative to make any other warranty, guarantee or representation, express or implied, concerning this product.

ArborSystems®, Whippet®, Portle® and Wedgle® are registered trademarks of ArborSystems.

Direct-Inject™ and WedgeChek™ are trademarks of ArborSystems.

Direct Inject™ unit is protected by U.S. Patent #5,901,498  
Wedgle® Tip is protected by U.S. Patent #5,239,773  
WedgeChek™ is protected by U.S. Patent #5,797,215  
Portle® Tip is protected by U.S. Patent #7,178,286

# WHIPPET® Fungicide

## DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

## PRODUCT INFORMATION

### ARBORSYSTEMS® DIRECT-INJECT™ TREE INJECTION SYSTEM

The ArborSystems Direct-Inject Tree Injection System is easy to use. Most trees are treated in as little as five minutes or less, allowing applicators to treat trees quickly. There is no need to wait for absorption (translocation). Chemical is injected into the cambial area (the active vascular system) of the tree. Because the chemical is placed right where the tree can use it, effectiveness of the chemical is increased.

Use in sunny or overcast conditions, rainy or dry, at any time of day. As no drilling or implants are required, you can treat trees year after year, with no threat of long-term or permanent damage to the tree. This system minimizes wounding and promotes long-term tree vigor.

### INDICATIONS

Use Whippet Fungicide for effective control of *Phytophthora* spp. diseases including Sudden Oak Death (*Phytophthora ramorum*), Beech Decline, Pine Pitch Canker (*Fusarium subglutinans*), Stem and Canker Blight and Sycamore Anthracnose (*Gnomonia platani*) as well as Apple Black Spot/Scab (*Venturia inaequalis*)\*, Fire Blight\*, Needle Cast\*, *Pythium* spp.\* diseases and Verticillium Wilt (suppression)\*. On Black and English Walnut use Whippet Fungicide for effective control of Thousand Cankers Disease (*Geosmithia morbida*)\*

\* Not for use in California.

### TREE SPECIES\*

Use on palm plants and trees such as, but not limited to: Almond, Apple, Avocado, Beech, Cedar, Chestnut, Conifers (including Christmas trees and Forests), Crabapple, Dogwood, Elm, Fir, Hawthorne, Juniper, Linden, Macadamia Nut, Monterey Pine, Oaks (Coastal, Live, Shreve, Black Canyon), Oriental Pear, Ornamental Pear, Ornamentals, Pyracantha, Stone Fruit, Sweet Birch, Sweet Gum, Sycamore, Tan Oaks, Walnut (Black and English), White Cedar, White Pine and Willow

\*Use in California limited to oaks (Coastal, Live, Shreve, Black Canyon)

### Timing of Injections

Inject trees anytime during the growing season. Treatments are more effective when made early in the growing season. Do not inject trees in winter months.

### Dosage and Number of Injection Sites

2 ml (0.068 fl oz) per 4" of trunk circumference measured within 12" of the ground. Increase dosage to 4 ml (0.136 fl oz) per 4" of trunk circumference for trees with diameters over 12 feet.

**Note:** Because some treatments require large amounts of chemical per site, there may be occasions where it is difficult to keep all of the chemical dose in the injection site. If this is experienced, several options are possible:

1. Use the Portle or WedglePlus Injection Tips which have a check valve in the hub of each tip that keeps chemical in the tree until it is absorbed.
2. Reduce dosage volume by half and double the number of injection sites.
3. Inject half the dose at each site, mark the tree, continue treating other trees, then return to the marked tree and inject the remaining dosage in each site.

## HOW TO USE ARBORSYSTEMS DIRECT-INJECT CHEMICALS WITH ARBORSYSTEMS DIRECT-INJECT TREE INJECTION SYSTEM

1. Use only ArborSystems Direct-Inject chemicals with your unit as they have been formulated specifically for the Direct-Inject system.
2. Measure the circumference of the tree within 12" of the ground. Follow the label directions and application dosages in this booklet to determine the number of injection sites and the amount of chemical to be injected at each site.
3. Choose which style and length of ArborSystems Injection Tip is most appropriate for the type of tree you are treating.
4. The injection unit is preset to deliver a 1 ml (0.034 fl oz) dose of chemical with each full stroke of the handles. If you need to inject a 0.5 ml (0.017 fl oz) dose of chemical, move the dose adjustment ring to the 0.5 ml (0.017 fl oz) dose adjustment groove.
5. Make injections working around the base (or flare) of the tree. Make all injections within 12" of the ground unless otherwise noted.
6. With a smooth motion, firmly squeeze the injection unit handles to deliver chemical into the tree. Apply equal pressure on both handles—unequal pressure may bend or break the tip.
7. Continue making injections moving around the tree until the entire tree trunk has been treated.
8. When removing tips from the tree, use a straight rearward motion. Avoid rocking motions as that may damage tips or the injection unit.
9. Clean tips after each use by submerging in alcohol or diluted bleach.
10. At the end of the day, water flush the Direct-Inject unit to prevent clogging.

## STORAGE AND DISPOSAL

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

**Pesticide Storage:** Store in original container in a cool, dry place. Do not store near any heat source or strong oxidants.

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

**Container Handling:** Non-refillable container; do not reuse or refill this container. Completely empty pack into application equipment, then offer for recycling, if available, or dispose of empty pack in a sanitary landfill or by incineration.



# Safety Data Sheet

## 1 IDENTIFICATION

**Product Identifier:**

**Product Name:** WHIPPET® Fungicide

**EPA Reg. No.:** 69117-5

**Synonyms:** None

**Recommended Use:** Systemic fungicide in trees and palm plants.

**Use Restrictions:** It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

**Supplier Information:** ArborSystems, Inc. d/b/a ArborSystems

10168 L Street

Omaha, NE 68127 USA

Toll Free: 800.698.4641

Phone: 402.339.4459

Fax: 402.339.5011

Email: mike@arborsystems.com

Website: www.arborsystems.com

**Emergency Phone Number:** 1.800.222.1222 (Medical)

## 2 HAZARDS IDENTIFICATION

**Hazards Classification:** This mixture is not classified by the 2012 OSHA Communication Standard (29 CFR 1910.1200) and contains no substances, at their given concentration, that are considered to be hazardous to health.

**GHS Label Elements, including Precautionary Statements:**

**Hazards Statements:** Not classified.

**Appearance:** Light green

**Physical state:** Liquid

**Odor:** None

**Unknown Acute Toxicity:** 45.8% of the mixture consists of ingredient(s) of unknown toxicity. 45.8% of the mixture consists of ingredient(s) of unknown acute oral toxicity. 45.8% of the mixture consists of ingredient(s) of unknown acute dermal toxicity. 45.8% of the mixture consists of ingredient(s) of unknown acute inhalation (gas, vapor, dust/mist) toxicity.

## 3 COMPOSITION / INFORMATION ON INGREDIENTS

**Mixture:** This mixture contains no substances which, at their given concentration, are considered to be hazardous to health.

## 4 FIRST-AID MEASURES

**Inhalation:** Remove to fresh air.

**Eye Contact:** Thoroughly rinse with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.

**Skin Contact:** Wash with soap and water.

**Ingestion:** Clean mouth with water and drink plenty of water afterwards.

**Most Important Symptoms and Effects:** No information available.

**Note to Physician:** Treat symptomatically.

## 5 FIRE-FIGHTING MEASURES

**Suitable Extinguishing Media:** Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

**Unsuitable Extinguishing Media:** CAUTION: Use of water spray when fighting fire may be inefficient.

**Specific Hazards Arising from this Mixture:** No information available.

**Hazardous Combustion Products:** Carbon oxides.

**Sensitivity to Mechanical Impact:** None.

**Sensitivity to Static Discharge:** None.

**Special Protective Equipment for Firefighters:** Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

# Safety Data Sheet

## 6 ACCIDENTAL RELEASE MEASURES

**Personal Precautions:** Ensure adequate ventilation.

**Containment Methods:** Prevent further leakage or spillage if safe to do so.

**Cleanup Methods:** Dam up. Soak up with inert absorbent material. Pick up and transfer to properly labeled containers.

## 7 HANDLING AND STORAGE

**Precautions for Safe Handling:** Handle in accordance with good industrial hygiene and safety practices.

**Storage Conditions:** Keep containers tightly closed in a dry, cool and well-ventilated place.

## 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

### Control Parameters - Exposure Limits

This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

**Appropriate Engineering Controls:** Showers, eyewash stations and ventilation systems.

### Individual Protection Measures – Personal Protective Equipment:

**Eye/Face:** No special protective equipment required.

**Skin/Body:** No special protective equipment required.

**Respiratory:** No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

**General Hygiene Considerations:** Handle in accordance with good industrial hygiene and safety practices.

## 9 PHYSICAL AND CHEMICAL PROPERTIES

Auto-ignition temperature:	N/D	Partition coefficient: n-octanol/water:	N/D
Color:	Light green	pH:	5.72
Decomposition temperature:	N/D	Physical state:	Liquid
Evaporation rate:	N/D	Relative density:	11.36 pounds/gallon
Flammability (solid,gas):	N/A	Solubility(ies):	N/D
Flash point:	N/A	Upper/lower explosive limits:	N/D
Freezing point:	N/D	Upper/lower flammability limits:	N/D
Initial boiling point and range:	N/D	Vapor pressure:	N/D
Melting point:	N/A	Viscosity:	N/D
Odor:	None	N/A = Not Applicable	N/D = Not Determined

## 10 STABILITY AND REACTIVITY

**Reactivity:** No information available.

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

**Possibility of Hazardous Reactions:** None under normal processing.

**Hazardous Polymerization:** Does not occur.

**Conditions to Avoid:** None known based on information supplied.

**Incompatible Materials:** None known based on information supplied.

**Hazardous Decomposition Products:** Carbon oxides.

## 11 TOXICOLOGICAL INFORMATION

### Information on Likely Routes of Exposure – Product Information:

**Inhalation:** Specific test data for the mixture is not available.

**Eye Contact:** Specific test data for the mixture is not available.

**Skin Contact:** Specific test data for the mixture is not available.

**Ingestion:** Specific test data for the mixture is not available.

### Information on Toxicological Effects:

**Symptoms:** No information available.

### Numerical Measures of Toxicity – Acute Toxicity:

**Unknown Acute Toxicity:** 45.8% of the mixture consists of ingredient(s) of unknown toxicity. 45.8% of the mixture consists of ingredient(s) of unknown acute oral toxicity. 45.8% of the mixture consists of ingredient(s) of unknown acute dermal toxicity. 45.8% of the mixture consists of ingredient(s) of unknown acute inhalation (gas, vapor, dust/mist) toxicity.

# Safety Data Sheet

## Delayed and Immediate Effects as well as Chronic Effects from Short- and Long-term Exposure:

**Skin corrosion/irritation:** No information available.  
**Serious eye damage/eye irritation:** No information available.  
**Respiratory or Skin Sensitization:** No information available.  
**Germ cell mutagenicity:** No information available.  
**Carcinogenicity:** No information available.  
**Reproductive Toxicity:** No information available.  
**STOT-Single Exposure:** No information available.  
**STOT-Repeated Exposure:** No information available.  
**Aspiration Hazard:** No information available.

## 12 ECOLOGICAL INFORMATION (NON-MANDATORY)

**Exotoxicity:** The environmental impact of this product has not been fully investigated.  
**Persistence and Degradability:** No information available.  
**Bioaccumulation:** There is no data for this product.  
**Mobility:** No information available.  
**Other Adverse Effects:** No information available.

## 13 DISPOSAL CONSIDERATIONS (NON-MANDATORY)

**Waste Treatment Methods:**  
**Waste from Residues/Unused Products:** Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.  
**Contaminated Packaging:** Do not reuse empty containers.

## 14 TRANSPORT INFORMATION (NON-MANDATORY)

**DOT:**  
**Proper Shipping Name:** Consumer Commodity  
**Hazard Class:** ORM-D  
**Description:** Consumer Commodity, ORM-D  
  
**TGD, MEX, ICAO, IATA, IMDG/IMO, RID, ADR and ADN:** Not regulated.

## 15 REGULATORY INFORMATION (NON-MANDATORY)

**International Regulations:**  
**Ozone Depleting Substances:** Not Applicable  
**Persistent Organic Pollutants:** Not Applicable  
**Export Notification Requirements:** Not Applicable

### International Inventories:

**TSCA, DSL/NDSL, EINECS/ELINCS, ENCS, KECL, PICCS and AICS:** Contact supplier for inventory compliance status.

**TSCA:** *United States Toxic Substances Control Act Section 8(b) Inventory*; **DSL/NDSL:** *Canadian Domestic Substances List/Non-Domestic Substances List*; **EINECS/ELINCS:** *European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances*; **ENCS:** *Japan Existing and New Chemical Substances*; **KECL:** *Korean Existing and Evaluated Chemical Substances*; **PICCS:** *Philippines Inventory of Chemicals and Chemical Substances*; and **AICS:** *Australian Inventory of Chemical Substances*.

### U.S. Federal Regulations:

**SARA 313:** Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 ("SARA"). This product does not contain any chemicals that are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

### SARA 313.312 Hazard Categories:

**Acute Health Hazard:** No  
**Chronic Health Hazard:** No  
**Fire Hazard:** No  
**Sudden Release of Pressure Hazard:** No  
**Reactive Hazard:** No

**CWA (Clean Water Act):** This product does not contain any substances regulated as pollutants pursuant to the CWA (40 CFR §§ 122.21 and 122.42).

# Safety Data Sheet

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**CERCLA (Comprehensive Environmental Response Compensation and Liability Act):** This material, as supplied, does not contain any substances regulated as hazardous substances under CERCLA (40 CFR Part 302) of the Superfund Amendments and Reauthorization Act (SARA) (40 CFR Part 355). There may be specific reporting requirements at the local, regional or state level pertaining to releases of this material.

**FIFRA Information:** This chemical is a pesticide product registered by the United States Environmental Protection Agency and is subject to certain labeling requirements under Federal pesticide law. These requirements differ from the classification criteria and hazard information required for Safety Data Sheets (“SDSs”) and for workplace labels of non-pesticide chemicals. The hazard information required on the pesticide label is reproduced below. The pesticide label also includes other important information, including Directions for Use.

## Precautionary Statements

### Hazards to Humans & Domestic Animals

**CAUTION:** Harmful if swallowed, inhaled or absorbed through skin or inhaled. Causes moderate eye irritation. Avoid contact with skin, eyes or clothing. Thoroughly wash with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet. Remove and wash contaminated clothing before reuse.

### Personal Protective Equipment

Wear protective eyewear and rubber or neoprene gloves when handling ArborSystems Direct-Inject chemicals.

### Environmental Hazards

Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters or rinsate.

### U.S. State Regulations:

**California Proposition 65:** This product does not contain any Proposition 65 chemicals.

### U.S. State Right-to-Know Regulations

This product does not contain any substances above threshold limits that are regulated by state right-to-know regulations.

## 16 OTHER INFORMATION

### NFPA:

Health Hazards: 0

Flammability: 0

Instability: 0

Physical and Chemical Hazards-Personal Protection: X

### HMIS:

Health Hazards: 0

Flammability: 0

Physical Hazard: 0

Physical and Chemical Hazards-Personal Protection: X

### SDS Information:

Date Prepared: 08/23/2022

Version: 3

Whippet® is a registered trademark of ArborSystems

# Safety Data Sheet

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## DISCLAIMER

This Safety Data Sheet ("SDS") serves different purposes than, and DOES NOT REPLACE OR MODIFY, THE EPA-APPROVED PRODUCT LABELING (attached to and accompanying the product container). This SDS provides important health, safety and environmental information for employers, employees, emergency responders and others handling large quantities of the product in activities generally other than product use, while the labeling provides that information specifically for product use in the ordinary course. Use, storage and disposal of pesticide products are regulated by the EPA under the authority of FIFRA (Federal Insecticide, Fungicide and Rodenticide Act, as Amended) through the product labeling. All necessary and appropriate precautionary, use, storage and disposal information is set forth on that labeling. It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

Although the information and recommendations set for herein (hereinafter "information") are presented in good faith and believed to be correct as of the date hereof, ArborSystems makes no representations as to the completeness or accuracy thereof. Information is supplied upon the condition that the persons receiving same will make their own determination as to its suitability for the purposes prior to use. To the extent consistent with applicable law, in no event will ArborSystems be responsible for damages of any nature whatsoever resulting from the use of or reliance upon information. NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OF ANY OTHER NATURE ARE MADE HEREUNDER WITH RESPECT TO INFORMATION OR TO THE PRODUCT TO WHICH INFORMATION REFERS.



# SAFETY DATA SHEET

## DREXEL DAMOIL™ DORMANT & SUMMER SPRAY OIL

### Section 1: Material Identification

**Product Name:** Drexel Damoil™ Dormant & Summer Spray Oil

**EPA Reg No.:** 19713-123

**CAS NO:** 8042-47-5

**Formula:** Mineral Oil

**Company:** Drexel Chemical Company  
1700 Channel Avenue  
Memphis, TN 38106

**Synonyms:** Paraffin Oil

**Identifiers:**

**EINECS:** 232-455-8

**RTECS:** PY8047000

**DOT label:** Non-regulated

**Emergency Telephone Number:**

CHEMTREC                      Drexel Chemical Co.  
Tel: 1-800-424-9300        901-774-4370

This product is an EPA FIFRA registered pesticide. Some of the classifications on this SDS are not the same as the FIFRA label. Certain sections of this SDS are superseded by federal law governed by EPA for a registered pesticide. Please see **Section 15: REGULATORY INFORMATION** for explanation.

### Section 2: Hazard Identification (As defined by the OSHA Hazard Communication Standard, 29)

**GHS classification:** Acute Inhalation                      Category 4  
Skin Irritation    Category 2  
Eye Irritation    Category 2B

**GHS label elements:**  
**Signal Word:** Warning



**Hazard Statements:** Harmful if inhaled  
Causes skin irritation  
Causes eye irritation

**Precautionary Statements:**

**Prevention:** Avoid breathing vapors or mist. Use only outdoors or in a well-ventilated area. Wash exposed skin thoroughly after handling. Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Neoprene, Nitrile/butadiene rubber (“nitrile” or “NBR”) or Polyvinyl chloride (“PVC” or “vinyl”).

**Response:** **If inhaled:** Remove person to fresh air and keep comfortable for breathing. Call Poison Control Center or Doctor if you feel unwell.  
**If on skin:** Wash with plenty of water while removing contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Destroy contaminated leather items such as shoes, belts, and watchbands.  
**If in eyes:** Hold eye open and rinse slowly and gently with water for 15 to 20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eyes for at least 10 minutes. If eye irritation persists: get medical attention, preferably from an ophthalmologist.

**Storage:** Store in a cool, dry, well ventilated, and secure area designated specifically for pesticides and away from heat sources. Keep in original containers and keep containers closed when not in use. Do not store in excessive heat. Do not store near children, food, foodstuffs, drugs or potable water supplies.

**Disposal:** Dispose of contents/container in accordance with your local or area regulatory authorities.

**Section 3: Composition Information**

<u>Components</u>	<u>CAS No.</u>	<u>% By Wt.</u>	<u>OSHA PEL</u>	<u>ACGIH TLV</u>
Active Ingredient: Mineral Oil	8042-47-5	98.0%	N/Av	5 mg/m <sup>3</sup>
Inert Ingredients:	Proprietary	2.0%	N/A	N/A

**Section 4: First-Aid Measures**

**Eye Contact:** Hold eye open and rinse slowly and gently with water for 15 to 20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eyes for at least 10 minutes. Obtain medical attention without delay, preferably from an ophthalmologist.

**If Swallowed:** Call a poison control center or doctor immediately for treatment advice. Wash out mouth with water. 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. Have product label with you when calling a poison control center or doctor.

**Skin Contact:** Immediately flush skin with plenty of water for 15 minutes while removing contaminated clothing and shoes. Wash skin with soap and water. Get medical attention if symptoms occur. Wash clothing before reuse. Destroy contaminated leather items such as shoes, belts, and watchbands.

**If Inhaled:** Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible. Loosen tight clothing such as collar, tie, belt or waistband. Call a poison control center or doctor for further treatment advice.

**Note to Physician:** No specific treatment. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

## Section 5: Fire Fighting Measures

**Fire Hazards:** Low fire hazard. This material must be heated before ignition will occur. May be combustible at high temperature.

**Flammability classification (OSHA 29 CFR 1910.1200):** Non-Combustible

**Flash point:** >350°F

**Lower flammable limit (% by volume):** N/Av

**Upper flammable limit (% by volume):** N/Av

**Fire Fighting Procedures:** Keep people away. Isolate fire and deny unnecessary entry. Evacuate the area and fight the fire from upwind at a safe distance to avoid hazardous vapors or decomposition products. Dike and collect fire-extinguishing water to prevent environmental damage and excessive waste runoff.

**Firefighting media:** Use foam, carbon dioxide, or water fog when fighting fires involving this product. Do not use water jet, as this may spread burning material. Minimize the use of water to avoid environmental contamination. Contain all runoff.

### **Special Protective Equipment for Firefighters:**

Wear positive-pressure self-contained breathing apparatus (SCBA) and protective firefighting clothing (includes firefighting helmet, coat, trousers, boots, and gloves). Use full face shield and operate in positive pressure mode.

**Hazardous Combustion Products:** Carbon oxides (CO, CO<sub>2</sub>), smoke and irritating vapors as products of incomplete combustion.

**(NFPA): Health: Flammability: Reactivity:**

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## Section 6: Accidental Release Measures

### **Steps to be taken if Material is Released or Spilled:**

- Contain spilled material if possible. Small spills: Sweep up. Collect in suitable and properly labeled containers. Large spills: Contact Drexel Chemical Co. for clean-up assistance. See Section 13, Disposal Considerations, for additional information.

### **Personal Precautions:**

- Isolate area. Keep unnecessary and unprotected personnel from entering the area. Refer to Section 7, Handling, for additional precautionary measures. Spilled material may cause a slipping hazard. Ventilate area of leak or spill. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

**Environmental Precautions:** Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

## Section 7: Handling and Storage

### **KEEP OUT OF REACH OF CHILDREN**

**Handling:** **General Handling:** Avoid contact with eyes, skin, and clothing. Wash thoroughly after handling. Do not swallow. Avoid breathing vapor. Use with adequate ventilation. Wear chemical protective equipment when handling. Keep away from heat, sparks and flame. See Section 8, Exposure Controls and Personal Protection.

**Storage:** Store in a cool, dry area designated specifically for pesticides and away from heat sources. Keep in original containers and keep containers closed when not in use. Do not store in excessive heat. Do not store near children, food, foodstuffs, drugs or potable water supplies.

## Section 8: Exposure Controls / Personal Protection

**Exposure Limits:** TLV Mineral Oil 5 mg/m<sup>3</sup>

### Personal Protection:

**Eye/Face Protection:** Wear safety glasses with side shields or chemical splash goggles to prevent vapors or mists from entering the eyes. If using a full face shield, always use safety glasses or goggles along with the face shield to ensure adequate protection of the eyes.

**Skin Protection:** Wear coveralls, long-sleeved shirt and rubber boots. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task. Safety shower should be located in immediate work area. Remove contaminated clothing immediately, wash skin area with soap and water, and launder clothing before reuse or dispose of properly. Items which cannot be decontaminated, such as shoes, belts and watchbands, should be removed and disposed of properly.

**Hand protection:** Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Neoprene, Nitrile/butadiene rubber ("nitrile" or "NBR") or Polyvinyl chloride ("PVC" or "vinyl").

**Respiratory Protection:** Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. When handling in enclosed areas, when large quantities of mists are generated or prolonged exposure is possible in excess of the TLV, use a respirator with either an organic vapor-removing cartridge with a prefilter approved for pesticides (MSHA/NIOSH approval number prefix TC-23C) or a canister approved for pesticides (MSHA/NIOSH approval number prefix TC-14G).

**Ingestion:** Avoid ingestion of even very small amounts; do not consume or store food or tobacco in the work area; wash hands and face before smoking or eating.

### Engineering Controls:

**Ventilation:** When handling this product proper ventilation is required to maintain exposure below the TLV. Ventilate all transport vehicles prior to unloading. Facilities storing or utilizing this material should be equipped with and eyewash facility and safety shower.

## Section 9: Physical and Chemical Properties

<b>Physical State:</b>	Liquid
<b>Color:</b>	Colorless
<b>Odor:</b>	Slight petroleum
<b>Flash Point:</b>	> 350°F
<b>Vapor Pressure (mmHg):</b>	N/Av
<b>Boiling Point:</b>	N/A
<b>Vapor Density (air = 1):</b>	N/Av
<b>Bulk Density (H<sub>2</sub>O = 1):</b>	0.86 g/cc
<b>Freezing Point:</b>	N/Av
<b>Solubility in water (wt. % weight):</b>	Emulsifies

**pH:** 4 - 7 (5% dilution)  
**Viscosity:** N/Av

## Section 10: Stability and Reactivity

**Stability/Instability:** Thermally stable at typical use temperatures and in closed containers.

**Conditions to Avoid:** Avoid heat of open flame. Avoid high temperatures above 130°F (54.4°C). Avoid oxidizing agents.

**Hazardous Polymerization:** Will not occur under normal conditions of storage and use.

**Thermal Decomposition:** May release CO<sub>x</sub>, smoke and irritating vapors when heated to decomposition.

## Section 11: Toxicological Information

### Acute Toxicity:

#### Ingestion

- Oral LD50, (rat): >2,000 mg/kg

#### Dermal

- Dermal LD50, (rabbit): >2,000 mg/kg

#### Inhalation

- Inhalation LC50, (rat): >3.02 mg/l

#### Eye Irritation (rabbit):

- Mildly irritating.

#### Skin Irritation (rabbit):

- Mildly irritating.

#### Sensitization Skin (guinea pig):

- Non-sensitizer.

#### Chronic Toxicity:

- No known significant effects.

#### Carcinogenicity

- Not likely to cause carcinogenicity in humans.

**Teratogenicity, mutagenicity, and other reproductive effects:** None known

## Section 12: Ecological Information

### ENVIRONMENTAL EFFECTS:

- No known significant effects or critical hazards.

**Persistence and Degradability:**

- N/Av

**Aquatic Toxicity:**

- N/Av

**Bird Toxicity:**

- N/Av

## Section 13: Disposal Considerations

If wastes and/or containers cannot be disposed of according to the product label directions, disposal of this material must be in accordance with your local or area regulatory authorities. This information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. If the material as supplied becomes a waste, follow all applicable regional, national and local laws.

## Section 14: Transport Information

**DOT:** Not Regulated

**NAFTA:** Not regulated

**IMDG:** Consult appropriate IMDG regulations for shipment requirements in the Maritime shipping modes.

**ICAO/IATA:** Consult appropriate ICAO/IATA regulations for shipment requirements in the Air modes.

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

## Section 15: Regulatory Information

**OSHA Hazard Communication Standard:**

- **This product is hazardous as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.**
- **EPA FIFRA INFORMATION** This chemical is a pesticide product registered by the United States Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets (SDS), and for workplace labels of non-pesticide chemical. The hazard information required on the pesticide label is listed out below. The pesticide label also includes other important information, including directions for use.
- **EPA/CERCLA Reportable Quantity:** None Known

**SARA/TITLE III:**

- **Sec 302:** Extremely Hazardous Substance Notification: This material is not known to contain any Extremely Hazardous Substances.
- **Sec. 311/312. Hazard Categories:** None
- **Section 313 Toxic Chemical(s):** This material is not known to contain any Toxic Chemical constituents.
- **RCRA Waste Code:** Not applicable

**California Proposition 65 (Safe Drinking Water and Toxic Enforcement Act of 1986):**

This product is not listed.

**Toxic Substances Control Act (TSCA):**

All components of this product are on the TSCA Inventory or are exempt from TSCA Inventory requirements under 40 CFR 720.30

## Section 16: Other Information

*Drexel Chemical Company recommends that each customer or recipient of this SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown below. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific SDSs, we are not and cannot be responsible for SDSs obtained from any source other than ourselves. If you have obtained an SDS from another source or if you are not sure that the SDS you have is current, please contact us for the most current version.*

Date Revised: September 11, 2015

Supersedes: May 4, 2015



Drexel®

# Damoil™

## Dormant & Summer Spray Oil

### ACTIVE INGREDIENT:

Mineral oil\* ..... 98.0%  
**OTHER INGREDIENTS:** ..... 2.0%  
**TOTAL:** ..... 100.0%

\*Petroleum oil Min. Unsulfonated Residue – 95%; Petroleum oil Classification – Unclassified.

Contains petroleum distillates.

**KEEP OUT OF REACH OF CHILDREN**  
**CAUTION**

See **FIRST AID** Below

EPA Reg. No. 19713-123

EPA Est. No. 19713-XX-XXX

Net Content:

2.5 Gals. (9.46 L)

### FIRST AID

#### IF ON SKIN OR CLOTHING:

- Take off contaminated clothing.
- Rinse skin immediately with plenty of water for 15 to 20 minutes.
- Call a poison control center or doctor for treatment advice.

#### IF SWALLOWED:

- Call a poison control center or doctor immediately for treatment advice.
- Do not give any liquid to the person.
- Do not induce vomiting unless told to do so by a poison control center or doctor.
- Do not give anything by mouth to an unconscious or convulsing person.

#### IF IN EYES:

- Hold eye open and rinse slowly and gently with water for 15 to 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 INHALED:

- Move person to fresh air.
- If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible.
- Call a poison control center or doctor for further treatment advice.

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also call CHEMTREC at 800-424-9300 for emergency.

**Note to Physician:** Contains petroleum distillates and may pose an aspiration pneumonia hazard.

### PRECAUTIONARY STATEMENTS

#### Hazards to Humans and Domestic Animals

**CAUTION:** Harmful if absorbed through skin. Avoid contact with eyes, skin or clothing. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals.

(Continued)

### PRECAUTIONARY STATEMENTS (Cont.)

#### PERSONAL PROTECTIVE EQUIPMENT (PPE)

**Mixers, loaders, applicators, flaggers and other handlers must wear:** Long-sleeved shirt and long pants, chemical-resistant gloves made of barrier laminate or viton  $\geq$  14 mils, and shoes plus socks. See "ENGINEERING CONTROLS" for additional requirements. Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry. Discard clothing and other absorbent materials that have been drenched or heavily damaged by this product's concentrate. Do not reuse them.

#### ENGINEERING CONTROLS

Pilots must use an enclosed cockpit that meets the requirements listed in the WPS for Agricultural Pesticides [40 CFR 170.240(d)(6)].

### USER SAFETY RECOMMENDATIONS

**Users should:** 1) Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet. 2) Remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing. 3) Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

### ENVIRONMENTAL HAZARDS

Toxic to fish. For terrestrial uses, do not apply directly to water or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not apply when weather conditions favor drift from areas treated. Do not contaminate water when disposing of equipment washwater or rinsate. Drift and runoff may be hazardous to aquatic organisms in water adjacent to treated areas.

### PHYSICAL OR CHEMICAL HAZARDS

Do not use, pour, spill or store near heat or open flame.

### DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. Do not apply this product through any type of irrigation system. Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

Manufactured By:

**Drexel Chemical Company**

P.O. Box 13327, Memphis, TN 38113-0327

**SINCE 1972**

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## AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard (WPS), 40 CFR Part 170. This standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, greenhouses and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about Personal Protective Equipment (PPE) and Restricted Entry Interval (REI). The requirements in this box only apply to uses of this product that are covered by the WPS.

Do not enter or allow worker entry into treated areas during the REI of 4 hours.

PPE required for early entry to treated areas that is permitted under the WPS and that involves contact with anything that has been treated, such as plants, soil or water is: Coveralls, chemical-resistant gloves made of any waterproof material, and shoes plus socks.

## NON-AGRICULTURAL USE REQUIREMENTS

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for Agricultural Pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses.

Do not enter or allow others to enter until sprays have dried.

DAMOIL is a refined phytonomic oil contact insecticide. It is for use on plants in foliage or the dormant stage.

## MIXING INSTRUCTIONS

1) Add enough water to mix tank to begin agitation. 2) Add micronutrients and other pesticides that are to be part of the mix. If dry pesticide products are used, pre-mix the materials with water thoroughly and add to mix tank. DO NOT add this product before uniform mixture of pesticide and water is obtained. 3) Maintain agitation until the spray is applied. Flush any spray mixture remaining in the hoses back into the tank if the solution stands for more than 20 minutes.

## TANK-MIXING:

Tank-mix only with products registered for use on the specific crop to be treated. When using this product in combination with other pesticides as directed on this label, observe the most restrictive rates, tank-mixing prohibitions, precautionary statements and limitations listed on the product labels involved.

Before tank-mixing with other labeled products, check for tank-mix compatibility. A jar test prior to tank-mixing this product with other pesticides or liquid fertilizer will ensure compatibility. Use a clear glass quart jar with lid and mix the tank-mix ingredients in their relative proportions. Invert the jar containing the mixture several times and observe the mixture for approximately one-half hour. If components of the mixture separate readily, a compatibility agent will be helpful in maintaining the stability of the spray mixture. If the mixture balls up, forms flakes, sludges, gels, oily films or layers, or other precipitates, the components of the mixture are not compatible.

## METHODS OF APPLICATION

This product may be applied using conventional hydraulic sprayers, concentrate application equipment, ground applicators or aircraft. **Do not apply this product or mixes made from it via chemigation.**

**Ground Application:** When applying by ground spray equipment as dilute or concentrate spray, apply the labeled amount of this product in sufficient water for thorough coverage. Reduce spray volume proportionally for smaller and immature plants. If applied as a concentrate spray, the application rate must equal the amount of this product per acre on a per 100 gallon basis except where actual rates are specified. For example, if the dilute application indicates 1 gallon of this product per 100 gallons of water and it requires 500 gallons of spray for thorough coverage, the concentrate spray would require 5 gallons of this product per acre.

**Aerial Application:** Apply the quantity of product indicated in sufficient water to make a minimum of 20 gallons of spray per acre except where indicated otherwise. Use aerial application only if growing and/or soil conditions indicate a ground application to be unfeasible.

## SPRAY DRIFT MANAGEMENT

A variety of factors including weather conditions (e.g., wind direction, wind speed, temperature, and relative humidity) and method of application (e.g. ground, aerial or airblast) can influence pesticide drift. The applicator and grower must evaluate all factors and make appropriate adjustments when applying this product.

## Wind Speed

Do not apply at wind speeds greater than 15 mph at the application site.

## Temperature Inversions

If applying at wind speeds less than 3 mph, the applicator must determine if (a) conditions of temperature inversion exist, or (b) stable atmosphere conditions exist at or below nozzle height. Do not make applications into areas of temperature inversions or stable atmospheric conditions.

## Droplet Size

Apply as a medium or coarser spray (ASABE standard 572), and the minimum volume mean diameter (VMD) for spinning atomizer nozzles.

## Airblast Applications

For airblast applications, turn off outward-pointing nozzles at row ends and when spraying outer row. To minimize spray loss over the top in orchard applications, spray must be directed into the canopy.

## Ground Spraying Applications

**Release Height:** For applications using ground-spraying equipment, apply using a nozzle height of no more than 4 feet above the ground or crop canopy.

## Aerial Applications

**Release Height:** For aerial applications of agricultural products, do not release spray at a height greater than 10 feet above the ground, top of crops or above the orchard canopy.

**Boom Length:** The boom length must not exceed 75% of the wingspan or 90% of the rotor blade diameter.

**Swath Adjustment:** When applications are made with a crosswind, the swath will be displaced downwind. The applicator must compensate for this displacement at the downwind edge of the application area by adjusting the path of the aircraft upwind. Leave at least one swath width unsprayed at the downwind edge of the treated field.

## INSTRUCTIONS AND PRECAUTIONS

DO NOT USE THIS PRODUCT in combination with or immediately preceding or following applications of Captan, Carbaryl, Folpet, Propargite and Sulfur Compounds.

For foliage application, the spray tank must be free of any Sulfur residue before using this product. Do not combine Sulfur sprays with this product on foliage and do not follow a previous application of Sulfur or apply Sulfur following this product until sufficient time has elapsed for safety (at least 30 days) except in the Northwest (OR and WA). In OR and WA, it may be used in combination on Pears as a Post-harvest (after all fruit is off the tree), Dormant and Delayed-Dormant (before scales slip, or at or prior to bud swell) treatment.

Use precaution when applying this product at temperatures above 90°F. Treat a small area and observe it for signs of damage to plants (phytotoxicity). Allow enough time for symptoms to appear before continuing to spray.

Do not use this product when temperatures are above 95°F. When temperatures drop below 32°F (usually nighttime lows), do not spray trees and vine crops until daytime temperatures have warmed to a point above 32°F and are free from moisture due to melting frost or heavy dews. Application to trees weakened by disease, drought, drying winds or high nitrogen applications may result in oil injury.

## USE INSTRUCTIONS

**Dilute this product with water before use.**

**Amounts given are for 100 gallons of diluted spray solution unless otherwise specified.**

**ACEROLA (Barbados Cherry)\*, ATEMOYA\*, CARAMBOLA (Star Fruit)\*, RAMBUTAN\*:** Aphids, Beetle larvae, Caterpillars, Leafhoppers, Leafminers, Mites, Thrips, Whiteflies; Alternaria leafspot, Gummy stem blight, Powdery mildew, Rusts — **Dilute Spray:** Use 0.75 to 1.5 gallons of this product per 100 gallons of water at 200 to 500 gallons of water per acre. **Concentrate Spray:** Use 3 to 6 gallons of this product per acre in a minimum of 20 gallons of water per acre.

Cucumber mosaic virus, Papaya ringspot virus, Pepper mottle virus, Potato leafroll virus, Potato virus Y, Tobacco etch virus, Watermelon mosaic virus 2, Zucchini yellow mosaic virus — **Dilute Spray:** Use 0.75 to 1.5 gallons of this product per 100 gallons of water at 200 to 500 gallons of water per acre. **Concentrate Spray:** Use 3 to 6 gallons of this product per acre in a minimum of 20 gallons of water per acre. Spray once or twice weekly depending on the growth of crop and/or vector pressure. When using to control insect transmitted diseases, use higher pressure (minimum 100 psi) and ceramic hollow cone nozzles.

\*Except California

**ALFALFA Seed Crop Only:** Use 0.25 gallon (1 qt.) of this product per acre in a minimum of 20 gallons of water per acre by ground application or minimum of 10 gallons per acre by air when used in combination and at the specified label rates with Malathion 5EC (an emulsifiable concentrate containing 5 pounds of malathion per gallon) or other insecticides or miticides that permit tank-mixture with oil for control of the pests listed on the label. To increase the effectiveness of desiccants, apply 2 gallons of this product per acre in a minimum of 10 gallons of spray by air. Use is limited to those herbicides/desiccants labeled for Alfalfa Seed desiccation.

Spider mites: Use 0.25 gallon (1 qt.) of this product per acre at the dilutions noted above.

**ALMONDS, APRICOTS, CHERRIES, NECTARINES, PEACHES, PLUMS, PRUNES Dormant or Delayed-Dormant:** Aphids (eggs), Black scales, Brown apricot scales, Brown mites, European fruit lecaniums, Frosted scales, Italian pear scales, Oleander scales, Olive scales, Parlatoria scales, Putnam scales, Red spider mites, San Jose scales, Soft brown scales — Apply 1.5 to 2 gallons of this product in 300 to 600 gallons of water per acre or 4 to 6 gallons per acre in a minimum of 20 gallons of spray as a concentrate spray.

**Summer Use:** Red spider mites — Apply 3 to 4 quarts of this product in 300 to 600 gallons of water per acre as a dilute spray. Summer stages of Brown apricot scales, San Jose scales — Apply 1 gallon of this product in 300 to 600 gallons of water per acre as a dilute spray.

**Almonds and Apricots Dormant or Delayed-Dormant:** European red mite — Apply 4 to 8 gallons of this product in a minimum of 20 gallons of spray per acre. **Spring or Summer Use:** Brown mite, European red mite, Pacific mite, Two-spotted mites — Apply 1 to 2 gallons of this product in 300 to 600 gallons of water per acre as dilute spray. Apply 4 to 6 gallons of this product per acre in a minimum of 20 gallons of water as concentrate spray. If applied by air, apply at least 4 but no more than 6 gallons of this product per acre in a minimum of 20 gallons of spray.

**Plums and Prunes Dormant or Delayed-Dormant:** Peach twig borer — Apply 1.5 to 2 gallons of this product per acre in 100 gallons of water. As concentrate spray, apply 6 to 8 gallons of this product per acre in minimum of 20 gallons of water. If applied by air, use 6 to 8 gallons of this product per acre in a minimum of 20 gallons of water.

**Use Restrictions on Cherries Only:** Do not apply more than 2 gallons per 100 gallons of spray mixture or 2% by volume. DO NOT apply this product in conjunction with azinphos-methyl based insecticides.

**APPLES Dormant or Delayed-Dormant:** Aphid eggs, Pear scales, Red spider mites, Rust mites, San Jose scale — Apply 1 to 2 gallons of this product per acre in 50 to 200 gallons of water as dilute spray. **Dormant (ID, OR, WA):** Mites, San Jose scales — Apply 1 to 1.5 gallons of this product per acre as dilute spray with Sulfur or Lime sulfur at the label specified rate. As concentrate spray, apply 4 to 6 gallons of this product with Sulfur or Lime sulfur at the label specified rate to total 20 to 100 gallons of spray per acre. **Summer Use:** European red mites, Pacific mites, Two-spotted spider mites — Apply 1 to 1.5 gallons of this product per acre in 400 to 800 gallons of water. For concentrate spray, use no more than 4 gallons of this product per acre in minimum 20 gallons of spray.

By air, use at least 4 but no more than 6 gallons of this product in minimum 20 gallons of spray per acre.

**Use Precaution:** Oil plus Sulfur or Lime sulfur can cause severe foliage and fruit bud injury if applied after the dormant period.

**AVOCADOS:** Bugs, Leafhoppers, Mites, Scales, and Thrips — Apply 1 to 4 gallons of this product per 100 gallons of water in a dilute spray of 400 to 3000 gallons per acre. Do not apply more than 30 gallons of this product per acre per application. For concentrate spray, apply 1 to 18 gallons of this product per acre in 50 to 100 gallons of spray mixture or in enough water for adequate coverage. For aerial application, apply 1 to 18 gallons of this product per acre in 20 to 100 gallons of spray. When application of this product is more than 2% v/v concentration, treat a small area and observe. Allow enough time for symptoms to appear before continuing to spray.

**BANANAS, PLANTAINS:** Black leaf streak, Sigatoka (Black, Yellow); This product will also loosen Sooty mold fungus and limit its formation by controlling Aphids, Mealybugs, Scale insects, and Whiteflies — Apply 0.5 to 1.5 gallons of this product in 20 to 100 gallons of water per acre. For application by Mist blower, use 1.5 gallons of this product in 6 gallons of water per acre. Begin application when disease or insect pest first appears and continue every 10 to 15 days during the rainy period or as needed. DO NOT apply when daytime temperatures exceed 80°F (26.6°C) as injury may occur.

Phytotoxicity may be affected by the quantity of oil used, vigor of trees, and temperatures at time of application. Bag fruits or use a directed spray on unbagged fruits to improve crop safety.

**BLUEBERRIES, BUSHBERRIES, CANEBERRIES:** Aphids, Mealybugs, Mites, Sawfly eggs, Scales, Whiteflies; Powdery mildew, Rust — Apply 0.75 to 1.5 gallons of this product in 100 gallons of water per acre with ground equipment for optimum spray coverage of leaf surfaces. For fungal diseases, use at least 200 psi spray pressure.

**BEETS:** Aphids, Armyworms, Beetle larvae, Caterpillars, Leafminers, Mites, and Whiteflies; Cercospora leafspots — Apply 1 to 2 gallons of this product in 100 gallons of water per acre.

**CITRUS (Citrus spp., Fortunella spp.)**

**Citron, Grapefruit, Mandarins, Oranges (Navel, Valencia), and Other Citrus spp.:** Mealybugs\*, Mites, Scales (Black, Brown, Brown soft, California Red, Chaff, Citricola, Glover, Purple, Red, Snow, Yellow), Spider mites (Pacific, Red, Two-spotted), Whiteflies; Sooty mold — Apply 1.2 to 1.4 gallons of this product in late Summer through October. In Southern California (including all coastal counties), apply 0.5 to 1.4 gallons per acre throughout the year. Apply in enough water for thorough coverage. As concentrate spray, apply in a minimum of 20 gallons of spray per acre.

**Use Precaution:** On Navel oranges, do not apply during or after color break.

**Use Restrictions:** Do not exceed a maximum of 212 pounds of active ingredient (29.5 gallons of this product) in a maximum volume of 2000 gallons of spray mix per acre when treating Citrus in California. Do not exceed a maximum of 159 pounds of active ingredient (22.1 gallons of this product) in a maximum volume of 1500 gallons of spray mix per acre when treating Citrus in Florida or Texas.

\*Except California

**Lemons, Limes:** Mealybugs\*, Mites (Bud, Flat, Red spider, Rust), Scales (Black, Brown, Brown soft, California Red, Chaff, Citricola, Glover, Purple, Red, Snow, Yellow), Whiteflies; Sooty mold — Apply 1.2 to 1.4 gallons of this product per acre in late Spring and late Summer through December. In Southern California, apply 0.5 to 1.4 gallons of this product per acre throughout the year. Apply in enough water for thorough coverage. As concentrate spray, apply this product in a minimum of 20 gallons of spray per acre.

**Use Restrictions:** Do not exceed a maximum of 212 pounds of active ingredient (29.5 gallons of this product) in a maximum volume of 2000 gallons of spray mix per acre when treating Citrus in California. Do not exceed a maximum of 159 pounds of active ingredient (22.1 gallons of this product) in a maximum volume of 1500 gallons of spray mix per acre when treating Citrus in Florida or Texas.

\*Except California

**All Citrus Varieties:** Use this product as an adjuvant with a suitable insecticide or miticide. Do not exceed 0.4% v/v concentration. Do not use this product when freezing temperatures are expected within 24 hours of application. Precautions should be taken when combining this product with certain insecticides and miticides due to possible increased phytotoxicity when applied over the foliage. Consult an Agricultural Extension Service agent for recommendations on special combinations.

**COCOA:** Bugs, Leafhoppers, Leafroller, Scales, Thrips; Sigatoka — Apply 1 to 2 gallons of this product in 100 gallons of water per acre. Use as needed.

**COFFEE:** Coffee borer, Green scale — Apply 3 to 6 gallons of this product in 100 gallons of water per acre. Use water only as a diluent.

**Use Restriction:** Do not apply more than 6 gallons of this product per acre per application.

**CORN:** Aphids, Beetle larvae, Caterpillars, Leafminers, Mites, and Whiteflies — Apply 1 to 2 gallons of this product in 100 gallons of water per acre.

On Corn, this product may also be used in combination with atrazine by ground application at the rate of 1 gallon in 20 to 40 gallons of water per acre or by air at the rate of 0.5 gallon in minimum 5 gallons of water per acre. Follow the use precautions, limitations, and directions for use given on the atrazine product label.

**COTTON:** Corn rootworm, Earworm, Fall armyworm, Leafhopper, Leafminer, Mites, Whiteflies; Cercospora — Apply 3 to 6 quarts of this product in 100 gallons of water per acre. Using ground equipment, spray for optimum coverage of leaf surfaces. For fungal diseases, use at least 200 psi spray pressure.

**FIGS Dormant or Delayed-Dormant:** Aphids, Fig scales, Mealybugs, Mites, Scales — Use 2 to 3 gallons of this product per 100 gallons of water. Apply 300 to 600 gallons of spray mix per acre.

Use 3 gallons of this product per 100 gallons of water for severe infestation. Apply 4 to 6 gallons of this product in a minimum of 50 gallons of spray as a concentrate spray per acre.

**GRAPES Dormant:** Mealybugs — Apply 4 to 6 gallons of this product in 200 to 300 gallons of spray solution per acre. If applied in tank-mixture with another insecticide, use 1 to 2 gallons of this product in 200 to 300 gallons of water per acre to control Mealybugs. As a concentrate spray, apply 1 to 2 gallons of this product per acre with an appropriate insecticide in enough water for thorough coverage.

**Dormant and Summer Use:** Leafhoppers, Leafminers, Mites, Scales, Whiteflies; Botrytis, Powdery mildew - Apply as dilute spray using 0.75 gallons of this product in 100 gallons of water at 100 to 500 gallons of water per acre. As concentrate spray, use 1 to 3 gallons of this product per acre in minimum 50 gallons of water per acre. Use as needed. **Use Precautions:** This product can temporarily affect surface bloom appearance, but will not cause subsurface injury. DO NOT apply this product within 2 days of harvest of Grapes intended for fresh market for suppression of Leafhopper or Mites.

**GRASSES GROWN FOR SEED (BLUEGRASS, FESCUES, ORCHARDGRASS, PERENNIAL RYEGRASS):** Mites; Powdery mildew, Rust — Apply 1 to 2 gallons per acre in a minimum of 10 gallons of water per spray. Initiate sprays in late Spring or early Fall when Powdery mildew and Rust pustules are noticeable. Continue sprays every 14 to 21 days.

**GREENHOUSES, CONTAINERS, AND INTERIORSCAPES** Use once a week initially. As the pest is controlled, decrease the frequency to every 2 to 3 weeks as needed.

Some plants are more sensitive to oil treatment if any of the following conditions are present at the time of application: High humidity (74%), an overcast or cloudy day, inadequate air flow, a small greenhouse where the sunlight is magnified causing a fast build up of temperature and light intensity.

**Ageratum crown of thorns, Dieffenbachia, Ferns, Ficus, Lisianthus, Orchids, Palms, Petunia, Poinsettia, Schefflera, Sunflower Summer (Foliar or Cover):** Aphids, Fungus gnats, Leafminers, Mealybugs, Scales (hard, soft), Spider mites, Thrips, Whiteflies — Apply 0.5 to 1 gallon of this product in 100 to 200 gallons of water per acre. Due to varietal differences in response to a treatment of this product at the labeled rate, conduct a small test on 1 or 2 plants of the specific variety to be treated.

**Aglaonema, Aster, Azaleas, Begonias, Browallia, Camellias, Carnations, Celosia, Chrysanthemum, Coleus, Cosmos, Crepe myrtle, Dusty miller, Easter lily, Fuchsia, Gardenias, Gerbera, Gladiola, Helichrysum, Hibiscus foliage, Hydrangea, Impatiens, Iris, Jade plant, Lillies, Marigold, Mums, New Guinea impatiens, Nicotonia, Philodendron, Portulaca, Reiger begonias, Rhododendron, Roses, Snapdragon, Vines, Zinnias Summer (Foliar or Cover):** Aphids, Fungus gnats, Leafminers, Mealybugs, Scales (hard, soft), Spider mites, Thrips, Whiteflies; Powdery mildew, Rusts — Apply 1 to 2 gallons of this product in 100 to 200 gallons of water per acre. Due to varietal differences in response to a treatment of this product at the labeled rate, conduct a small test on 1 or 2 plants of the specific variety to be treated.

**Leaf Polish for Hardy Plants Summer (Foliar or Cover):** Apply 1 gallon of this product in 100 gallons of water. Wipe upper and lower sides of leaf until fully covered.

**HOPS:** Aphids, Leafrollers, Mites, Scales, Whiteflies; Powdery mildew — Apply 1 to 2 gallons of this product in 100 gallons of water per acre. Begin application at early leaf stage and repeat at 10 to 14 day intervals. Discontinue application at Burr development.

**KIWI:** Aphids, Mites, Scales (Greedy, Latania, Oleander, San Jose) — Apply 4 to 6 gallons of this product in minimum of 100 gallons of water per acre. Use the 6 gallon rate when pest populations are high.

**MACADAMIA:** Bugs, Leafhoppers, Leafrollers, Scales, Thrips; Sigatoka — Apply 1 to 2 gallons of this product in 100 gallons of water per acre. Use as needed.

**MANGOES:** Mites; Powdery mildew—Apply 1 to 1.5 gallons of this product in minimum of 100 gallons of water per acre.

**OLIVES:** Aphids, Black scales, Mites, Oleander scales, Olive scales, Parlatoria scales, Spider mites — Apply 1.5 gallons of this product in 400 to 500 gallons of water per acre. Apply in pre-bloom or in post-bloom up to buckshot and post-harvest.

**ORNAMENTALS, FLOWER AND FOLIAGE PLANTS, SHRUBS, CHRISTMAS TREES, AND SHADE TREES**

**Azalea, Camellia, Carnation, Fuchsia, Gladiola, Hibiscus, Iris, Lily, Orchids, Rhododendron, Vines:** Aphids, Fungus gnat, Leafminers, Mealybugs, Mites, Scales, Thrips, Whiteflies; Powdery mildew, Rust — Apply this product at 1 to 2 gallons of water as needed.

**Chrysanthemum, Diffenbachia, Philodendron, Poinsettia:** Leafminers, Mealybugs, Mites, Scale insects, Whiteflies; Black spot, Powdery mildew — Apply 1 to 2 ounces per gallon. Use Albuz ATR nozzles, lilac color or their equivalent. Apply weekly or every two weeks depending on level of pest infestation, from 20 to 100 gallons of dilute spray emulsion per acre, depending on plant size. Spray to the point of runoff. Vary quantity of spray applied by changing the number of nozzles used, not by changing pressure, speed of spray or nozzle size.

**Christmas Trees Winter:** Aphids, Adelgids, Scales (soft and hard; immature), Spider mites — Apply in 2 to 4 gallons of this product as needed. **Summer:** Aphids, Adelgids, Scales (soft and hard; immature), Spider mites — Apply 1 to 3 gallons of this product as needed. Do not apply more than 0.02 gallon (2.56 fl. ozs.) per gallon of water per application using ground equipment during the Winter period.

**Flower and Foliage Plants (including Roses and other flowering shrubs) Winter Dormant Period:** Aphids, Adelgids, Bugs (immature), Caterpillars, Eriophyid mites, Gall mites, Lace bugs, Leaf beetle larvae, Leafminers, Mealybugs, Psyllids (immature), Sawfly larvae, Scales (immature), Spider mites, Whiteflies (immature) — Apply this product at 2 to 3 gallons as needed. **Summer:** Apply 1 to 2 gallons of this product as foliar or cover spray as needed.

**Oak, Privet:** Black scale, Brown apricot scale, Brown soft scale, Oyster shell scale, Red spider mites and Eggs, San Jose scale, — Apply 1 gallon in 100 gallons of water. **Dormant Spray on Deciduous Varieties:** Apply 2 gallons in 100 gallons of water. **Dormant Spray on Other Varieties:** Apply 1 gallon in 100 gallons of water. See 'Plant Restrictions' section below for use precautions.

**Ornamentals (Foliage and Bedding Plants) Winter Dormant Period:** Adelgids, Aphids, Bugs (immature), Caterpillars, Eriophyid mites, Gall mites, Lace bugs, Leaf beetle larvae, Leafminers, Mealybugs, Psyllids (immature), Sawfly larvae, Scales (immature), Spider mites, Whiteflies (immature) — Apply this product at 2 to 3 gallons as needed. **Summer:** Apply 1 to 2 gallons of this product as foliar or cover spray as needed.

**Shade Trees and Shrubs including Broadleaf evergreens, Conifers, Deciduous and Woody ornamentals Winter Dormant Period:** Aphids, Bugs (immature), Caterpillars, Eriophyid mites, Gall mites, Lace bugs, Leaf beetle larvae, Leafminers, Mealybugs, Psyllids (immature), Sawfly larvae, Scales (immature), Spider mites, Whiteflies (immature) — Apply this product at 2 to 4 gallons as needed. **Summer:** Apply 1 to 3 gallons of this product as foliar or cover spray as needed.

See 'Plant Restrictions' section below for use precautions.

**Shrubs and Trees along city streets, other Rights-of-way including Broadleaved evergreens, Conifers and Deciduous Winter Dormant Period:** Aphids, Bugs (immature), Caterpillars, Eriophyid mites, Gall mites, Lace bugs, Leaf beetle larvae, Leafminers, Mealybugs, Psyllids (immature), Sawfly larvae, Scales (immature), Spider mites, Whiteflies (immature) — Apply this product at 2 to 4 gallons as needed. **Summer:** Apply 1 to 3 gallons of this product as foliar or cover spray as needed.

See 'Plant Restrictions' section below for use precautions.

**Plant Restrictions:** Oil removes the glaucous (blue) bloom from such Evergreens as Colorado blue spruce and Koster spruce. Do not spray on Walnut foliage. Always use lower dosage or test spray oil sensitive plants such as *Chamaecyparis*, *Cryptomeria*, Japanese holly, Juniper, Smoke tree, and Spruce. Tendency toward sensitivity: Douglas fir and Red cedar. Use with precaution and reduce dosage for dormant application on Red bud and Sugar maple. Do not spray when buds have fully opened and shoot elongation is occurring.

Do not use on Conifers or Ferns not tolerant to oil sprays. In California, limit the use of this product to American red oak, Cornelian cherry, Crabapple, Dogwood, Japanese black pine, Purple leaf plum, Weeping cherry. Keep sprays away from open blooms; bleaching and spotting has been observed with the open blooms of certain plants. Do not apply this product when there is obvious moisture deficit in leaves or plant is under stress.

Do not apply this product more than 4 times during the growing season. Allow at least a 2-week interval between applications to the same plants. For Fall dormant applications, reduce the rate to 2 gallons of this product.

**PAPAYA:** Mites; Papaya ringspot virus, Powdery mildew — Apply 0.75 to 1.5 gallons of this product in minimum of 100 gallons of water per acre.

**PEANUT:** Aphids, Beetle larvae, Leafhoppers, Leafminers, Mites, Thrips, Whiteflies; Powdery mildew — Apply 1 to 2 gallons of this product in 100 gallons of water per acre. Use as needed.

**PEARS *Dormant or Delayed-Dormant*:** Aphids (eggs), Codling moth\*, European fruit lecanium scales, European red mites (eggs), Olive scales, Pear scales, Red spider mites, San Jose scales — Apply 1 to 2 gallons of this product in 50 to 200 gallons of water per acre. As concentrate spray, use 3 to 8 gallons of this product in minimum of 50 gallons of water per acre. ***Dormant or Delayed-Dormant*:** Fruit tree leafrollers, Pear leaf blister mites — Use 1 to 3 gallons of this product in 100 gallons of water at 100 to 800 gallons of water per acre as dilute spray. As concentrate spray, use 3 to 12 gallons of this product in minimum of 50 gallons of water per acre. ***Delayed-Dormant*:** Pear psylla — Apply 2 gallons of this product in 50 to 200 gallons of water per acre. As concentrate spray, apply 4 to 6 gallons in a minimum of 20 gallons of spray per acre. ***Delayed-Dormant and Fall Spray*:** Blister mites — Apply 2 gallons of this product. ***Summer Use*:** European red mites, Pacific mites, Two-spotted spider mites — Apply 1 to 1.5 gallons of this product per acre in 400 to 800 gallons of water as dilute spray. As concentrate spray, do not apply more than 4 gallons of this product per acre in a minimum of 20 gallons of spray per acre.

If applied by air, apply at least 4 but no more than 6 gallons of this product in a minimum of 20 gallons of spray per acre. **California Only:** As concentrate spray, apply 4 to 6 gallons of this product in 90 to 120 gallons of spray per acre. For Summer forms of Italian pear scales and San Jose scales, apply 1 to 1.5 gallons of this product as concentrated spray.

***Dormant (ID, OR, WA)*:** Pear psylla — Apply 1 to 1.5 gallons of this product per acre as dilute spray with Sulfur or Lime sulfur at the specified label rate. As concentrate spray, DO NOT apply more than 5 gallons of this product with Sulfur or Lime sulfur at the labeled rate in 20 to 100 gallons of spray per acre.

**Use Precaution:** Oil plus Sulfur or Lime sulfur can cause severe foliage and fruit bud injury if applied after the dormant period.

\* Use of this product against Codling moth on Pears is not approved in California unless accompanied by Supplemental label.

**PECANS:** Obscure scale — Apply 3 to 3.5 gallons of this product per 100 gallons of water during free dormancy and when temperature is between 50°F and 70°F. Apply in minimum 200 gallons of water per acre.

***Dormant or Delayed-Dormant (Dilute Sprays)*:** Aphids (eggs), Mites (eggs), Scales — Use 2 to 3 gallons of this product per 100 gallons of water. Apply in minimum 200 gallons of water per acre. Use the 2 gallon rate when trees are in a weakened condition. Apply from late February until buds first break. ***Dormant or Delayed-Dormant (Concentrate Sprays)*:** Aphids (eggs), Mites (eggs), Scales — Use 6 to 8 gallons of this product per acre. Apply in minimum 20 to 125 gallons of water per acre. Use the 6 gallon rate when trees are in a weakened condition. Apply from late February until buds first break.

**PEPPERMINT, SPEARMINT:** Mites; Powdery mildew — Apply 1 to 2 gallons of this product per acre. With ground equipment, apply for thorough coverage when Powdery mildew is present or Mint is 5 to 6 inches tall. Repeat at 14 to 21 day intervals. Use higher rates under severe disease pressure. Spray with a minimum of 20 gallons per acre of water.

**PINEAPPLE:** Aphids, Bud moth, Chinese rose beetle, Mealybugs, Mites, Scales — Apply 1 to 2 gallons of this product in 100 gallons of water per acre as spray. Apply 1 to 2 gallons of this product per 100 gallons of water as dip. Dip for 30 seconds.

**PISTACHIOS: *Dormant, Delayed-Dormant or Post-harvest Applications*:** Leafrollers\*, Mealybugs\*, Mites, Scales, Wintering phytocoris — Apply alone or in combination with other registered products shown effective against Soft scales. For dilute applications, apply 5 to 10 gallons of this product in 250 to 500 gallons of water per acre. Do not use more than 2% v/v solution as a dilute application. For concentrate applications, apply 4 to 8 gallons of this product in 70 to 150 gallons of water per acre. Do not use more than 6% v/v solution as a concentrate application. Use concentrate application for moderate to severe pest populations. Apply by mid-February. Applications made in January or February, especially at rates above 10 gallons of this product per acre may result in advanced bud break and bloom, which may increase the potential for frost damage. Do not apply this product when orchard is not vigorous or when under stress.

\*Except California

**POMEGRANATE: *Dormant or Delayed-Dormant*:** Aphid (eggs), European red mite (eggs), Mealybugs, Scales (Black, Brown soft, Frosted, Olive, San Jose) — Use 2 to 3 gallons of this product in 100 gallons of water at 50 to 300 gallons of water per acre. Apply in Winter when leaves are not present.

***Summer (Foliar or Cover)*:** Aphids, Mealybugs, Scale crawlers, Spider mites, Whiteflies — Use 1 to 3 gallons of this product in 100 gallons of water at 50 to 300 gallons of water per acre. Spray every 2 to 3 weeks depending on pest pressure.

**STRAWBERRIES:** Aphids, Mites, Sawflies, Scales, Whiteflies; Powdery mildew, Rusts — Use 0.75 to 1.5 gallons of this product in 100 gallons of water at 100 to 200 gallons of water per acre. Spray at no less than 400 psi using ceramic spray nozzles (Albuz® ATR, lilac color or their equivalent).

**SUGAR BEETS:** Aphids, Armyworms, Leafhoppers\*, Leafminers, Mites, Whiteflies; Cercospora leafspots\* — Apply 0.75 to 2 gallons of this product in minimum 10 gallons of water per acre. Using ground equipment, spray for optimum coverage of leaf surfaces. For fungal diseases use at least 200 psi spray pressure. Use as needed.

\*Except California

**TOBACCO:** Aphids, Beetle Larvae, Leafhoppers, Leafminers, Mites, Thrips, Whitefly — Apply 0.75 to 1 gallon of this product per 100 gallons of water per acre.

## VEGETABLES & MISCELLANEOUS CROPS

**Asparagus, Beans, Cucurbits, Peppers, Squash, and Tomatoes:** Aphids, Beetle larvae, Caterpillars, Leafhoppers, Leafminers, Mites, Thrips, Whiteflies; Powdery mildew — Apply 0.75 to 2 gallons of this product in 100 gallons of water per acre.

**Tomatoes:** Armyworm\*, Fruit worm\*, Horn worm\*, Lygus bug\*, Stink bug\*, Tomato pinworm\*, Tomato psyllid\*; Alternaria leafspot, Cucumber mosaic virus, Gummy stem blight, Papaya ringspot virus, Pepper mottle virus\*, Potato leafroll virus\*, Potato virus Y\*, Tobacco etch virus\*, Rust, Watermelon mosaic virus 2\*, Zucchini yellow mosaic virus\* — Use 0.75 to 1.5 gallons per 100 gallons of water. Apply at 25 to 150 gallons of water per acre once or twice weekly depending on the rapid growth of the crop and/or vector pressure. When using to control insect transmitted diseases, use higher pressure (100 psi) and ceramic hollow cone nozzle.

\*Except California

**Balsam apple, Balsam pear, Bitter melon, Broccoli, Broccoli raab, Brussels sprouts, Cabbage, Cantaloupe, Casaba, Cauliflower, Cavalo broccoli, Celery, Chayote, Chinese broccoli, Chinese cabbage (Bok choy and Napa), Chinese cucumber, Chinese mustard cabbage (Gai choy), Chinese okra, Chinese waxgourd, Citron melon, Collards, Crenshaw melon, Cucumber, Cucuzza, Dasheen (Taro), Eggplant, Gherkin, Golden pershaw melon, Hechima, Honeydew melon, Hyotan, Japanese radish (Daikon), Kale, Kohlrabi, Lettuce, Mango melon, Melons, Mizuna, Mustard greens, Mustard spinach, Okra, Peas, Persian melon, Potatoes, Pumpkin, Radish, Rape greens, Summer squash, Sweet potatoes, True cantaloupe, Watermelon, Winter squash:** Aphids, Beetle larvae, Caterpillars, Leafminers, Leafhopper, Loopers\*, Mites, Thrips, Whiteflies; Alternaria leafspot, Gummy stem blight, Powdery mildew, Rust — Apply 0.75 to 1.5 gallons of this product per acre in 50 to 100 gallons of water.

Cucumber mosaic virus, Papaya ringspot virus, Pepper mottle virus, Potato virus Y, Tobacco etch virus, Watermelon mosaic virus 2, Zucchini yellow mosaic virus — Apply 0.75 gallons in 50 to 100 gallons of water per acre. Spray once or twice weekly depending on growth of crop and/or vector pressure. When using to control insect transmitted diseases, use higher pressure (100 psi) and ceramic hollow cone nozzle.

\*Except California

**Chinese artichoke\*/Japanese artichoke\*:** Aphids, Beetle larvae, Caterpillars, Leafhoppers, Leafminers, Mites, Pepper psyllids, Thrips, Whiteflies; Alternaria leafspot, Cucumber mosaic virus, Gummy stem blight, Papaya ringspot virus, Pepper mottle virus, Potato leafroll virus, Potato virus Y, Powdery mildew, Rust, Tobacco etch virus, Watermelon mosaic virus 2, Zucchini yellow mosaic virus — Apply 1 to 2 gallons in minimum 50 gallons of water per acre. Spray once or twice weekly depending on the growth of the crop and/or vector pressure. When used to control insect transmitted diseases, use higher pressure (minimum 100 psi) and ceramic hollow cone nozzles. For fungal diseases, use at least 200 psi spray pressure.

\*Except California

**Garlic\*, Leeks\*, Onions (Dry bulb and Green)\*, Shallots\*:** Leafminers, Maggot flies, Mites, Thrips — Apply 0.5 to 1.5 gallons of this product per 20 gallons minimum of water. Make applications when pests appear and repeat as necessary to maintain control.

This product may be used with other registered insecticides such as pyrethroids to improve control of Thrips. Follow all label precautions and directions for use on other registered insecticides.

\*Except California

#### **Miscellaneous Crops**

##### **Cilantro\*, Mexican oregano\*, Mint\*:**

Aphids, Beetle larvae, Caterpillars, Leafhoppers, Leafminers, Mites, Pepper psyllids, Thrips, Whiteflies; Alternaria leafspot, Cucumber mosaic virus, Gummy stem blight, Papaya ringspot virus, Pepper mottle virus, Potato leafroll virus, Potato virus Y, Powdery mildew, Rust, Tobacco etch virus, Watermelon mosaic virus 2, Zucchini yellow mosaic virus — Apply 1 to 2 gallons of this product in minimum 50 gallons of water per acre. Spray once or twice weekly depending on the growth of the crop and/or vector pressure. When using to control insect transmitted diseases, use higher pressure (minimum 100 psi) and ceramic hollow cone nozzles.

\*Except California

**Ginger\*, Ginseng\*, Herbs and Spices (Curly leaf basil, Lemon balm)\*:** Aphids, Beetle larvae, Caterpillars, Leafhoppers, Leafminers, Mites, Thrips, Whiteflies; Alternaria leafspot, Cucumber mosaic virus, Gummy stem blight, Papaya ringspot virus, Pepper mottle virus, Potato leafroll virus, Potato virus Y, Powdery mildew, Rust, Tobacco etch virus, Watermelon mosaic virus 2, Zucchini yellow mosaic virus — Apply 0.75 to 1.5 gallons in 50 to 100 gallons of water per acre. Spray once or twice weekly depending on the growth of the crop and/or vector pressure. When using to control insect transmitted diseases, use higher pressure (minimum 100 psi) and ceramic hollow cone nozzles.

\*Except California

**WALNUTS Late Spring to Mid-Summer Only:** Summer stages of European fruit scales, Frosted scales, Red spider mites, San Jose scale, and other Soft-shelled scales — Apply 0.5 to 1 gallon of this product.

**Delayed-Dormant:** Black, Calico, European fruit lecanium scales, Frosted, Olive, Red spider mite eggs, San Jose scale, and Walnut aphid eggs — Apply 2 gallons of this product in 300 to 500 gallons of water per acre. Spider mites — Apply 4 gallons of this product per acre in 200 to 400 gallons of water on fully expanded leaves as foliar spray. As concentrate spray, for Delayed-Dormant and foliar sprays, apply in a minimum of 40 gallons of water per acre.

As an adjuvant for neutral copper compounds for control of Walnut blight in pre- and post-bloom sprays: Apply 1 quart of this product per 100 gallons of water as a dilute spray. Follow dosages and timing on the copper product label.

**Use Precautions:** Use this product only on trees that have not suffered from lack of moisture or other stressing factors during the growing season. Do not apply when soil moisture is low. Do not apply after husk splits.

## **STORAGE AND DISPOSAL**

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

**PESTICIDE STORAGE:** Store under lock and key in a ventilated room and secure from access by unauthorized persons and children. Store in a cool, dry area away from any heat or ignition source. Do not stack over 2 pallets high. Move containers by handles or cases. Do not move containers from one area to another unless they are securely sealed. Keep container tightly sealed when not in use. Keep container away from any puncture source. Avoid storage near water supplies, food, feed and fertilizer to avoid contamination.

Store in original containers only. If the contents are leaking or material is spilled, follow these steps:

1. Contain spill. Absorb with a material such as sawdust, clay granules or dirt.
2. Collect and place in suitable containers for disposal.
3. Wash area with soap and water to remove remaining pesticide.
4. Follow washing with clean water rinse.
5. Place a leaking container in a plastic tub and transfer contents, as soon as possible, to an empty, original container.
6. Do not allow runoff to enter sewer or contaminate water supplies.
7. Dispose of waste as indicated below.

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

*(Continued)*

## **STORAGE AND DISPOSAL (Cont.)**

### **CONTAINER HANDLING:**

#### **Nonrefillable Container (rigid material; less than 5 gallons):**

Nonrefillable container. Do not reuse or refill this container. Offer for recycling, if available. Clean container promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container one-fourth full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Dispose of empty container in a sanitary landfill or by incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.

#### **Nonrefillable Container (rigid material; 5 gallons up to < 250 gallons):**

Nonrefillable container. Do not reuse or refill this container. Offer for recycling, if available. Clean container promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container one-fourth full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times. Dispose of empty container in a sanitary landfill or by incineration, or if allowed by State and local authorities, by burning. If burned, stay out of smoke.

#### **Refillable Container (≥ 250 gallons & Bulk):**

Refillable container. Refill this container with pesticide only. Do not reuse this container for any other purpose. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller. To clean the container before final disposal, empty the remaining contents from this container into application equipment or mix tank. Fill the container about 10% full with water. Agitate vigorously or recirculate water with the pump for 2 minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times. Dispose of empty container in a sanitary landfill or by incineration, or if allowed by State and local authorities, by burning. If burned, stay out of smoke.

## **WARRANTY—CONDITIONS OF SALE**

OUR DIRECTIONS FOR USE of this product are based upon tests believed reliable. Follow directions carefully. Timing and method of application, weather and crop conditions, mixtures with other chemicals not specifically recommended and other influencing factors in the use of this product are beyond the control of the Seller. To the extent consistent with applicable law, Buyer assumes all risks of use, storage and handling of this material not in strict accordance with directions given herewith. To the extent consistent with applicable law, in no case shall the Manufacturer or the Seller be liable for consequential, special or indirect damages resulting from the use or handling of this product when such use and/or handling is not in strict accordance with directions given herewith. The foregoing is a condition of sale by the Seller and is accepted as such by the Buyer.





United States  
**Safety Data Sheet**

The Ortho Group  
P.O. Box 190  
Marysville, Ohio 43040  
United States

24 h. EMERGENCY TELEPHONE NUMBER  
CHEMTREC (U.S.) 1-800-424-9300  
CHEMTREC (International) 1-703-527-3887  
Non-Emergency Calls  
1-937-644-0011

**ORTHO BUG B-GON LAWN INSECT KILLER**

**Section 1. Identification**

**GHS product identifier** : ORTHO BUG B-GON LAWN INSECT KILLER  
**Product type** : Pesticide  
**SDS #** : 320000012902  
**EPA Registration Number:** : 239-2764

**Relevant identified uses of the substance or mixture and uses advised against**

Use only in accordance with label directions.

**Section 2. Hazards identification**

This product is regulated by the Environmental Protection Agency (EPA) for label precautionary text see Section 15.

**OSHA/HCS status** : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).  
**Classification of the substance or mixture** : ACUTE TOXICITY (oral) - Category 4  
EYE DAMAGE/IRRITATION - Category 2B

**GHS label elements**

**Hazard pictograms** :



**Signal word** :

Warning

**Hazard statements** :

Harmful if swallowed.  
Causes eye irritation.

**Precautionary statements**

- General** : Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand.
- Prevention** : Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling.
- Response** : IF SWALLOWED: Call a POISON CENTER or physician if you feel unwell. Rinse mouth. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention.
- Storage** : Not applicable.
- Disposal** : Dispose of contents and container in accordance with all local, regional, national and international regulations.
- Supplemental label elements** : None known.
- Hazards not otherwise classified** : None known.

**Section 3. Composition/information on ingredients**

- Substance/mixture** : Mixture
- Chemical name** : Not available.
- Other means of identification** : Not available.

Ingredient name	%	CAS number
Bifenthrin	>= 0.1 - < 0.3	82657-04-3

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

**There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.**

**Occupational exposure limits, if available, are listed in Section 8.**

**Section 4. First aid measures**

Description of necessary first aid measures

- Eye contact** : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.
- Inhalation** : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway.
- Skin contact** : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion** : Wash out mouth with water. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention. If necessary, call a poison center or physician. Never give anything by mouth to an unconscious person.

**Most important symptoms/effects, acute and delayed**

**Potential acute health effects**

- Eye contact** : Causes eye irritation.
- Inhalation** : No known significant effects or critical hazards.
- Skin contact** : No known significant effects or critical hazards.
- Ingestion** : Harmful if swallowed.

**Over-exposure signs/symptoms**

- Eye contact** : Adverse symptoms may include the following:  
irritation  
watering  
redness
- Inhalation** : No specific data.
- Skin contact** : No specific data.
- Ingestion** : No specific data.

**Indication of immediate medical attention and special treatment needed, if necessary**

- Notes to physician** : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
- Specific treatments** : No specific treatment.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training.

See toxicological information (Section 11)

**Section 5. Fire-fighting measures**

**Extinguishing media**

- Suitable extinguishing media** : Use an extinguishing agent suitable for the surrounding fire.
- Unsuitable extinguishing media** : None known.
- Specific hazards arising from the chemical** : No specific fire or explosion hazard.
- Hazardous thermal decomposition products** : No specific data.
- Special protective actions for fire-fighters** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

**Section 6. Accidental release measures**

**Personal precautions, protective equipment and emergency procedures**

- For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
- For emergency responders** : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

**Methods and materials for containment and cleaning up**

- Spill** : Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Avoid dust generation. Do not dry sweep. Vacuum dust with equipment fitted with a HEPA filter and place in a closed, labeled waste container. Dispose of via a licensed waste disposal contractor. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

**Section 7. Handling and storage**

**Precautions for safe handling**

- Protective measures** : Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
- Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.
- Conditions for safe storage, including any incompatibilities** : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

**Section 8. Exposure controls/personal protection**

**Occupational exposure limits**

Ingredient name	Exposure limits
Bifenthrin	None.

- Appropriate engineering controls** : Good general ventilation should be sufficient to control worker exposure to airborne contaminants.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

**Individual protection measures**

- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
- Eye/face protection** : Protective eyewear is not required, but may be used in situations where contact is expected.

**Skin protection**

- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
- Body protection** : Wear long-sleeved shirt, long pants, shoes with socks. Remove and wash contaminated clothing before reuse.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Use a properly fitted, particulate filter respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

**Section 9. Physical and chemical properties**

**Appearance**

- Physical state** : solid [granules]
- Color** : Brown.
- Odor** : Peanut type odor

**Odor threshold** : Not available.  
**pH** : Not available.  
**Melting point** : Not available.  
**Boiling point** : Not available.  
**Flash point** : Not available.  
**Evaporation rate** : Not available.  
**Flammability (solid, gas)** : Not available.  
**Lower and upper explosive (flammable) limits** : **Lower:** Not available.  
**Upper:** Not available.  
**Vapor pressure** : Not available.  
**Vapor density** : Not available.  
**Relative density** : Not available.  
**Solubility** : Not available.  
**Partition coefficient: n-octanol/water** : Not available.  
**Auto-ignition temperature** : Not available.  
**Decomposition temperature** : Not available.  
**Viscosity** : **Dynamic:** Not available.  
**Kinematic:** Not available.

**Section 10. Stability and reactivity**

**Reactivity** : No specific test data related to reactivity available for this product or its ingredients.  
**Chemical stability** : The product is stable.  
**Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.  
**Conditions to avoid** : No specific data.  
**Incompatible materials** : No specific data.  
**Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

**Section 11. Toxicological information**

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
	LD50 Oral	Rat	2,000 mg/kg	-
	LC50 Inhalation	Rat	> 5.1 mg/l	4 h
	LD50 Dermal	Rat	> 5,000 mg/kg	-

**Conclusion/Summary** : Very low toxicity to humans or animals.

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
	Eyes - Redness of	Rabbit	2.0		-

	the conjunctivae				
	Skin - Erythema/Eschar	Rabbit	1.5		-

**Conclusion/Summary**

**Skin** : Mildly irritating  
**Eyes** : Moderate  
**Respiratory** : May cause respiratory irritation

**Sensitization**

Product/ingredient name	Route of exposure	Species	Result
	Skin	Guinea pig	Not sensitizing

**Conclusion/Summary**

**Skin** : Not sensitizing  
**Respiratory** : No results available.

**Mutagenicity**

**Conclusion/Summary** : No known significant effects or critical hazards.

**Carcinogenicity**

**Conclusion/Summary** : No known significant effects or critical hazards.

**Reproductive toxicity**

**Conclusion/Summary** : No known significant effects or critical hazards.

**Teratogenicity**

**Conclusion/Summary** : No known significant effects or critical hazards.

**Specific target organ toxicity (single exposure)**

Not available.

**Specific target organ toxicity (repeated exposure)**

Not available.

**Aspiration hazard**

Not available.

**Information on the likely routes of exposure** : Not available.

**Potential chronic health effects**

**Conclusion/Summary** : No known significant effects or critical hazards.

**General** : No known significant effects or critical hazards.  
**Carcinogenicity** : No known significant effects or critical hazards.

**Mutagenicity** : No known significant effects or critical hazards.  
**Teratogenicity** : No known significant effects or critical hazards.  
**Developmental effects** : No known significant effects or critical hazards.  
**Fertility effects** : No known significant effects or critical hazards.

**Section 12. Ecological information**

**Toxicity**

**Conclusion/Summary** : Not available.

**Persistence and degradability**

**Conclusion/Summary** : Not available.

**Mobility in soil**

**Soil/water partition coefficient (KOC)** : Not available.  
**Other adverse effects** : No known significant effects or critical hazards.

**Section 13. Disposal considerations**

**Disposal methods** : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

**Section 14. Transport information**

<b><u>Regulatory information</u></b>	<b><u>UN no.</u></b>	<b><u>Proper shipping name</u></b>	<b><u>Class</u></b>	<b><u>PG*</u></b>	<b><u>Note</u></b>
DOT	--	Not Regulated	--	--	
IATA (C)	3077	Environmentally hazardous substance, solid, n.o.s. (Bifenthrin) [Not regulated if under 5kg]	9	(, III)	
IATA (P)	3077	Environmentally hazardous substance, solid, n.o.s. (Bifenthrin) [Not regulated if under 5kg]	9	(, III)	
IMDG	3077	Environmentally hazardous substance, solid, n.o.s. (Bifenthrin) [Not regulated if under 5kg]	9	(, III)	

PG\* : Packing group

**Section 15. Regulatory information**

**Precautionary statements**

- Signal word** : CAUTION!
- Emergency Overview** : Keep out of reach of children.  
Harmful if swallowed.  
Causes moderate eye irritation.  
Avoid contact with skin, eyes or clothing.  
Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, or using tobacco.

- U.S. Federal regulations** : **United States inventory (TSCA 8b):**  
Not determined.

**State regulations**

**California Prop. 65**  
Not available.

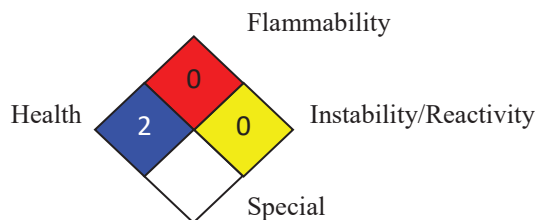
**International lists**

**National inventory**

- Australia** : At least one component is not listed.
- Canada** : At least one component is not listed.
- China** : At least one component is not listed.
- Europe** : At least one component is not listed.
- Japan** : At least one component is not listed.
- Malaysia** : Not determined.
- New Zealand** : At least one component is not listed.
- Philippines** : At least one component is not listed.
- Republic of Korea** : At least one component is not listed.
- Taiwan** : Not determined.

**Section 16. Other information**

National Fire Protection Association (U.S.A.):



Reprinted with permission from NFPA 704-2001, Identification of the Hazards of Materials for Emergency Response Copyright ©1997, National Fire Protection Association, Quincy, MA 02269. This reprinted material is not the complete and official position of the National Fire Protection Association, on the referenced subject which is represented only by the standard in its entirety. Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

**Procedure used to derive the classification**

Classification	Justification
Acute Tox. 4, H302	On basis of test data
H320	On basis of test data

**History**

Date of issue/Date of revision : 04/12/2020  
 Version : 1.0

**Notice to reader**

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

2,4-D QUINCLORAC DICAMBA	GROUP 4	HERBICIDE
SULFENTRAZONE	GROUP 14	HERBICIDE



## Turf Herbicide for Grassy & Broadleaf Weeds

**For use in New York State by spot treatment only.  
Not for sale, distribution, or use in Nassau or  
Suffolk Counties in New York State.**

### ACTIVE INGREDIENTS:

Quinclorac .....	8.43%
Sulfentrazone .....	0.69%
2,4-D, dimethylamine salt .....	11.81%
Dicamba, dimethylamine salt .....	1.49%
<b>OTHER INGREDIENTS:</b> .....	<b>77.58%</b>
<b>TOTAL</b>	<b>100.00%</b>

### THIS PRODUCT CONTAINS:

0.75 lb. 3,7-dichloro-8-quinolinecarboxylic acid per gallon or 8.43%.  
0.06 lb. N-[2,4-dichloro-5-[4-(difluoromethyl)-4,5-dihydro-3-methyl-5-oxo-1H-1,2,4-triazol-1-yl] phenyl]methanesulfonamide per gallon or 0.69%.  
0.88 lb. 2,4-dichlorophenoxyacetic acid equivalent per gallon or 9.81%.  
0.10 lb. 3,6-dichloro-o-anisic acid equivalent per gallon or 1.24%.

Isomer Specific By AOAC Methods.

CAS Registry Numbers: Quinclorac (84087-01-4), Sulfentrazone (122836-35-5), Dicamba, dimethylamine salt (2300-66-5), 2,4-D, dimethylamine salt (2008-39-1).

## KEEP OUT OF REACH OF CHILDREN CAUTION

Si Usted no entiende la etiqueta, busque a alguien para que se la explique a Usted en detalle. (If you do not understand the label, find some one to explain it to you in detail.)



**READ THE ENTIRE LABEL FIRST.  
OBSERVE ALL PRECAUTIONS AND  
FOLLOW DIRECTIONS CAREFULLY.**

### PRECAUTIONARY STATEMENTS

#### Hazards to Humans and Domestic Animals

**CAUTION:** Causes moderate eye irritation. Avoid contact with eyes or clothing. Harmful if swallowed.

#### Personal Protective Equipment (PPE)

All mixers, loaders, applicators, and other handlers must wear\*:

- long-sleeved shirt and long pants,
- protective eyewear (such as goggles, face shield, or safety glasses),
- shoes and socks,
- chemical-resistant gloves made of barrier laminate, butyl rubber, nitrile rubber, neoprene rubber, natural rubber, polyethylene, polyvinyl chloride, or viton (except for applicators using ground boom equipment) and
- chemical-resistant apron when mixing or loading, cleaning up spills or equipment, or otherwise exposed to the concentrate.

\*Applicators may choose not to wear protective eyewear when dilution is with water only and dilution rates are greater (higher) than 5:1 or greater (higher) than 5 parts of water to 1 part of product.

#### User Safety Requirements

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

### User Safety Recommendations

- Users should wash hands thoroughly with soap and water before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Users should remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing. If pesticide gets on skin, wash immediately with soap and water.
- Users should remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

### First Aid

<b>If in eyes:</b>	<ul style="list-style-type: none"> <li>• Hold eye open and rinse slowly and gently with water for 15-20 minutes.</li> <li>• Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
<b>If swallowed:</b>	<ul style="list-style-type: none"> <li>• Call a poison control center or doctor immediately for treatment advice.</li> <li>• Have person sip a glass of water if able to swallow.</li> <li>• Do not induce vomiting unless told to do so by a poison control center or doctor.</li> <li>• Do not give anything by mouth to an unconscious person.</li> </ul>
<b>If on skin or on clothing:</b>	<ul style="list-style-type: none"> <li>• Take off contaminated clothing.</li> <li>• Rinse skin immediately with plenty of water for 15-20 minutes.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>

Have the product container or label with you when calling a poison control center or doctor or going for treatment. You may also contact 1-877-800-5556 for emergency medical treatment information.

### Environmental Hazards

This pesticide may be toxic to fish and aquatic invertebrates. Do not apply directly to water, to areas where surface water is present, or to intertidal areas below the mean high water mark. Drift and runoff may be hazardous to plants, and to aquatic organisms in water adjacent to treated areas. Do not contaminate water when disposing of equipment wash waters or rinsate.

This chemical has properties and characteristics associated with chemicals detected in groundwater. The use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in groundwater contamination. Application around a cistern or well may result in contamination of drinking water or groundwater.

### Physical and Chemical Hazards

Combustible. Do not use or store near heat or open flame.

### DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application.

For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

### Agricultural Use Requirements

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170.

This standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 48 hours.

(cont. on next page)

**Agricultural Use Requirements (cont.)**

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water is:

- coveralls worn over short-sleeved shirt and short pants,
- chemical-resistant footwear plus socks,
- chemical-resistant gloves made of any water-proof material and,
- protective eyewear

**Non-Agricultural Use Requirements**

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses.

**Reentry Statement:** Do not enter or allow people (or pets) to enter the treated area until sprays have dried.

**1. Product Description**

**4-in-1 Herbicide**

Q4® Plus Turf Herbicide for Grassy & Broadleaf Weeds contains 4 active ingredients that broaden the spectrum of weed control. Q4 Plus Turf Herbicide for Grassy & Broadleaf Weeds is a versatile herbicide that will control many troublesome grassy and broadleaf weeds in established turfgrass when used as directed.

- Versatile post-emergent herbicide for turfgrass to control both grassy and broadleaf weeds.
- Q4® Plus Turf Herbicide for Grassy & Broadleaf Weeds is absorbed by foliage and roots and translocated throughout the plant where it uses multiple modes of action to control both grassy and broadleaf weeds. One mode of action involves an auxin-type herbicidal activity which disrupts plant growth in broadleaf weeds, while another mode of action works as an enzyme/cell wall disruptor to control crabgrass and other grassy weeds.
- The effects on grassy weeds include stunting, gradual reddening, yellowing and followed by tissue death. Symptoms typically appear 7 to 14 days after application.
- Q4 Plus Turf Herbicide for Grassy & Broadleaf Weeds provides post emergent weed control for common weed species in turfgrass such as spurge. Foliar contact of Q4 Plus Turf Herbicide for Grassy & Broadleaf Weeds on emerged, susceptible weeds results in rapid desiccation and plant tissue death.
- Wide window of application for broadleaf weeds beginning at emergence and active weed growth.
- The symptoms of susceptible broadleaf weeds include leaf and stem curl or twisting, and tissue death.

**2. Use Restrictions**

- The maximum single application rate for Q4 Plus Turf Herbicide for Grassy & Broadleaf Weeds is 8 pints of product per acre per application, the equivalent of 0.75 lb quinclorac ai, 0.06 lb sulfentrazone ai, 0.88 lb 2,4-D ae, and 0.10 lb dicamba ae per acre per application.
- The maximum annual application rate for Q4 Plus Turf Herbicide for Grassy & Broadleaf Weeds is 16 pints of product per acre per year the equivalent of 1.50 lb quinclorac ai, 0.12 lb sulfentrazone ai, 1.76 lb 2,4-D ae, and 0.20 lb dicamba ae per acre per year.
- The maximum number of broadcast applications for commercial sod farms is limited to 2 per year with a minimum of 21 days between applications.
- The maximum number of broadcast applications for ornamental turf and non-cropland areas is limited to 2 per year with a minimum of 30 days between applications.

**3. Weed Resistance Management**

For resistance management, this product contains Group 4 and Group 14 herbicides. Any weed population may contain or develop plants naturally resistant to this product and other Group 4 or Group 14 herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same area. Appropriate resistance management strategies should be followed.

To delay herbicide resistance take one or more of the following steps:

- Rotate the use of this product or other Group 4 or Group 14 herbicides within a growing season sequence or among growing seasons with different herbicide groups that control the same weeds.
- Use tank mixtures with herbicides from a different group if such use is permitted; where information on resistance in target weed species is available, use the less resistance-prone partner at a rate that will control the target weed(s) equally as well as the more resistance-prone partner. Consult your local extension service or

pest control advisor if you are unsure as to which active ingredient is currently less prone to resistance.

- Adopt an integrated weed-management program for herbicide use that includes scouting and uses historical information related to herbicide use, and that considers mechanical control methods, cultural (e.g., timing to favor the turf and not the weeds), biological (weed-competitive varieties) and other management practices.
- Scout area prior to application to identify the weed species present and their growth stage to determine if the intended application will be effective.
- Scout after herbicide application to monitor weed populations for early signs of resistance development. Indicators of possible herbicide resistance include: 1) failure to control a weed species normally controlled by the herbicide at the dose applied, especially if control is achieved on adjacent weeds; 2) a spreading patch of non-controlled plants of a particular weed species; 3) surviving plants mixed with controlled individuals of the same species. If resistance is suspected, prevent weed seed production in the affected area by an alternative herbicide from a different group or by a mechanical method. Prevent movement of resistant weed seeds to other areas by cleaning equipment.
- If a weed pest population continues to progress after treatment with this product, discontinue use of this product, and switch to another management strategy or herbicide with a different mode of action, if available.
- Contact your local extension specialist or pest control advisor for additional pesticide resistance-management and/or integrated weed-management recommendations for specific types of turf and weed biotypes.
- For further information or to report suspected resistance, call 877-800-5556.

**4. Where To Use**

This product provides broadleaf control in warm-season and cool-season turfgrass in 5 use sites. See tables 2 and 3 below for turfgrass species that can be treated with Q4 Plus Turf Herbicide for Grassy & Broadleaf Weeds.

- **Residential/domestic sites** are defined as areas associated with the household or home life including, but not limited to apartment complexes, condominiums, and patient care areas of nursing homes, mental institutions, hospitals, or convalescent homes.
- **Ornamental sites** include turfgrass established around residences, parks, streets, retail outlets, cemeteries, industrial and institutional buildings, recreation areas, fairgrounds, areas adjacent to athletic fields and paved areas.
- **Institutional sites** are defined as turf areas around properties or facilities providing a service to public or private organizations including, but not limited to hospitals, nursing homes, schools, museums, libraries, sport facilities, golf courses (fairways and roughs), and office buildings.
- **Non-cropland sites** include Highway rights-of-way (principal, interstate, county, private, and unpaved roads); roadsides, roadside ditches, road shoulders, road embankments, dividers and medians; municipal, state and federal lands; airports and military installations.
- **Agricultural site:** Commercial sod production

**Prohibitions of Sites:**

- Do not apply to any body of water such as lakes, streams, rivers, ponds, reservoirs, or estuaries (salt water bays). Do not apply to any shorelines (non-cropland sites adjacent to the edges of a body of water) for lakes, streams, rivers, ponds, reservoirs, or estuaries (salt water bays).
- Do not apply to wetlands (swamps, bogs, potholes, or marshes).
- Do not apply to agricultural irrigation water or on agricultural irrigation ditchbanks and canals.
- Do not apply to agricultural drainage water or on agricultural ditchbanks.
- **DO NOT** apply Q4 Plus Turf Herbicide for Grassy & Broadleaf Weeds to the following:  
 Bahiagrass  
 Bentgrass  
 Carpetgrass  
 Centipedegrass  
 Dichondra  
 St. Augustinegrass  
 Greens and collars at golf courses  
 Lawns with desirable clovers or legumes  
 Ornamentals (flowers, trees, groundcovers, landscape beds and shrubs)

**Turfgrass tolerance:**

- **Turfgrass tolerance to this product may vary and temporary turfgrass yellowing may occur on fine fescues, Bermudagrass, and zoysiagrass (see specific Bermudagrass and zoysiagrass sections). Apply only to fine fescue when it is part of a mixed stand of cool-season turf/cool-season blends.**
- **Tolerant turf species listed on this label may exhibit temporary turf injury. The best tolerance occurs under optimal conditions for the turfgrass.**
- Adverse environmental conditions may reduce the selectivity on the turfgrass. Injury may occur under marginal conditions (e.g. low temperatures and drought stress) or under extreme conditions (e.g. high temperatures and high humidity). To avoid turf injury, use only on turfgrass that is reasonably free of stress from diseases, insects, excess heat or cold, drought or excess rainfall/irrigation, shaded areas, low soil pH, nematodes, improper mowing or improper applications of fertilizer and pesticides. Under any of these stress conditions, any turf damage caused by the use of this product is beyond the control of PBI/Gordon Corporation and all risk is assumed by the buyer and/or user.
- Certain spray tank additives (adjuvants, wetting agents, surfactants), liquid fertilizers, and tank mixtures containing emulsifiable concentrates may reduce the selectivity on the turfgrass. Use adjuvants and spray additives or tank-mix combinations only when your experience indicates that the tank mixture will not result in objectionable turf injury.
- Do not broadcast apply this product when temperatures are above 90°F; some injury can also be expected with spot treatments when air temperatures exceed 90°F.

**5. Cultural Tips**

**For newly seeded areas:**

Delay application of this product to grass seedlings until after the second or third mowing, or 28 days after emergence.

**For newly sodded, sprigged, or plugged areas:**

The application of this product to newly sodded, sprigged, or plugged grasses should be delayed until 3 to 4 weeks after the sodding, sprigging, or plugging operations.

**Seeding:**

Turf species on this label can be seeded into the treated areas 7 days after application with the exception of Kentucky bluegrass. Kentucky bluegrass can be seeded 14 days after application unless slight growth regulation can be tolerated.

**Irrigation:**

Do not apply this product immediately before rainfall or irrigation. For best results, do not irrigate or water the turfgrass within 24 hours after application. If dry conditions exist, a scheduled irrigation or watering 24 hours before and 24 hours after application is recommended. If rainfall does not occur in 2 to 7 days after application, irrigation of at least one-half inch is recommended.

**Mowing:**

Delay mowing 2 days before and until 2 days after the application of this product. Additional stress from low mowing heights may increase the possibility of turf injury. Clippings from the first three mowings should be left on the treated area. Do not use these clippings as mulch or compost around flowers, ornamentals, trees, or in vegetable gardens.

**6. Spray Preparation**

**Mixing with Water:**

Add one-half the required amount of water to the spray tank, then add Q4 Plus Turf Herbicide for Grassy & Broadleaf Weeds slowly with agitation, and complete filling the tank with water. Mix thoroughly and continue agitation while spraying.

When this product is left standing for extended periods of time, re-agitate to assure uniformity of the spray mixture.

**Mixing with Liquid fertilizers:**

In certain applications, liquid fertilizer may replace part of the water as a diluent.

ALWAYS PREMIX Q4 PLUS TURF HERBICIDE FOR GRASSY & BROADLEAF WEEDS WITH WATER BEFORE ADDING TO FLUID FERTILIZERS. For liquid nitrogen solutions such as UAN or urea solutions, use a premix of 1 part of this product with 4 parts of water or use a premix with a 1:4 ratio of product to water. For other fluid fertilizers such as suspensions, use a premix of 1 part of this product with 50 to 60 parts of water.

Use suitable sources and rates of fertilizer based upon local recommendations. Refer to the mixing directions on the labels of the liquid fertilizers. Always perform a jar test for compatibility before large scale mixing.

The jar test can be conducted by mixing all components in a small container in proportionate quantities. If the mixture separates after standing and can be mixed readily by shaking, then the mixture can be used and applied with spray equipment providing continuous agitation. If large flakes, sludge, gels or other precipitates form, or if a separate oily layer or oil globules appear, then the herbicide and the liquid fertilizer should not be prepared as a tank mixture.

**7. Spray Equipment**

**Ground equipment:** Power sprayers fitted with a boom or spray wand/gun may be used for broadcast applications and spot treatments. Boom sprayers equipped with appropriate flat fan nozzles, tips, and screens are suitable for broadcast applications. For best spray distribution and coverage, select a spray volume and delivery system that will ensure accurate and uniform coverage.

Hand-operated sprayers including backpack sprayers and compression sprayers are appropriate for small turfgrass areas. Calibration and proper application are essential when using this product.

**Cleaning spray equipment:** Clean sprayer before and after using this product. Use soap, household ammonia, detergent and water, or an approved spray tank cleaner and rinse thoroughly. Cross-contamination may cause physical incompatibility (mixing problems) or result in turf injury.

**Spray distribution:**

- The accuracy and uniformity of the herbicide distribution is the sole responsibility of the applicator.
- Uniform applications are essential when using this product. Over-application, excessive overlaps, or rates above those specified on this label can cause turf injury.
- Avoid spray overlaps with hand-held equipment: Wands fitted with flat fan nozzle tips may be used with the appropriate technique. Spray wands fitted with flat fan nozzles should not be waved in a back-and-forth motion, or in a side-to-side motion, or in a swinging arm motion. Instead, the nozzle should be held stationary at the proper height. Side-to-side motion results in uneven coverage. To avoid excessive spray pattern overlaps, a spray colorant may be used.
- This product may cause injury to susceptible/non-target plants at the use site by contacting the foliage, stems, or roots. To prevent injury to susceptible crops and other desirable broadleaf plants including but not limited to cotton, legumes, tobacco, tomatoes, garden/vegetable crops, and ornamentals (flowers, trees, and shrubs) avoid contact with the spray solution, spray droplets, and spray mist (fine droplets).

**Chemigation:** Do not apply this product through any type of irrigation system.

**Aerial application:** Do not apply as an aerial application.

**8. Spray Drift**

A variety of factors including weather conditions (e.g., wind direction, wind speed, temperature, relative humidity) and method of ground application can influence pesticide drift. The applicator must evaluate all factors and make appropriate adjustments when applying this product.

**Droplet Size**

Select nozzles and application pressure that deliver medium to coarse or larger spray droplets as indicated in the nozzle manufacturer's recommendations and in accordance with ASABE\* Standard S-572.

Select coarse to very coarse droplet size when sulfentrazone is used as a preemergent/preplant application.

Select medium to very coarse droplet size when sulfentrazone is used postemergence with a contact burndown herbicide. Do not apply as spray droplets smaller than medium to coarse (defined by the ASABE\* standard).

\*ASABE – American Society for Agricultural and Biological Engineers.

**Wind Speed**

Applicators may spray only when wind speed is between 3 and 10 mph. Only apply this product if the wind direction favors on-target deposition and there are not sensitive areas (including, but not limited to, bodies of water, known habitat for nontarget species, nontarget crops) within 250 feet downwind. If applying a Medium spray, leave one swath unsprayed at the downwind edge of the treated field.

**Susceptible Plants**

Do not apply under circumstances where spray drift may occur to food, forage, or other plantings that might be damaged or crops thereof rendered unfit for sale, use or consumption. Susceptible crops include, but are not limited to, cotton, okra, flowers, grapes (in growing stage), fruit trees (foliage), soybeans (vegetative stage), ornamentals, sunflowers, tomatoes, beans, and other vegetables, or tobacco. Small amounts of spray drift that might not be visible may injure susceptible broadleaf plants.

**Other State and Local Requirements**

Applicators must follow all state and local pesticide drift requirements regarding application of 2,4-D herbicides. Where states have more stringent regulations, they must be observed.

**Equipment**

All ground application equipment must be properly maintained and calibrated using appropriate carriers or surrogates. Additional requirements for ground boom application: Do not release spray at a height higher than 30 inches above the ground.

**Spray Volume**

Ground applicators must use a minimum finished spray volume of 10 gallons per acre. When sulfentrazone is tank mixed with a contact burndown herbicide, ground applicators must use a minimum spray volume of 15 gallons per acre.

**9. Post Emergent Control of Grassy Weeds**

Q4 Plus Turf Herbicide for Grassy & Broadleaf Weeds can provide post emergent control and suppression of the grassy weeds listed in Table 1. Apply to weeds during the growth stages as shown in Table 1. Applications under adequate soil moisture conditions are preferred. Early summer treatments are generally more effective. Applications in the summer (approximately July 15 to August 15) to older, drought stressed grassy weeds are less effective. Late summer applications (after August 15) to mature crabgrass can be very effective. Weed control is affected by the spray volume, timing and the weed growth stages (see Tables 1, 2, and 3).

Weed species	1 to 3 leaf	4 to 5 leaf (1 tiller)	6 leaf (2 tillers)	7 leaf (3 tillers)	8 leaf (4 tillers)	Mature (late season)
Crabgrass, (large and smooth), Barnyardgrass, Foxtail, (green, yellow and giant), Signalgrass, (broadleaf)	X	X	X	Footnote 1	Footnote 1 (reduced control)	X
Nutsedge, (yellow)	X	Footnote 1	Footnote 1	Footnote 1	Footnote 1 (reduced control)	X

<sup>1</sup>Second or follow-up applications on ornamental turfgrass may be required. Early summer treatments are generally more effective. Applications in the summer (approximately July 15 to August 15) to older, drought stressed grassy weeds are less effective. Late summer applications (after August 15) to mature crabgrass can be very effective.

**10. Post Emergent Control of Broadleaf Weeds**

Apply this product to broadleaf weeds that are young and actively growing for the best results. Spring and fall treatments under adequate soil moisture conditions are preferred to the summer treatments. Generally, summer broadcast applications to older, drought stressed weeds are less effective. Fall applications provide improved control for emerged winter annuals and perennials such as henbit, chickweed, clover and ground ivy.

**11. Applications**

The maximum number of broadcast applications is limited to 2 per year. Spot treatments during the spring and summer are suitable for sparse infestations or as a follow-up treatment to a broadcast application on an "as-needed" basis. Second or follow-up applications as either broadcast or spot treatments should be made after the initial application on ornamental turfgrass and are recommended for more mature weeds, for dense infestations and for adverse environmental conditions.

Other situations that may need two broadcast or follow-up treatments include the following:

- Under certain conditions, applications of this product at the 3 to 4 tiller stage of the annual grasses may not provide complete control.

- All weed grasses do not germinate at the same time. The period of germination for crabgrass and annual grasses can extend into the summer after the initial application of this product and results may be poor and erratic.
- Dense infestations of weeds may prevent thorough spray coverage of the target weeds.
- Biotypes of large and smooth crabgrass in California have shown varied response to quinclorac. If control failure occurs following a second application, do not reapply this product. Change to a herbicide with a different mode of action.

Extremes in environmental conditions, i.e. temperature and moisture, soil conditions, and cultural practices may affect the activity of this product. Under warm moist conditions, herbicide symptoms may be accelerated. Under dry conditions, the expression of herbicide symptoms is generally delayed, and weeds hardened off by drought may be less susceptible to this product.

If objectionable turf injury occurs with the first application, then avoid making the second application of this product until the turfgrass recovery is complete.

Do not broadcast apply this product when temperatures are above 90°F temporary turfgrass discoloration can also be expected with spot treatments when air temperatures exceed 90°F.

**State Restrictions:**

**Arizona:** Do not use this product on sod farms in Arizona.

**California:** Make broadcast applications only between March 1 and September 1. If troublesome weeds appear during other times of the year, a spot application can be made. While irrigation is necessary and important for plant growth, apply irrigation water efficiently so that no more than 125% of the net irrigation requirement is applied for any irrigation event. Apply efficient irrigations for six months following application of sulfentrazone containing products. Do not apply product to bare ground.

**New York:** For use in New York State by spot treatment only. Spray individual weeds only. Adjust the sprayer to coarse spray to minimize wind drift. Apply to center of the weed and spray lightly to cover. Not for sale, distribution, or use in Nassau or Suffolk Counties in New York State.

Application Site	Use Rate per Application
Kentucky Bluegrass, Perennial ryegrass, Fescues, Annual Bluegrass ( <i>Poa annua</i> ), Rough Bluegrass ( <i>Poa trivialis</i> ), Annual Ryegrass	7 to 8 pints/A (2.6 to 3.0 fl. oz./1000 sq. ft.)
<b>Spray Volume For Conventional Spray Equipment:</b> Use 50 to 220 gal./A (1.2 to 5.0 gal./1000 sq. ft.).	
<b>For Low Volume Spray Equipment</b> (such as PermaGreen Equipment and backpack sprayers): Equipment should be calibrated to apply at least 20 gallons per acre (0.45 gallons/1,000 sq. ft.). Use this lower spray volume (0.45 gallons/1,000 sq. ft.) only when your experience indicates that this volume provides effective weed coverage, adequate weed control, acceptable turf safety/tolerance, and will not result in objectionable turf injury.	
<b>Note:</b> Use the higher spray volumes (more than 50 gpa) for dense weed populations.	

**TABLE 3. BROADCAST TREATMENTS FOR BERMUDAGRASS AND ZOYSIAGRASS**

Application Site	Use Rate per Application
Bermudagrass (common and hybrid) Zoysiagrass	5 to 7 pints/A (1.8 to 2.6 fl. oz./1000 sq. ft.)
<b>Spray Volume For Conventional Spray Equipment:</b> Use 50 to 220 gal./A (1.2 to 5.0 gal./1000 sq. ft.).	
<b>For Low Volume Spray Equipment</b> (such as PermaGreen Equipment and backpack sprayers): Equipment should be calibrated to apply at least 20 gallons per acre (0.45 gallons/1,000 sq. ft.). Use this lower spray volume (0.45 gallons/1,000 sq. ft.) only when your experience indicates that this volume provides effective weed coverage, adequate weed control, acceptable turf safety/tolerance, and will not result in objectionable turf injury.	

- Apply only when Bermudagrass and zoysiagrass are actively growing.
- Expect temporary discoloration.
- Some Bermudagrass hybrids and zoysiagrass cultivars are moderately tolerant to this product and may be more susceptible to discoloration.
- For Bermudagrass hybrids, use lower rates until tolerance to injury can be determined.
- It is impossible to test all environmental conditions and all Bermudagrass hybrids or zoysiagrass cultivars. We suggest testing this product on a small area and observe the treated area for 30 days (during normal growing conditions) to determine the acceptability of turf discoloration.
- Some stunting of the Bermudagrass or zoysiagrass should be expected and turf generally recovers in 7 to 21 days.
- Do not apply in the fall during fall-to-winter transition period.
- Do not apply in the spring during winter-to-spring transition period.
- To avoid turf injury, use only on Bermudagrass or zoysiagrass that is not under stress from diseases, insects, excess heat or cold, drought or excess rainfall/irrigation, shaded areas, low soil pH, nematodes, improper mowing or improper applications of fertilizer and pesticides.
- **For optimum results:**
  - Irrigate 24 hours before and 24 hours after application with 1/2 inch of water.
  - The addition of nitrogen fertilizer or chelated iron may reduce some turf discoloration.
  - Spray in the morning hours and avoid application during extreme hot or dry conditions.
  - Equipment calibration is essential and avoid spray overlaps.
  - Do not use higher pressure equipment, spray pressure should be 40 psi or lower.

**SPOT TREATMENTS:**

- Calibration and proper application are essential when using this product. Spray coverage should be uniform and complete.
- Over applications can result in turfgrass injury.
- **Cool-Season Turf listed in Table 2:** Mix 2.6 to 3.0 fl. oz. of this product with 1.0 gallons of water for treatment of approximately 1,000 sq. ft. of turfgrass. Apply to weeds during the growth stages as shown in Table 1.
- **Warm-Season:** See specific Bermudagrass and zoysiagrass directions in Table 3. Mix 1.84 to 2.57 fl. oz. of this product with 1.0 gallons of water for treatment of approximately 1,000 sq. ft. of turfgrass. Apply to weeds during the growth stages as shown in Table 1.

**12. Weeds Controlled**

Q4 Plus Turf Herbicide for Grassy & Broadleaf Weeds will control or suppress the following. Apply when weeds are young and actively growing.

<b>WEEDS</b>		
Aster, white heath & white prairie	English Daisy <sup>1</sup>	Lespedeza, common
Barnyardgrass	False dandelion	Mallow, common
Bedstraw	(*spotted catsear & common catsear)	Matchweed
Beggarweed, creeping	Field bindweed	Morningglory spp.
Bindweed	(*morningglory & creeping jenny)	Mouseear chickweed
Black medic	Field oxeye-daisy	Nutsedge, yellow
Broadleaf plantain	(*creeping oxeye)	Old world diamond flower
Buckhorn plantain	Filaree, whitestem & redstem	Oxalis (*yellow woodsorrel & creeping woodsorrel)
Bull thistle	Florida betony	Parsley-piert
Burdock, common	Florida pusley	Pennsylvania smartweed
Buttercup, creeping	Foxtail <sup>1</sup> (green, yellow and giant)	Pepperweed
Carpetweed	Ground ivy	Pigweed
Chickweed, common	Groundsel	Pineappleweed
Chicory	Geranium (Carolina)	Plantain
Cinquefoil	Hawkweed	Poison ivy
Clovers	Healall	Poison oak
Crabgrass <sup>1,2</sup> (large and smooth)	Henbit	Prickly lettuce
Curly dock	Innocence (Blue-eyed Mary)	(*compass plant)
Dandelion	Knotweed	Puncturevine
Dayflower	Lambsquarters	Purple cudweed
Deadnettle	Lawn burweed	Purslane
Dock		(cont. on next column)
Dogfennel		
Dollarweed (*pennywort)		

**WEEDS (cont.)**

Ragweed	Thistles	Wild mustard
Redweed	Virginia buttonweed <sup>1</sup>	Wild onion
Red sorrel	White clover (*Dutch clover, honeysuckle clover, white trefoil, & purplewort)	Wild strawberry
(*sheep sorrel)		Wild Violet <sup>1</sup>
Shepherd's purse		Yarrow
Signalgrass <sup>1</sup> (Broadleaf)		Yellow rocket
Speedwell *Veronica	Wild carrot	
(Common, Slender and Thymeleaf)	Wild garlic	
Spurge	Wild geranium	
	Wild lettuce	

<sup>1</sup>Synonyms  
<sup>2</sup>Follow-up application may be required.  
<sup>3</sup>Biotypes of large and smooth crabgrass in California have shown varied response to quinclorac. If control failure occurs following a sequential (or follow-up) application, do not reapply this product. Change to a herbicide with a different mode of action.

**STORAGE AND DISPOSAL**

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

**PESTICIDE STORAGE:** Store in original container in a locked storage area inaccessible to children or pets. Keep from freezing.

**PESTICIDE DISPOSAL:** Pesticide wastes are acutely hazardous. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste Representative at the nearest EPA Regional Office for guidance.

**For Plastic Containers - Nonrefillable with capacities equal to or less than 5 gallons:**  
**CONTAINER HANDLING:** Nonrefillable container. Do not reuse or refill this container. Offer for recycling, if available, or puncture and dispose of in a sanitary landfill, or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

Triple rinse or pressure rinse container (or equivalent) promptly after emptying.

Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times.

OR

Pressure rinse as follows: Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container, and rinse at about 40 PSI for at least 30 seconds. Drain for 10 seconds after the flow begins to drip.

**For Plastic Containers - Nonrefillable with capacities greater than 5 gallons:**  
**CONTAINER HANDLING:** Nonrefillable container. Do not reuse or refill this container. Offer for recycling, if available, or puncture and dispose of in a sanitary landfill, or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

Triple rinse or pressure rinse container (or equivalent) promptly after emptying.

Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times.

OR

Pressure rinse as follows: Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container, and rinse at about 40 PSI for at least 30 seconds. Drain for 10 seconds after the flow begins to drip.

(cont. on next page)

**STORAGE AND DISPOSAL (cont.)**

**For Refillable Containers:**

**CONTAINER HANDLING:** Refillable container. Refill this container with pesticide only. Do not reuse this container for any other purpose.

Container cleaning: Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller.

To clean the container before final disposal, empty the remaining contents from this container into application equipment or a mix tank. Fill the container about 10 percent full with water. Agitate vigorously or recirculate water with the pump for 2 minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times.

**LIMITED WARRANTY AND DISCLAIMER**

**IMPORTANT:** Read this LIMITED WARRANTY AND DISCLAIMER before buying or using this product. By opening and using this product, buyer and all users agree to accept the terms of this LIMITED WARRANTY AND DISCLAIMER in their entirety and without exception. If the terms are not acceptable, return this product unopened immediately to the point of purchase, and the purchase price will be refunded in full.

It is impossible to eliminate all risks inherently associated with use of this product. Damage to the treated article, ineffectiveness, or other unintended consequences can result from use of the product under abnormal conditions such as weather, presence of other materials, or the manner or use of application, etc. Such factors and conditions are beyond the control of the manufacturer, and **BY PURCHASING AND USING THIS PRODUCT THE BUYER AND ALL USERS OF THIS PRODUCT AGREE TO ACCEPT ALL SUCH RISKS.** Buyer and all users further agree to assume all risks of loss or damage from the use of the product in any manner that is not explicitly set forth in or that is inconsistent with label instructions, warnings and cautions.

The manufacturer warrants only that this product conforms to the chemical description given on the label, and that the product is reasonably suited for the labeled use when applied according to the Directions for Use, subject to the inherent risks described below. **TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, THE MANUFACTURER NEITHER MAKES NOR INTENDS ANY OTHER EXPRESS OR IMPLIED WARRANTIES, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, WHICH ARE HEREBY EXPRESSLY DISCLAIMED.**

**THE EXCLUSIVE REMEDY OF BUYER AND ALL USERS OF THIS PRODUCT, AND THE EXCLUSIVE LIABILITY OF THE MANUFACTURER, FOR ANY AND ALL LOSSES, DAMAGES, OR INJURIES RESULTING FROM THE USE OF HANDLING OF THIS PRODUCT, WHETHER OR NOT BASED IN CONTRACT, NEGLIGENCE, STRICT LIABILITY IN TORT OR OTHERWISE, SHALL BE LIMITED, AT THE MANUFACTURER'S OPTION, TO REPLACEMENT OR THE REPAYMENT OF THE PURCHASE PRICE FOR THE QUANTITY OF PRODUCT WITH RESPECT TO WHICH DAMAGES ARE CLAIMED. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, IN NO CASE SHALL THE MANUFACTURER BE LIABLE FOR INCIDENTAL, CONSEQUENTIAL, OR SPECIAL DAMAGES RESULTING FROM THE USE OR HANDLING OF THE PRODUCT.** The Manufacturer must be promptly notified in writing of any claims, whether based in contract, tort, negligence, strict liability, or otherwise, to be eligible to receive either remedy stated above.

The terms of this LIMITED WARRANTY AND DISCLAIMER cannot be varied by any written or verbal statements or agreements at the point of sale or elsewhere. No employee or agent of the manufacturer or seller is authorized to vary or exceed the terms of this LIMITED WARRANTY AND DISCLAIMER in any manner.

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Employee-Owned

**MANUFACTURED BY**  
**PBI/GORDON CORPORATION**  
P.O. BOX 860350  
SHAWNEE, KANSAS 66286  
PBIgordonTurf.com

ATTENTION: This specimen label is provided for informational use only. This product may not yet be available for sale in your state or area. The information found in this label may differ from the information found on the product label you are using. Always follow the instructions for use and precautions on the label of the product you are using.

Issue Date 24-Nov-2014

Revision Date 05-Apr-2019

Version 2

## 1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

**Product identifier.**

**Product Name** Q4® Plus Turf Herbicide for Grassy & Broadleaf Weeds

**Other means of identification**

**Product Code** PBI FP 6971000

**EPA Pesticide Registration Number** 2217-930

**Product Size** Gallon

**Recommended use of the chemical and restrictions on use**

**Recommended Use** Herbicide

**Uses advised against** No information available

**Details of the supplier of the safety data sheet**

**Supplier Address**

PBI-Gordon Corporation  
P.O. Box 860350  
Shawnee, KS 66286

**Company Name**

PBI-Gordon Corporation  
P.O. Box 860350  
Shawnee, KS 66286

**Manufacturer**

PBI-Gordon Corporation  
P.O. Box 860350  
Shawnee, KS 66286

**Emergency telephone number**

**24 Hour Emergency Phone Number** Chemtrec 1-800-424-9300

## 2. HAZARDS IDENTIFICATION

**Classification**

**OSHA Regulatory Status**

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Serious eye damage/eye irritation	Category 2B
Chronic Aquatic Toxicity	Category 3
Flammable liquids	Category 3

**Label elements**

**Emergency Overview**

**Signal word**

Warning

**Hazard statements**

- Causes eye irritation
- Harmful to aquatic life with long lasting effects
- Flammable liquid and vapor



**Appearance** Liquid

**Physical state** Liquid

**Odor** Musty

**Precautionary Statements - Prevention**

Avoid breathing dust/fume/gas/mist/vapors/spray

Contaminated work clothing should not be allowed out of the workplace

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking  
Keep container tightly closed  
Wear protective gloves and protective clothing

**Precautionary Statements - Response**

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing  
Immediately call a POISON CENTER or doctor  
If skin irritation or rash occurs: Get medical advice/attention  
Wash contaminated clothing before reuse  
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower  
In case of fire: Use CO2, dry chemical, or foam to extinguish

**Precautionary Statements - Storage**

Store in a well-ventilated place. Keep cool

**Precautionary Statements - Disposal**

Dispose of contents/container to an approved waste disposal plant

**Hazards not otherwise classified (HNOC)**

Have the product label with you when calling a poison control center or doctor or going in for treatment. You may also contact 1-877-800-5556 for emergency medical treatment advice.

The low flash point of this product is due to a minor component in the mixture. Based on independent laboratory testing of similar products, this product would not sustain combustion as specified in DOT Regulation 49 CFR 173 Appendix H; however OSHA HCS 2012 flammable classifications are solely based on tested mixture flash points and boiling points.

**Other information**

Not applicable

**3. COMPOSITION/INFORMATION ON INGREDIENTS**

**Substance**

Not applicable.

**Mixture**

Chemical name	CAS No	Weight-%
2,4-D, dimethylamine salt	2008-39-1	11.81
Quinclorac	84087-01-4	8.43
Dimethylamine dicamba	2300-66-5	1.49
Sulfentrazone	122836-35-5	0.69
Trade Secret	Trade secret	0-1*

\* The exact percentage (concentration) of composition has been withheld as a trade secret.

**4. FIRST AID MEASURES**

**Description of first aid measures**

**General advice**

Do not get in eyes, on skin, or on clothing. If symptoms persist, call a physician.

**Eye contact**

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Keep eye wide open while rinsing. Remove contact lenses, if present and easy to do. Continue rinsing. If symptoms persist, call a physician.

**Skin contact**

Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. If skin irritation persists, call a physician.

**Inhalation**

Remove to fresh air. Call a physician if irritation persists.

**Ingestion**

Clean mouth with water and drink afterwards plenty of water. Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Call a physician.

**Self-protection of the first aider** Use personal protective equipment as required. Avoid contact with skin, eyes or clothing. See section 8 for more information.

**Most important symptoms and effects, both acute and delayed**

**Symptoms** No information available.

**Indication of any immediate medical attention and special treatment needed**

**Note to physicians** Treat symptomatically.

**5. FIRE-FIGHTING MEASURES**

**Suitable Extinguishing Media** Dry chemical. Carbon dioxide (CO2). Water spray. Alcohol resistant foam.

**Unsuitable extinguishing media** No information available.

**Specific hazards arising from the chemical** In the event of fire and/or explosion do not breathe fumes. Thermal decomposition can lead to release of irritating and toxic gases and vapors.

**Explosion data**

**Sensitivity to mechanical impact** None.

**Sensitivity to static discharge** None.

**Special protective equipment for fire-fighters** As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

**6. ACCIDENTAL RELEASE MEASURES**

**Personal precautions, protective equipment and emergency procedures**

**Personal precautions** Evacuate personnel to safe areas. Use personal protective equipment as required. See section 8 for more information. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Keep people away from and upwind of spill/leak. Do not touch or walk through spilled material.

**Environmental precautions**

**Environmental precautions** Prevent entry into waterways, sewers, basements or confined areas Do not flush into surface water or sanitary sewer system Prevent further leakage or spillage if safe to do so Prevent product from entering drains See Section 12 for additional ecological information

**Methods and material for containment and cleaning up**

**Methods for containment** Stop leak if you can do it without risk. Do not touch or walk through spilled material. Dike far ahead of spill to collect runoff water. Keep out of drains, sewers, ditches and waterways. Absorb spill with inert material (e.g. dry sand or earth), then place in a chemical waste container.

**Methods for cleaning up** Dam up. Soak up with inert absorbent material. Pick up and transfer to properly labeled containers.

**7. HANDLING AND STORAGE**

**Precautions for safe handling**

**Advice on safe handling** Use personal protection equipment. Avoid breathing vapors or mists. Use with local exhaust ventilation. Use according to package label instructions. Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke when using this product. In case of insufficient ventilation, wear suitable

respiratory equipment. Take off contaminated clothing and wash before reuse.

**Conditions for safe storage, including any incompatibilities**

**Storage Conditions** Keep containers tightly closed in a dry, cool and well-ventilated place. Keep in properly labeled containers. Store locked up. Keep out of the reach of children. Keep from freezing.

**8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

Control parameters

**Exposure Limits** The following ingredients are the only ingredients of the product above the cut-off level (or level that contributes to the hazard classification of the mixture) which have an exposure limit applicable in the region for which this safety data sheet is intended or other recommended limit. At this time, the other relevant constituents have no known exposure limits from the sources listed here.

Chemical name	ACGIH TLV	OSHA PEL	NIOSH IDLH
2,4-D, dimethylamine salt 2008-39-1	TWA: 10 mg/m <sup>3</sup> inhalable fraction S*	TWA: 10 mg/m <sup>3</sup>	IDLH: 10 mg/m <sup>3</sup> , TWA: 10 mg/m <sup>3</sup>
Trade Secret	STEL: 15 ppm TWA: 5 ppm	TWA: 10 ppm TWA: 18 mg/m <sup>3</sup> (vacated) TWA: 10 ppm (vacated) TWA: 18 mg/m <sup>3</sup>	IDLH: 500 ppm TWA: 10 ppm TWA: 18 mg/m <sup>3</sup>

**Legend Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**

TWA TWA (time-weighted average) STEL STEL (Short Term Exposure Limit)  
Ceiling Maximum limit value \* Skin designation

**Other Information** Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962 (11th Cir., 1992).

Appropriate engineering controls

**Engineering controls** Showers  
Eyewash stations  
Ventilation systems.

Individual protection measures, such as personal protective equipment

**Eye/face protection** Tight sealing safety goggles.

**Hand protection** Chemical resistant gloves.

**Skin and body protection** Wear suitable protective clothing. Wear long-sleeved shirt, long pants, socks and shoes.

**Respiratory protection** If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

**General hygiene considerations** Do not eat, drink or smoke when using this product. Contaminated work clothing should not be allowed out of the workplace. Regular cleaning of equipment, work area and clothing is recommended. Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Wash hands thoroughly after handling. Wash hands before breaks and after work.

**9. PHYSICAL AND CHEMICAL PROPERTIES**

Information on basic physical and chemical properties

**Physical state** Liquid  
**Appearance** Liquid  
**Color** Brown

**Odor** Musty  
**Odor threshold** No information available

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
<b>pH</b>	7.5 - 9.0	
<b>Melting point/freezing point</b>	<35 °F	
<b>Boiling point / boiling range</b>	100 °C / 212 °F	
<b>Flash point</b>	59 °C / 138 °F	Pensky-Martens Closed Cup (PMCC)
<b>Evaporation rate</b>	< 1	
<b>Flammability (solid, gas)</b>	No data available	None known
<b>Flammability Limit in Air</b>		None known
<b>Upper flammability limit:</b>	No data available	
<b>Lower flammability limit:</b>	No data available	
<b>Vapor pressure</b>	<17 mm Hg	
<b>Vapor density</b>	>1	
<b>Specific Gravity</b>	1.0951	
<b>Water solubility</b>	Soluble in water	
<b>Solubility in other solvents</b>	No data available	None known
<b>Partition coefficient</b>	No data available	None known
<b>Autoignition temperature</b>	No data available	None known
<b>Decomposition temperature</b>	No data available	None known

**Other Information**  
**Oxidizing properties** No information available  
**Liquid Density** 9.12 pounds/gallon  
**Bulk density** No information available

## 10. STABILITY AND REACTIVITY

**Reactivity**  
 No information available

**Stability**  
 Stable under recommended storage conditions

**Possibility of hazardous reactions**  
 None under normal processing.

**Hazardous polymerization**  
 Will not occur.

**Conditions to avoid**  
 Keep out of reach of children.

**Incompatible materials**  
 Strong acids. Strong bases. Strong oxidizing agents.

**Hazardous decomposition products**  
 May emit toxic fumes under fire conditions. Hydrogen chloride. Nitrogen oxides (NOx). Carbon monoxide.

## 11. TOXICOLOGICAL INFORMATION

### Information on likely routes of exposure

#### Product Information

**Inhalation** May be harmful if inhaled.  
**Eye contact** Causes eye irritation.  
**Skin contact** May cause irritation.

**Ingestion** May be harmful if swallowed.

**Component Information**

<b>Chemical name</b>	<b>Oral LD50</b>	<b>Dermal LD50</b>	<b>Inhalation LC50</b>
2,4-D, dimethylamine salt 2008-39-1	= 625 mg/kg ( Rat )	= 2115 mg/kg ( Rabbit )	-
Quinclorac 84087-01-4	= 2190 mg/kg ( Rat )	> 2 g/kg ( Rat )	-
Dimethylamine dicamba 2300-66-5	= 1267 mg/kg ( Rat ) = 2629 mg/kg ( Rat )	> 2 g/kg ( Rabbit ) > 2000 mg/kg ( Rabbit )	-
Sulfentrazone 122836-35-5	> 2855 mg/kg ( Rat )	> 2000 mg/kg ( Rabbit )	> 4.14 mg/L ( Rat ) 4 h
Trade Secret	= 698 mg/kg ( Rat )	= 3900 mg/kg ( Rat )	= 4540 ppm ( Rat ) 6 h

**Symptoms related to the physical, chemical and toxicological characteristics**

**Symptoms** No information available.

**Acute toxicity**

**Numerical measures of toxicity - Product Information**

The following values are calculated based on chapter 3.1 of the GHS document .

<b>ATEmix (oral)</b>	4146 mg/kg
<b>ATEmix (dermal)</b>	68003 mg/kg
<b>ATEmix (inhalation-gas)</b>	18135 mg/L
<b>ATEmix (inhalation-dust/mist)</b>	38.9 mg/L

**Unknown Toxicity**

- 32 % of the mixture consists of ingredient(s) of unknown toxicity
- 0 % of the mixture consists of ingredient(s) of unknown acute oral toxicity
- 0 % of the mixture consists of ingredient(s) of unknown acute dermal toxicity
- 32 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (gas)
- 32 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (vapor)
- 32 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (dust/mist)

**Delayed and immediate effects as well as chronic effects from short and long-term exposure**

**Skin corrosion/irritation** May cause skin irritation.

**Serious eye damage/eye irritation** Causes eye irritation.

**Respiratory or skin sensitization** Not a skin sensitizer.

**Germ cell mutagenicity** No information available.

**Carcinogenicity** The International Agency for Research on Cancer (IARC) lists chlorophenoxy herbicides in its Group 2B (limited evidence for Carcinogenicity in humans.) The US EPA has given the chlorophenoxy Herbicides 2,4-D, 2,4-DP, MCPP, and MCPA a Class D classification (not classifiable as to human carcinogenicity.) More current 2,4-D lifetime feeding studies in rats and mice did not show carcinogenic effects and a recent World Health Organization (WHO) review of 2,4-D toxicology has concluded that 2,4-D is not a carcinogen. The table below indicates whether each agency has listed any ingredient as a carcinogen.

<b>Chemical name</b>	<b>ACGIH</b>	<b>IARC</b>	<b>NTP</b>	<b>OSHA</b>
2,4-D, dimethylamine salt 2008-39-1	-	Group 2B	-	-

**Legend**

**IARC (International Agency for Research on Cancer)**  
*Group 2B - Possibly Carcinogenic to Humans*

**Reproductive toxicity** No information available.  
**STOT - single exposure** No information available.  
**STOT - repeated exposure** No information available.  
**Target Organ Effects** Eyes, Respiratory system, Skin.

**12. ECOLOGICAL INFORMATION**

**Ecotoxicity** Harmful to aquatic life with long lasting effects.

Chemical name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
Trade Secret	9: 96 h Pseudokirchneriella subcapitata mg/L EC50	210: 96 h Poecilia reticulata mg/L LC50 static 111 - 125: 96 h Oncorhynchus mykiss mg/L LC50 120: 96 h Oncorhynchus mykiss mg/L LC50 static 127 - 349: 96 h Poecilia reticulata mg/L LC50 semi-static 396: 96 h Brachydanio rerio mg/L LC50 static	EC50 = 26.8 mg/L 15 min	88.7: 48 h Daphnia magna Straus mg/L EC50

**Persistence and degradability** No information available.

**Bioaccumulation** No information available.

**Other adverse effects** No information available.

**13. DISPOSAL CONSIDERATIONS**

**Waste treatment methods**

**Waste from residues/unused products** Disposal should be in accordance with applicable regional, national and local laws and regulations. Should not be released into the environment.

**Contaminated packaging** Do not reuse empty containers.

**US EPA Waste Number** D001, See Section 2: Hazards not otherwise classified (HNOC).

**14. TRANSPORT INFORMATION**

**Note:** **Products under 93 gallons not regulated by DOT. Below are designations for products over 93 gallons. See RQ**

**DOT**

**UN/ID no.** UN3082  
**Proper shipping name** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.  
**Hazard class** 9  
**Packing group** III  
**Reportable Quantity (RQ)** 2,4-D, dimethylamine salt: RQ (lb)= 847.00 = 93 gallons  
**Special Provisions** 8, 146, 173, 335, IB3, T4, TP1, TP29  
**Description** UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (2,4-D, dimethylamine salt), 9, III, Marine pollutant

**TDG**

**UN/ID no.** UN3082  
**Proper shipping name** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.  
**Hazard class** 9  
**Packing group** III  
**Description** UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (2,4-D, dimethylamine salt), 9, III

**MEX**

**UN/ID no.** UN3082  
**Proper shipping name** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.  
**Hazard class** 9  
**Special Provisions** 274, 331, 335  
**Packing group** III  
**Description** UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (2,4-D, dimethylamine salt), 9, III

**ICAO (air)**

**UN/ID no.** UN3082  
**Proper shipping name** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.  
**Hazard class** 9  
**Packing group** III  
**Special Provisions** A97, A158, A197  
**Description** UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (2,4-D, dimethylamine salt), 9, III

**IATA**

Limited quantity applies with an inner packaging less than 5 L or gross package weight less than 30 kg.  
**UN number** UN3082  
**UN proper shipping name** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.  
**Transport hazard class(es)** 9  
**Packing group** III  
**Special Provisions** A97, A158, A197  
**Description** UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (2,4-D, dimethylamine salt), 9, III

**IMDG**

Limited quantity applies with an inner packaging less than 5 L or gross package weight less than 30 kg.  
**UN number** UN3082  
**UN proper shipping name** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.  
**Transport hazard class(es)** 9  
**Packing group** III  
**EmS-No.** F-A, S-F  
**Special Provisions** 274, 335, 969  
**Description** UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (2,4-D, DIMETHYLAMINE SALT), 9, III, MARINE POLLUTANT

**15. REGULATORY INFORMATION**

**U.S. EPA Label Information**

**EPA Pesticide Registration Number** 2217-930

**Federal Insecticide, Fungicide, Rodenticide Act Regulations**

This chemical is a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets, and for workplace labels of non-pesticide chemicals. Following is the hazard information as required on the pesticide label:

**EPA Pesticide Label**

KEEP OUT OF REACH OF CHILDREN. CAUTION. Hazards to Humans and Domestic Animals. CAUTION: Causes moderate eye

irritation. Avoid contact with eyes or clothing. Harmful if swallowed. Environmental Hazards: This pesticide may be toxic to fish and aquatic invertebrates. Do not apply directly to water, to areas where surface water is present, or to intertidal areas below the mean high water mark. Drift and runoff may be hazardous to aquatic organisms in water adjacent to treated areas. Do not contaminate water when disposing of equipment wash waters or rinsate. This chemical has properties and characteristics associated with chemicals detected in groundwater. The use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in groundwater contamination. Application around a cistern or well may result in contamination of drinking water or groundwater.

**International Inventories**

<b>TSCA</b>	Not Listed
<b>DSL/NDSL</b>	Not Listed
<b>EINECS/ELINCS</b>	Not Listed
<b>ENCS</b>	Not Listed
<b>IECSC</b>	Not Listed
<b>KECL</b>	Not Listed
<b>PICCS</b>	Not Listed
<b>AICS</b>	Not Listed

**Legend:**

- TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory
- DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List
- EINECS/ELINCS** - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
- ENCS** - Japan Existing and New Chemical Substances
- IECSC** - China Inventory of Existing Chemical Substances
- KECL** - Korean Existing and Evaluated Chemical Substances
- PICCS** - Philippines Inventory of Chemicals and Chemical Substances
- AICS** - Australian Inventory of Chemical Substances

**US Federal Regulations**

**SARA 313**

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

Chemical name	SARA 313 - Threshold Values %
Dimethylamine dicamba - 2300-66-5	1.0

**SARA 311/312 Hazard Categories**

Should this product meet EPCRA 311/312 Tier reporting criteria at 40 CFR 370, refer to Section 2 of this SDS for appropriate classifications.

**CWA (Clean Water Act)**

This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

Chemical name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Trade Secret	1000 lb	-	-	X

**CERCLA**

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302).

Chemical name	Hazardous Substances RQs	Extremely Hazardous Substances RQs
2,4-D, dimethylamine salt 2008-39-1	100 lb	-
Trade Secret	1000 lb	-

**US State Regulations**

**U.S. State Right-to-Know Regulations**

**US State Regulations**

<b>Chemical name</b>	<b>New Jersey</b>	<b>Massachusetts</b>	<b>Pennsylvania</b>
Trade Secret	X	-	X
Dimethylamine dicamba 2300-66-5	X	-	-
Trade Secret	X	X	X

**16. OTHER INFORMATION**

<u><b>NFPA</b></u>	<b>Health hazards 2</b>	<b>Flammability 1</b>	<b>Instability 0</b>	<b>Physical and Chemical Properties -</b>
<u><b>HMIS</b></u>	<b>Health hazards 2</b>	<b>Flammability 1</b>	<b>Physical hazards 0</b>	<b>Personal protection X</b>

**Disclaimer**

The information provided in this Material Safety Data Sheet is correct to the best of PBI Gordon Corporation's knowledge, information and belief at the date of this publication. The information given is designed only as guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any other process, unless specified in the text. **PBI GORDON CORPORATION MAKES NO WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR COURSE OF PERFORMANCE OR USAGE OF TRADE.** Given the variety of factors that can affect the use and application of this product, some of which are uniquely within the user's knowledge and control, it is essential that the user evaluate the product to determine whether it is fit for a particular purpose and suitable for user's method of use or application. Each user is also responsible for evaluating the conditions of use and designing the appropriate protective mechanisms to prevent employee exposures, property damage, or release to the environment. PBI Gordon Corporation assumes no responsibility for injury to the recipient or third persons, or for any damage to any property resulting from misuse of the product.

**End of Safety Data Sheet**

# Ranger

## PRO<sup>®</sup> Herbicide

### Complete Directions for Use.

Ranger PRO<sup>®</sup> herbicide is a complete broad-spectrum postemergence professional herbicide for industrial, turf and ornamental weed control.

**AVOID CONTACT OF HERBICIDE WITH FOLIAGE, STEMS, EXPOSED NON-WOODY ROOTS OR FRUIT OF CROPS, DESIRABLE PLANTS AND TREES, BECAUSE SEVERE INJURY OR DESTRUCTION IS LIKELY TO RESULT.**

#### ACTIVE INGREDIENT:

\*Glyphosate, N-(phosphonomethyl)glycine, in the form of its isopropylamine salt ..... **41.0%**

**OTHER INGREDIENTS** (including surfactant):..... **59.0%**  
**100.0%**

\* Contains 480 grams per liter or 4 pounds per U.S. gallon of the active ingredient glyphosate, in the form of its isopropylamine salt. Equivalent to 356 grams per liter or 3 pounds per U.S. gallon of the acid, glyphosate.

Keep out of reach of children.

## CAUTION!

Read precautions inside label.

Not all products listed in this label are registered for use in California. Check the registration status of each product in California before using.

THIS IS AN END-USE PRODUCT. BAYER CROPS SCIENCE LP DOES NOT INTEND AND HAS NOT REGISTERED IT FOR REFORMULATION OR REPACKAGING.

FOR PRODUCT INFORMATION OR ASSISTANCE IN USING THIS PRODUCT,  
 CALL TOLL-FREE, 1-866-99BAYER (1-866-992-2937).

IN CASE OF AN EMERGENCY INVOLVING THIS PRODUCT,  
 OR FOR MEDICAL ASSISTANCE, CALL COLLECT, DAY OR NIGHT, 1-800-334-7577.

EPA Reg. No. 524-517

EPA Est. 524-IA-1

Packed For:  
 BAYER CROPS SCIENCE LP  
 800 N. LINDBERGH BLVD.  
 ST. LOUIS, MISSOURI, 63167 USA

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## NET 2.5 GAL

Read the entire label before using this product.

Use only according to label instructions.

Read the "LIMIT OF WARRANTY AND LIABILITY" statement at the end of the label before buying or using. If terms are not acceptable, return at once unopened.

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## 1.0 INGREDIENTS

### ACTIVE INGREDIENT:

*Glyphosate, N-(phosphonomethyl)glycine, in the form of its isopropylamine salt	41.0%
<b>OTHER INGREDIENTS</b> (including surfactant):	<b>59.0%</b>
	<b>100.0%</b>

\*Contains 480 grams per liter or 4 pounds per U.S. gallon of the active ingredient glyphosate, in the form of its isopropylamine salt. Equivalent to 356 grams per liter or 3 pounds per U.S. gallon of the acid, glyphosate.

## 2.0 IMPORTANT PHONE NUMBERS

FOR PRODUCT INFORMATION OR ASSISTANCE IN USING THIS PRODUCT, CALL TOLL-FREE, 1-866-99BAYER (1-866-992-2937).

IN CASE OF AN EMERGENCY INVOLVING THIS PRODUCT, OR FOR MEDICAL ASSISTANCE, CALL COLLECT, DAY OR NIGHT, 1-800-334-7577.

## 3.0 PRECAUTIONARY STATEMENTS

### 3.1 Hazards to Humans and Domestic Animals

Keep out of reach of children.

## CAUTION!

CAUSES EYE IRRITATION.

Avoid contact with eyes or clothing.

**FIRST AID:** Call a poison control center or doctor for treatment advice.

**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.

- Have the product container or label with you when calling a poison control center or doctor, or going for treatment.
- You may also contact 1-800-334-7577, collect day or night, for emergency medical treatment information.
- This product is identified as **Ranger PRO® herbicide, EPA Registration No. 524-517.**

**DOMESTIC ANIMALS:** This product is considered to be relatively nontoxic to dogs and other domestic animals; however, ingestion of this product or large amounts of freshly sprayed vegetation may result in temporary gastrointestinal irritation (vomiting, diarrhea, colic, etc.). If such symptoms are observed, provide the animal with plenty of fluids to prevent dehydration. Call a veterinarian if symptoms persist for more than 24 hours.

### Personal Protective Equipment (PPE)

**Applicators and other handlers must wear:** long-sleeved shirt and long pants, shoes plus socks. Follow manufacturer's instructions for cleaning/maintaining Personal Protective Equipment. If there are no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them.

When handlers use closed systems, enclosed cabs or aircraft in a manner that meets the requirements listed in Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240 (d) (4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

### User Safety Recommendations

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.
- Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.

## 3.2 Environmental Hazards

Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment washwaters.

## 3.3 Physical or Chemical Hazards

Mix, store and apply spray solutions of this product using only stainless steel, fiberglass, plastic or plastic-lined steel containers.

DO NOT MIX, STORE OR APPLY THIS PRODUCT OR SPRAY SOLUTIONS OF THIS PRODUCT IN GALVANIZED STEEL OR UNLINED STEEL (EXCEPT STAINLESS STEEL) CONTAINERS OR SPRAY TANKS. This product or spray solutions of this product react with such containers and tanks to produce hydrogen gas which may form a highly combustible gas mixture. This gas mixture could flash or explode, causing serious personal injury, if ignited by open flame, spark, welder's torch, lighted cigarette or other ignition source.

## DIRECTIONS FOR USE

It is a violation of Federal law to use this product in any manner inconsistent with its labeling. This product can only be used in accordance with the Directions for Use on this label or in separately published Bayer CropScience LP Supplemental Labeling or Fact Sheets. Supplemental labeling can be found on the Internet at [www.agrian.com](http://www.agrian.com), [www.cdms.net](http://www.cdms.net) or [www.greenbook.net](http://www.greenbook.net) websites or obtained by contacting your Authorized Bayer CropScience LP Retailer or Bayer CropScience LP Representative.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulations.

### Agricultural Use Requirements

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR Part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about Personal Protective Equipment (PPE) and restricted entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 4 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil or water, is: coveralls, chemical resistant gloves greater than 14 mils in thickness composed of materials such as butyl rubber, natural rubber, neoprene rubber, or nitrile rubber, shoes plus socks.

### Non-Agricultural Use Requirements

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard (40 CFR Part 170) for agricultural pesticides. The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries or greenhouses.

Keep people and pets off treated areas until spray solution has dried.

## 4.0 STORAGE AND DISPOSAL

Proper pesticide storage and disposal are essential to protect against exposure to people and the environment due to leaks and spills, excess product or waste, and vandalism. Do not allow this product to contaminate water, foodstuffs, feed or seed by storage or disposal.

**PESTICIDE STORAGE:** Store pesticides away from food, pet food, feed, seed, fertilizers, and veterinary supplies. Keep container closed to prevent spills and contamination.

**PESTICIDE DISPOSAL:** To avoid wastes, use all material in this container, including rinsate, by application in accordance with label directions. If wastes cannot be avoided, offer remaining product to a waste disposal facility or pesticide disposal program. Such programs are often run by state or local governments or by industry. All disposal must be in accordance with applicable Federal, State and local procedures.

**CONTAINER DISPOSAL:** Nonrefillable container. Do not reuse or refill this container.

**CONTAINER HANDLING:** Triple rinse or pressure rinse container (or equivalent) promptly after emptying.

Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times.

Pressure rinse as follows: Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container, and rinse at about 40 PSI for at least 30 seconds. Drain for 10 seconds after the flow begins to drip.

Once cleaned, some plastic pesticide containers can be taken to a container collection site or picked up for recycling. To find the nearest site, contact your chemical dealer or Bayer CropScience LP at 1-866-99BAYER (1-866-992-2937). If recycling is not available, dispose of in accordance with federal, state and local regulations and procedures, which may include puncturing the properly rinsed container and disposing in a sanitary landfill.

## 5.0 PRODUCT INFORMATION

**Product Description:** This product is a postemergence, systemic herbicide with no residual soil activity. It gives broad-spectrum control of many annual weeds, perennial weeds, woody brush and trees. It is formulated as a water-soluble liquid containing surfactant and no additional surfactant is needed or recommended. It may be applied through standard equipment after dilution and mixing with water or other carriers according to label instructions.

**Time to Symptoms:** This product moves through the plant from the point of foliage contact to and into the root system. Visible effects are a gradual wilting and yellowing of the plant which advances to complete browning of above-ground growth and deterioration of underground plant parts. Effects are visible on most annual weeds within 2 to 4 days, but on most perennial weeds may not occur for 7 days or more. Extremely cool or cloudy weather following treatment may slow activity of this product and delay development of visual symptoms.

**Stage of Weeds:** Annual weeds are easiest to control when they are small. Best control of most perennial weeds is obtained when treatment is made at late growth stages approaching maturity. See the "WEEDS CONTROLLED" sections of this label for specific weed rates.

Always use the higher product application rate in the range when weed growth is heavy or dense, or when weeds are growing in an undisturbed (noncultivated) area. Reduced weed control may result from treating weeds with disease or insect damage, weeds heavily covered with dust, or weeds under poor growing conditions.

**Mode of Action in Plants:** The active ingredient in this product inhibits an enzyme found only in plants and microorganisms that is essential to formation of specific amino acids.

**Cultural Considerations:** Reduced control may result when applications are made to annual or perennial weeds that have been mowed, grazed or cut, and have not been allowed to regrow to the appropriate stage for treatment.

**Rainfastness:** Heavy rainfall soon after application may wash this product off of the foliage and a repeat application may be required for adequate control.

**Spray Coverage:** For best results, ensure spray coverage is uniform and complete. Do not spray foliage to the point of runoff.

**No Soil Activity:** Weeds must be emerged at the time of application to be controlled by this product. Weeds germinating from seed after application will not be controlled. Unemerged plants arising from unattached underground rhizomes or rootstocks of perennials will not be affected by the herbicide and will continue to grow.

**Maximum Application Rates:** The maximum application or use rates stated throughout this label are given in units of volume (fluid ounces or quarts) of this product per acre. However, the maximum allowed application rates apply to this product combined with the use of any and all other herbicides containing the active ingredient glyphosate, whether applied separately or as tank mixtures, on a basis of total pounds of glyphosate (acid equivalents) per acre. If more than one glyphosate-containing product is applied to the same site within the same year, you must ensure that the total use of glyphosate (pounds acid equivalents) does not exceed the maximum allowed. The combined total of all treatments must not exceed 10.6 quarts of this product (10.6 pounds of glyphosate acid) per acre per year. See the "INGREDIENTS" section of this label for necessary product information.

### ATTENTION

AVOID CONTACT OF HERBICIDE WITH FOLIAGE, STEMS, EXPOSED NON-WOODY ROOTS OR FRUIT OF CROPS, DESIRABLE PLANTS AND TREES, BECAUSE SEVERE INJURY OR DESTRUCTION MAY RESULT.

AVOID DRIFT. EXTREME CARE MUST BE USED WHEN APPLYING THIS PRODUCT TO PREVENT INJURY TO DESIRABLE PLANTS AND CROPS.

Do not allow the herbicide solution to mist, drip, drift or splash onto desirable vegetation since minute quantities of this product can cause severe damage or destruction to the crop, plants or other areas on which treatment was not intended. The likelihood of injury occurring from the use of this product increases when winds are gusty, as wind velocity increases, when wind direction is constantly changing or when there are other meteorological conditions that favor spray drift. When spraying, avoid combinations of pressure and nozzle type that will result in splatter or fine particles (mist) that are likely to drift. AVOID APPLYING AT EXCESSIVE SPEED OR PRESSURE.

**NOTE:** Use of this product in any manner not consistent with this label may result in injury to persons, animals or crops, or other unintended consequences.

## 5.1 Weed Resistance Management

GROUP	9	HERBICIDE
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Glyphosate, the active ingredient in this product, is a Group 9 herbicide based on the mode of action classification system of the Weed Science Society of America. Any weed population may contain plants naturally resistant to Group 9 herbicides. Weed species resistant to Group 9 herbicides may be effectively managed utilizing another herbicide from a different Group or using other cultural or mechanical practices.

To minimize the occurrence of glyphosate resistant biotypes observe the following good weed management practices:

- Scout your application site before and after herbicide applications.
- Control weeds early when they are relatively small.
- Incorporate other herbicides and cultural or mechanical practices as part of your weed control system where appropriate.

- Utilize the label rate for the most difficult weed in the site. Avoid tankmixtures with other herbicides that reduce this product's efficacy (through antagonism) or tank mixtures which encourage rates of this product below the labeled amounts.
- Control weed escapes and prevent weeds from setting seeds.
- Clean equipment before moving from site to site to minimize spread of weed seed.
- Use new commercial seed as free of weed seed as possible.
- Report any incidence of repeated non-performance of this product on a particular weed to your Bayer CropScience LP representative, local retailer, or county extension agent.

## 5.2 Management for Glyphosate Resistant Weed Biotypes

**NOTE:** Appropriate testing is critical in order to confirm weed resistance to glyphosate. Contact your Bayer CropScience LP representative to determine if resistance has been confirmed to any particular weed biotype in your area. Control instructions for biotypes confirmed as resistant to glyphosate are made available on separately published supplemental labeling or Fact Sheets for this product and may be obtained from your local retailer or Bayer CropScience LP representative.

Since the occurrence of new glyphosate resistant weeds cannot be determined until after product use and scientific confirmation, Bayer CropScience LP is not responsible for any losses that may result from the failure of this product to control glyphosate resistant weed biotypes.

The following good weed management practices are encouraged to reduce the spread of confirmed glyphosate resistant biotypes:

- If a naturally occurring resistant biotype is present at your site, this product may be tank-mixed or applied sequentially with an appropriately labeled herbicide with a different mode of action to achieve control.
- Cultural and mechanical control practices may also be used as appropriate.
- Scout treated sites after herbicide applications and control escapes of resistant biotypes before they set seed.
- Thoroughly clean equipment before leaving sites known to contain resistant biotypes.

## 6.0 MIXING

Mix, store and apply spray solutions of this product using only clean stainless steel, fiberglass, plastic or plastic-lined steel containers.

DO NOT MIX, STORE OR APPLY THIS PRODUCT OR SPRAY SOLUTIONS OF THIS PRODUCT IN GALVANIZED STEEL OR UNLINED STEEL (EXCEPT STAINLESS STEEL) CONTAINERS OR SPRAY TANKS.

Use caution to avoid siphoning back into the carrier source. Use approved antiback-siphoning devices where required by state or local regulations.

Clean sprayer parts immediately after using this product by thoroughly flushing with water.

**NOTE:** REDUCED RESULTS MAY OCCUR IF WATER CONTAINING SOIL IS USED, VISIBLY MUDDY WATER OR WATER FROM PONDS AND DITCHES THAT IS NOT CLEAR.

## 6.1 Mixing with Water

This product mixes readily with water. Mix spray solutions of this product as follows: Fill the mixing or spray tank with the required amount of clean water. Add the labeled amount of this product near the end of the filling process and mix gently (well). During mixing and application, foaming of the spray solution may occur. To prevent or minimize foam, avoid the use of mechanical agitators, terminate by-pass and return lines at the bottom of the tank and, if needed, use an approved anti-foam or defoaming agent.

## 6.2 Tank Mixtures

This product does not provide residual weed control. This product may be tank-mixed with other herbicides to provide residual weed control, a broader weed control spectrum or an alternate mode of action. Always read and follow label directions for all products in the tank mixture. Use according to the most restrictive precautionary statements for each product in the mixture. Any labeled rate of this product may be used in a tank mix.

When this label describes a tank mixture with a generic active ingredient such as diuron, 2,4-D or dicamba, the user is responsible for ensuring the mixture product label allows the specific application.

Buyer and all users are responsible for all loss or damage in connection with the use or handling of mixtures of this product with herbicides or other materials that are not expressly listed in this label. Mixing this product with herbicides or other materials not identified on this label may result in reduced performance.

## 6.3 Tank Mixing Procedure

When tank mixing, read and carefully observe label directions, cautionary statements and all information on the labels of all products used. Add the tank-mix product to the tank as directed by the label. Maintain agitation and add the labeled amount of this product.

Maintain good agitation at all times until the contents of the tank are sprayed. If the spray mixture is allowed to settle, thorough agitation may be required to resuspend the mixture before spraying is resumed.

Keep by-pass line on or near the bottom of the tank to minimize foaming. Screen size in nozzle or line strainers should be no finer than 50-mesh.

Always predetermine the compatibility of labeled tank mixtures of this product with water carrier by mixing small proportional quantities in advance. Ensure that the specific tank mixture product is registered for application at the desired site.

Refer to the "Tank Mixtures" section for additional precautions.

## 6.4 Mixing Percent Solutions

Prepare the desired volume of spray solution by mixing the amount of this product in water as shown in the following table:

### Spray Solution

Desired Volume	Amount of Ranger PRO Herbicide					
	1/2%	1%	1-1/2%	2%	5%	10%
1 gal	2/3 oz	1-1/3 oz	2 oz	2-2/3 oz	6-1/2 oz	13 oz
25 gal	1 pt	1 qt	1-1/2 qt	2 qt	5 qt	10 qt
100 gal	2 qt	1 gal	1-1/2 gal	2 gal	5 gal	10 gal

2 tablespoons = 1 fluid ounce

For use in backpack, knapsack or pump-up sprayers, it is suggested that the labeled amount of this product be mixed with water in a larger container. Fill sprayer with the mixed solution.

## 6.5 Surfactants

Nonionic surfactants which are labeled for use with herbicides may be used. Do not reduce rates of this product when adding surfactant. When adding additional surfactant, use 0.5 percent surfactant concentration (2 quarts per 100 gallons of spray solution) when using surfactants which contain at least 70 percent active ingredient or a 1 percent surfactant concentration (4 quarts per 100 gallons of spray solution) for those surfactants containing less than 70 percent active ingredient. Read and carefully observe surfactant cautionary statements and other information appearing on the surfactant label.

## 6.6 Colorants or Dyes

Approved colorants or marking dyes may be added to this product. Colorants or dyes used in spray solutions of this product may reduce performance, especially at lower rates or dilution. Use colorants or dyes according to the manufacturer's instructions.

## 6.7 Drift Control Additives

Drift reduction additives may be used with all equipment types, except wiper applicators, and sponge bars. When a drift reduction additive is used, read and carefully observe precautionary statements and all other information appearing on the additive label. The use of drift reduction additives can affect spray coverage which may result in reduced performance.

## 7.0 APPLICATION EQUIPMENT AND TECHNIQUES

Do not apply this product through any type of irrigation system.

APPLY THESE SPRAY SOLUTIONS IN PROPERLY MAINTAINED AND CALIBRATED EQUIPMENT CAPABLE OF DELIVERING DESIRED VOLUMES.

### SPRAY DRIFT MANAGEMENT

AVOID DRIFT. EXTREME CARE MUST BE USED WHEN APPLYING THIS PRODUCT TO PREVENT INJURY TO DESIRABLE VEGETATION.

Do not allow the herbicide solution to mist, drip, drift or splash onto desirable vegetation since minute quantities of this product can cause severe damage or destruction to the crop, plants or other areas on which treatment was not intended.

Avoiding spray drift at the application site is the responsibility of the applicator. The interaction of many equipment- and weather-related factors determines the potential for spray drift. The applicator and/or the grower is responsible for considering all these factors when making decisions.

## 7.1 Aerial Equipment

DO NOT APPLY THIS PRODUCT USING AERIAL SPRAY EQUIPMENT EXCEPT UNDER CONDITIONS AS SPECIFIED WITHIN THIS LABEL.

FOR AERIAL APPLICATION IN CALIFORNIA, REFER TO THE FEDERAL SUPPLEMENTAL LABEL FOR AERIAL APPLICATIONS IN THAT STATE FOR SPECIFIC INSTRUCTIONS, RESTRICTIONS AND REQUIREMENTS.

TO PREVENT INJURY TO ADJACENT DESIRABLE VEGETATION, APPROPRIATE BUFFER ZONES MUST BE MAINTAINED.

Avoid direct application to any body of water.

Use the labeled rates of this herbicide in 3 to 25 gallons of water per acre.

Coarse sprays are less likely to drift; therefore, do not use nozzles or nozzle configurations that dispense spray as fine spray droplets. Do not angle nozzles forward into the air stream and do not increase spray volume by increasing nozzle pressure. Drift control additives may be used. When a drift control additive is used, read and carefully observe the cautionary statements and all other information appearing on the additive label.

Ensure uniform application—To avoid streaked, uneven or overlapped application, use appropriate marking devices.

### Aircraft Maintenance

PROLONGED EXPOSURE OF THIS PRODUCT TO UNCOATED STEEL SURFACES MAY RESULT IN CORROSION AND POSSIBLE FAILURE OF THE PART. The maintenance of an organic coating (paint) which meets aerospace specification MIL-C-38413 may prevent corrosion. To prevent corrosion of exposed parts, thoroughly wash aircraft after each day of spraying to remove residues of this product accumulated during spraying or from spills. Landing gear is most susceptible.

### AERIAL SPRAY DRIFT MANAGEMENT

The following drift management requirements must be followed to avoid off-target drift movement from aerial applications to agricultural field crops.

1. The distance of the outermost nozzles on the boom must not exceed 3/4 the length of the wingspan or rotor.
2. Nozzles must always point backward parallel with the air stream and never be pointed downwards more than 45 degrees. Where states have more stringent regulations, they should be observed.

### Importance of droplet size

The most effective way to reduce drift potential is to apply large droplets. The best drift management strategy is to apply the largest droplets that provide sufficient coverage and control. Applying larger droplets reduces drift potential, but will not prevent drift if applications are made improperly, or under unfavorable environmental conditions (see the **Wind, Temperature and Humidity**, and **Temperature Inversion** sections of this label).

### Controlling droplet size

- **Volume:** Use high flow-rate nozzles to apply the highest practical spray volume. Nozzles with the higher rated flows produce larger droplets.
- **Pressure:** Use the lower spray pressures labeled for the nozzle. Higher pressure reduces droplet size and does not improve canopy penetration. When higher flow-rates are needed, use higher flow-rate nozzles instead of increasing pressure.
- **Number of nozzles:** Use the minimum number of nozzles that provide uniform coverage.
- **Nozzle orientation:** Orienting nozzles so that the spray is released backwards, parallel to the air stream, will produce larger droplets than other orientations. Significant deflection from the horizontal will reduce droplet size and increase drift potential.
- **Nozzle type:** Use a nozzle type that is designed for the intended application. With most nozzle types, narrower spray angles produce larger droplets. Consider using low-drift nozzles. Solid stream nozzles oriented straight back produce larger droplets than other nozzle types.
- **Boom Length:** For some use patterns, reducing the effective boom length to less than 3/4 of the wingspan or rotor length may further reduce drift without reducing swath width.
- **Application Height:** Applications must not be made at a height greater than 10 feet above the top of the largest plants unless a greater height is required for aircraft safety. Making applications at the lowest height that is safe reduces the exposure of the droplets to evaporation and wind.

### Swath Adjustment

When applications are made with a crosswind, the swath will be displaced downwind. Therefore, on the up and downwind edges of the field, the applicator must compensate for this displacement by adjusting the path of the aircraft upwind. Swath adjustment distance increases, with increasing drift potential (higher wind, smaller droplets, etc.).

### Wind

Drift potential is lowest between wind speeds of 2 to 10 miles per hour. However, many factors, including droplet size and equipment type determine drift potential at any given speed. Application must be avoided below 2 miles per hour due to variable wind direction and high inversion potential. **NOTE:** Local terrain can influence wind patterns. Every applicator must be familiar with local wind patterns and how they affect drift.

### Temperature and Humidity

When making applications in low relative humidity, set up equipment to produce larger droplets to compensate for evaporation. Droplet evaporation is most severe when conditions are both hot and dry.

### Temperature Inversions

Applications must not occur during a temperature inversion because drift potential is high. Temperature inversions restrict vertical air mixing, which causes small suspended droplets to remain in a concentrated cloud. This cloud can move in unpredictable directions due to the light variable winds common during inversions. Temperature inversions are characterized by increasing temperatures with altitude and are common on nights with limited cloud cover and light to no wind. They begin to form as the sun sets and often continue into the morning. Their presence can be indicated by ground fog; however, if fog is not present, inversions can also be identified by the movement of smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing.

## Sensitive Areas

This product must only be applied when the potential for drift to adjacent sensitive areas (e.g., residential areas, bodies of water, known habitat for threatened or endangered species, non-target crops) is minimal (e.g., when wind is blowing away from the sensitive areas).

## 7.2 Ground Broadcast Equipment

Apply the labeled rates of this product in 3 to 40 gallons of water per acre as a broadcast spray unless otherwise specified in this label or in separate supplemental labeling or Fact Sheets published by Bayer CropScience LP. As density of weeds increases, increase spray volume within the labeled range to ensure complete coverage. Carefully select proper nozzles to avoid spraying a fine mist. For best results with ground application equipment, use flat-fan nozzles. Check for even distribution of spray droplets.

## 7.3 Backpack or High-Volume Equipment

Apply to foliage of vegetation to be controlled. For applications made on a spray-to-wet basis, ensure spray coverage is uniform and complete. Do not spray to the point of runoff. Use coarse sprays only.

Refer to the "Annual Weeds" instructions of "WEEDS CONTROLLED" section for specific rates and restrictions.

## 7.4 Selective Equipment

This product may be diluted with water and applied through recirculating spray systems, shielded applicators, hooded sprayers, wiper applicators or sponge bars, to listed weeds growing in any site specified on this label.

AVOID CONTACT OF HERBICIDE WITH DESIRABLE VEGETATION. Contact of this product with desirable vegetation may result in unwanted plant damage or destruction.

### Recirculating Spray

A recirculating spray system directs the spray solution onto weeds growing above desirable vegetation, while spray solution not intercepted by weeds is collected and returned to the spray tank for reuse.

Adjust application equipment used above desired vegetation to the lowest spray stream or wiper contact point is at least 2 inches above the desirable vegetation. Droplets, mist, foam or splatter of the herbicide solution settling on desirable vegetation is likely to result in discoloration, stunting or destruction.

Better results may be obtained when more of the weed is exposed to the herbicide solution. Weeds not contacted by the herbicide solution will not be affected. This may occur in dense clumps, severe infestations or when the height of the weeds varies so that not all weeds are contacted. In these instances, repeat treatment may be necessary.

### Shielded and Hooded Applicators

A shielded or hooded applicator directs the herbicide solution onto weeds, while shielding desirable vegetation from the herbicide. Use nozzles that provide uniform coverage within the treated area. Keep shields on these sprayers adjusted to protect desirable vegetation. EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF HERBICIDE WITH DESIRABLE VEGETATION.

### Wiper Applicators and Sponge Bars

A wiper or sponge applicator applies the herbicide solution onto weeds by rubbing the weed with an absorbent material containing the herbicide solution. Equipment must be designed, maintained and operated to prevent the herbicide solution from contacting desirable vegetation. Operate this equipment at ground speeds no greater than 5 miles per hour. Performance may be improved by reducing speed in areas of heavy weed infestations to ensure adequate wiper saturation. Better results may be obtained if 2 applications are made in opposite directions.

Avoid leakage or dripping onto desirable vegetation. Adjust height of applicator to ensure adequate contact with weeds. Keep wiping surfaces clean. Be aware that, on sloping ground, the herbicide solution may migrate, causing dripping on the lower end and drying of the wicks on the upper end of a wiper applicator.

Do not use wiper equipment when weeds are wet.

Mix only the amount of solution to be used during a 1-day period, as reduced product performance may result from the use of solutions held in storage. Clean wiper parts immediately after using this product by thoroughly flushing with water.

**For Rope or Sponge Wick Applicators:** Solutions ranging from 33 to 75 percent of this product in water may be used.

**For Panel Applicators and Pressure-Feed Systems:** Solutions ranging from 33 to 100 percent of this product in water may be used.

When applied as directed, this product CONTROLS the following weeds:

Corn, volunteer	Sicklepod
Panicum, Texas	Spanishneedles
Rye, common	Starbur, bristly
Shattercane	

When applied as directed, this product SUPPRESSES the following weeds:

Beggarweed, Florida	Ragweed, common
Bermudagrass	Ragweed, giant
Dogbane, hemp	Smutgrass
Dogfennel	Sunflower
Guineagrass	Thistle, Canada
Johnsongrass	Thistle, musk
Milkweed	Vaseygrass
Nightshade, silverleaf	Velvetleaf
Pigweed, redroot	

## 7.5 Injection Systems

This product may be used in aerial or ground injection spray systems. It may be used as a liquid concentrate or diluted prior to injecting into the spray stream. Do not mix this product with the undiluted concentrate of other products when using injection systems unless specifically directed.

## 7.6 CDA Equipment

The rate of this product applied per acre by controlled droplet application (CDA) equipment must not be less than the amount directed in this label when applied by conventional broadcast equipment. For vehicle-mounted CDA equipment, apply 2 to 15 gallons of water per acre.

CDA equipment produces a spray pattern that is not easily visible. Extreme care must be exercised to avoid spray or drift contacting the foliage or any other tissue of desirable vegetation, as damage or destruction is likely to result.

## 8.0 SITE AND USE INSTRUCTIONS

Detailed instructions follow alphabetically, by site.

Unless otherwise specified on this label or in separate supplemental labeling or Fact Sheets published by Bayer CropScience LP, applications may be made to control any weeds listed in the annual, perennial and woody brush tables. Also refer to the "Selective Equipment" section.

## 8.1 Cut Stump

Cut stump treatments may be made on any site listed on this label. This product will control many types of woody brush and tree species. Apply this product using suitable equipment to ensure coverage of the entire cambium. Cut trees or resprouts close to the soil surface. Apply a 50- to 100-percent solution of this product to the freshly-cut surface **immediately after** cutting. Delays in application may result in reduced performance. For best results, make applications during periods of active growth and full leaf expansion.

DO NOT MAKE CUT STUMP APPLICATIONS WHEN THE ROOTS OF DESIRABLE WOODY BRUSH OR TREES MAY BE GRAFTED TO THE ROOTS OF THE CUT STUMP. Some sprouts, stems, or trees may share the same root system. Adjacent trees having a similar age, height and spacing may signal shared roots. Whether grafted or shared, injury is likely to occur to non-treated stems/trees when one or more trees sharing common roots are treated.

## 8.2 Forestry Site Preparation

This product is labeled for the control or partial control of woody brush, trees and herbaceous weeds in forestry sites and for use in preparing or establishing wildlife openings within these sites and maintaining logging roads.

This product is labeled for use in site preparation prior to planting any tree species, including Christmas trees, eucalyptus, hybrid tree cultivars and silvicultural nursery sites.

Use higher rates of this product within the labeled range for control or partial control of woody brush, trees and hard-to-control perennial herbaceous weeds. For best results, apply to actively growing woody brush and trees after full leaf expansion and before fall color and leaf drop. Increase rates within the labeled range for control of perennial herbaceous weeds any time after emergence and before seedheads, flowers or berries appear.

Use the lower rates of this product within the labeled range for control of annual herbaceous weeds and actively growing perennial herbaceous weeds after seedheads, flowers or berries appear. Apply to the foliage of actively growing annual herbaceous weeds any time after emergence.

This product has no herbicidal or residual activity in the soil. Where repeat applications are necessary, do not exceed 10.6 quarts of this product per acre per year.

TANK MIXTURES: Tank mixtures of this product may be used to increase the spectrum of vegetation controlled. When tank mixing, read and carefully observe the label claims, cautionary statements and all information on the labels of all products used. Use according to the most restrictive precautionary statements for each product in the mixture.

**NOTE:** For forestry site preparation, make sure the tank-mix product is approved for use prior to planting the desired species. Observe planting interval restrictions.

Any labeled rate of this product may be used in a tank mix with the following products for forestry site preparation.

Arsenal Applicators Concentrate	Garlon 3A
Chopper	Garlon 4
Chopper Gen2	Oust XP
Escort	

For control of herbaceous weeds, use the lower labeled tank mixture rates. For control of dense stands or tough-to-control woody brush and trees, use the higher labeled tank mixture rates.

Do not apply this product as an over-the-top broadcast spray for forestry conifer or hardwood release unless otherwise directed on this label or in separately published Bayer CropScience LP supplemental labeling or Fact Sheets.

## 8.3 Non-Crop Areas and Industrial Sites

This product may be used in non-crop areas, airports, apartment complexes, commercial sites, ditch banks, driveways, dry ditches, dry canals, fencerows, forestry sites, golf courses, greenhouses, industrial sites, landscape areas, lumber yards, manufacturing sites, municipal sites, natural areas, office complexes, ornamentals, parks, parking areas, petroleum tank farms and pumping installations, railroads, recreational areas, residential areas, rights-of-way, roadsides, schools, shadehouses, sports complexes, storage areas, substations, turfgrass areas, utility sites, warehouse areas, and wildlife management sites.

This product may also be used in non-forestry sites, Christmas tree farms, plant nurseries, sod or turf seed farms.

Unless otherwise specified, applications may be made to control any weeds listed in the "WEEDS CONTROLLED" section of this label.

### Weed Control, Trim-and-Edge, Bare Ground

This product may be used in non-crop and non-food crop areas. It may be applied with any application equipment described in this label. This product may be used to trim-and-edge around objects in non-crop sites, for spot treatment of unwanted vegetation and to eliminate unwanted weeds growing

in established shrub beds or ornamental plantings. This product may be used prior to planting an area to ornamentals, flowers, turfgrass (sod or seed), or prior to laying asphalt or beginning construction projects.

Repeated applications of this product may be used, as weeds emerge, to maintain bare ground.

**TANK MIXTURES:** This product may be tank mixed with the following products provided that the specific product is labeled for application at the use site. Refer to the individual product labels for approved sites and application rates.

Arsenal	Pendulum WDG
Barricade 65WG	Plateau
Clarity	Princep DF
diuron	Princep Liquid
Endurance	Ronstar 50 WSP
Escort	Sahara
Garlon 3 <sup>®</sup>	simazine
Garlon 4	Surflan
Karmex	Telar
Krovair I DF	Vanquish
Oust XP	2,4-D
Pendulum 3.3 EC	

This product plus dicamba tank mixtures may not be applied by air in California.

When applied as a tank mixture for bare ground, this product provides control of the emerged annual weeds and control or partial control of emerged perennial weeds, woody brush and trees.

For control or partial control of the following perennial weeds, apply 1 to 2 quarts of this product plus 2 to 8 ounces of Oust XP per acre.

Bahiagrass	Fescue, tall
Bermudagrass	Johnsongrass
Broomsedge	Poorjoe
Dallisgrass	Quackgrass
Dock, curly	Vaseygrass
Dogfennel	Vervain, blue

#### Chemical Mowing - Perennials

This product will suppress perennial grasses listed in this section to serve as a substitute for mowing. Use 8 fluid ounces of this product per acre when treating tall fescue, fine fescue, orchardgrass, quackgrass or reed canarygrass covers. Use 6 fluid ounces of this product per acre when treating Kentucky bluegrass. Apply treatments in 10 to 40 gallons of spray solution per acre.

Use only in areas where some temporary injury or discoloration of perennial grasses can be tolerated.

#### Chemical Mowing - Annuals

For growth suppression of some annual grasses, annual ryegrass, wild barley and wild oats growing in coarse turf on roadsides or other industrial areas, apply 4 to 5 fluid ounces of this product in 10 to 40 gallons of spray solution per acre. Make applications when annual grasses are actively growing and before the seedheads are in the boot stage of development. Treatments may cause injury to the desired grasses.

#### Bromus Species and Medusahead in Pastures and Rangelands

**Bromus species.** This product may be used to treat downy brome (*Bromus tectorum*), Japanese brome (*Bromus japonicus*), soft chess (*Bromus mollis*) and cheatgrass (*Bromus secalinus*) found in industrial, rangeland and pasture sites. Apply 8 to 16 fluid ounces of this product per acre on a broadcast basis.

For most results, coincide treatment with early seedhead emergence of the most mature plants. Delaying the application until this growth stage will maximize the emergence of other weedy grass flushes. Make applications to the same site each year until seed banks are depleted and the desirable perennial grasses can become reestablished on the site.

**Medusahead.** To treat medusahead, apply 16 fluid ounces of this product per acre as soon as plants are actively growing, and prior to the 4-leaf stage. Applications may be made in the fall or spring.

Applications to brome and medusahead may be made using ground or aerial equipment. Aerial applications for these uses may be made using fixed wing or helicopter equipment. For aerial applications, apply in 2 to 10 gallons of water per acre. For applications using ground equipment, apply in 10 to 20 gallons of water per acre. When applied as directed in this label, there are no grazing restrictions.

#### Dormant Turfgrass

This product may be used to control or suppress many winter annual weeds and tall fescue for effective release of dormant bermudagrass and bahiagrass turf. Treat only when turf is dormant and prior to spring green-up.

Apply 8 to 64 fluid ounces of this product per acre. Apply the labeled rates in 10 to 40 gallons of water per acre. Use only in areas where bermudagrass or bahiagrass are desirable ground covers and where some temporary injury or discoloration can be tolerated.

Treatments in excess of 16 fluid ounces per acre may result in injury or delayed green-up in highly maintained areas, golf courses and lawns. DO NOT apply tank mixtures of this product plus OustXP in highly maintained turfgrass areas. For further uses, refer to the "Railroads" section of this label, which gives rates for dormant bermudagrass treatment and the "Roadsides" section of this label, which gives rates for dormant bermudagrass and bahiagrass treatments.

#### Actively Growing Bermudagrass

This product may be used to control or partially control many annual and perennial weeds for effective release of actively growing bermudagrass. DO NOT apply more than 16 fluid ounces of this product per acre in highly maintained turfgrass areas. DO NOT apply tank mixtures of this product plus OustXP in highly maintained turfgrass areas. For further uses, refer to the "Roadsides" section of this label, which gives rates for actively growing bermudagrass treatments. Use only in areas where some temporary injury or discoloration can be tolerated.

#### Turfgrass Renovation, Seed, or Sod Production

This product controls most existing vegetation prior to renovating turfgrass areas or establishing turfgrass grown for seed or sod. For maximum control of existing vegetation, delay planting or sodding to determine if any regrowth from escaped underground plant parts occurs. Where repeat treatments are necessary, sufficient regrowth must be attained prior to application. For warm-season grasses like bermudagrass, summer or fall applications provide the best control. Where existing vegetation is growing under mowed turfgrass management, apply this product after omitting at least one regular mowing to allow sufficient growth for good interception of the spray.

Do not disturb soil or underground plant parts before treatment. Delay tillage or renovation techniques such as vertical mowing, coring or slicing for 7 days after application to allow translocation into underground plant parts.

Desirable turfgrasses may be planted following the above procedures.

Hand-held equipment may be used for spot treatment of unwanted vegetation growing in existing turfgrass. Broadcast or hand-held equipment may be used to control sod remnants or other unwanted vegetation after sod is harvested.

If application rates total 3 quarts per acre or less, no waiting period between treatment and feeding or livestock grazing is required. If the rate is greater than 3 quarts per acre, remove domestic livestock before application and wait 8 weeks after application before grazing or harvesting.

## 8.4 Habitat Management

#### Habitat Restoration and Management

This product may be used to control exotic and other undesirable vegetation in habitat management and natural areas, including rangeland and wildlife refuges. Applications can be made to allow recovery of native plant species, prior to planting desirable native species, and for similar broad-spectrum vegetation control requirements. Spot treatments can be made to selectively remove unwanted plants for habitat management and enhancement.

#### Wildlife Food Plots

This product may be used as a site preparation treatment prior to planting wildlife food plots. Any wildlife food species may be planted after applying this product, or native species may be allowed to repopulate the area. If tillage is needed to prepare a seedbed, wait 7 days after application before tillage to allow translocation into underground plant parts.

## 8.5 Injection and Frill (Woody Brush and Trees)

This product may be used to control or partially control woody brush and trees by injection or frill applications. Apply this product using suitable equipment that must penetrate into the living tissue. Apply the equivalent of 1/25 fluid ounce (1 ml) of this product per each 2 to 3 inches of trunk diameter at breast height (DBH). This is best achieved by applying a 50 to 100 percent concentration of this product either to a continuous frill around the tree or as cuts evenly spaced around the tree below all branches. As tree diameter increases in size, better results are achieved by applying diluted material to a continuous frill or more closely spaced cuttings. Avoid application techniques that allow runoff to occur from frilled or cut areas in species that exude sap freely. In these species, make the frill or cuts at an oblique angle to produce a cupping effect and use a 100 percent concentration of this product. For best results, make application during periods of active growth and after full leaf expansion.

## 8.6 Ornamentals, Plant Nurseries, and Christmas Trees

#### Post-Directed and Trim-and-Edge

This product may be used prior to the planting of and as a post-directed spray around established woody ornamental species, arborvitae, azalea, boxwood, crabapple, eucalyptus, euonymus, fir, Douglas fir, joboba, hollies, lilac, magnolia, maple, oak, poplar, privet, pine, spruce and yew, growing in plant nurseries, on Christmas tree farms, or on other non-food tree production sites. This product may also be used to trim and edge around trees, buildings, sidewalks and roads, potted plants and other objects in a nursery setting.

Desirable plants may be protected from the spray solution by using shields or coverings made of cardboard or other impermeable material. THIS PRODUCT IS NOT LABELED FOR USE AS AN OVER-THE-TOP BROADCAST SPRAY IN ORNAMENTALS AND CHRISTMAS TREES. Care must be exercised to avoid contact of spray, drift or mist with foliage or bark of established ornamental species.

#### Site Preparation

This product may be used prior to planting any ornamental, nursery or Christmas tree species.

#### Wiper Applications

This product may be used through wick or other suitable wiper applicators to control or partially control undesirable vegetation around established eucalyptus or poplar trees. See the "Selective Equipment" section of this label for further information about the proper use of wiper applicators.

#### Greenhouse/Shadehouse

This product may be used to control weeds growing in and around greenhouses and shadehouses. Desirable vegetation must not be present during application and air circulation fans must be turned off.

## 8.7 Parks, Recreational and Residential Areas

This product may be used in parks, recreational and residential areas. It may be applied with any application equipment described in this label. This product may be used to trim-and-edge around trees, fences, and paths, around buildings, sidewalks, and other objects in these areas. This product may be used for spot treatment of unwanted vegetation. This product may be used to eliminate unwanted weeds growing in established shrub beds or ornamental plantings. This product may be used prior to planting an area to ornamentals, flowers, turfgrass (sod or seed), or prior to laying asphalt or beginning construction projects.

All of the instructions in the "Non-Crop Areas and Industrial Sites" section apply to park and recreational areas.

## 8.8 Railroads

All of the instructions in the "Non-Crop Areas and Industrial Sites" section apply to railroads.

### Bare Ground, Ballast and Shoulders, Crossings, and Spot Treatment

This product may be used to maintain bare ground on railroad ballast and shoulders. Repeat applications of this product may be used, as weeds emerge, to maintain bare ground. This product may be used to control tall-growing weeds to improve line-of-sight at railroad crossings and reduce the need for mowing along rights-of-way. For crossing applications, up to 80 gallons of spray solution per acre may be used.

This product may be tank mixed with the following products provided that the specific product is registered for ballast, shoulder, spot, bare ground and crossing treatments:

Arsenal	Krovlar I DF
Clarity	Oust XP
diuron	Sahara
Escort	Spike
Garlon 3A	Telar
Garlon 4	Vanquish
Hyvar X	2,4-D

### Brush Control

This product may be used to control woody brush and trees on railroad rights-of-way. Apply 4 to 10 quarts of this product per acre as a broadcast spray, using boom-type or boomless nozzles. Up to 80 gallons of spray solution per acre may be used. Apply a 3/4- to 2-percent solution of this product when using high-volume spray-to-wet applications. Apply a 5- to 10-percent solution of this product when using low-volume directed sprays for spot treatment. This product may be mixed with the following products for enhanced control of woody brush and trees:

Arsenal	Garlon 4
Escort	Tordon K
Garlon 3A	

### Bermudagrass Release

This product may be used to control or partially control many annual and perennial weeds for effective release of actively growing bermudagrass. Apply 1 to 3 pints of this product in up to 80 gallons of spray solution per acre. Use the lower rate when treating annual weeds below 6 inches in height (or runner length). Use the higher rate as weeds increase in size or as they approach flower or seedhead formation. These rates will also provide partial control of the following perennial species:

Bahiagrass	Johnsongrass
Bluestem, silver	Trumpet creeper
Fescue, tall	Vaseygrass

This product may be tank-mixed with Oust XP. If tank-mixed, use no more than 1 to 3 pints of this product with 1 to 2 ounces of Oust XP per acre. Use the lower rates of each product to control annual weeds less than 6 inches in height (or runner length) that are listed in this label and the Oust XP label. Use the higher rates as annual weeds increase in size and approach the flower or seedhead stages. These rates will also provide partial control of the following perennial weeds:

Bahiagrass	Fescue, tall
Blackberry	Johnsongrass
Bluestem, silver	Poorjoe
Broomsedge	Raspberry
Dallisgrass	Trumpet creeper
Dewberry	Vaseygrass
Dock, curly	Vervain, blue
Dogfennel	

Use only on well-established bermudagrass. Bermudagrass injury may result from the treatment, but regrowth will occur under moist conditions. Do not make repeat applications in the same season since severe injury may occur.

## 8.9 Roadsides

All of the instructions in the "Non-Crop Areas and Industrial Sites" section apply to roadsides.

### Shoulder Treatments

This product may be used on road shoulders. It may be applied with boom sprayers, shielded boom sprayers, high-volume off-center nozzles, hand-held equipment, and similar equipment.

### Guardrails and Other Obstacles to Mowing

This product may be used to control weeds growing under guardrails and around signposts and other objects along the roadside.

### Spot Treatment

This product may be used as a spot treatment to control unwanted vegetation growing along roadsides.

### Tank Mixtures

This product may be tank-mixed with the following products for shoulder, guardrail, spot and bare ground treatments provided that the specific product is registered for use on such sites. Read and carefully observe label directions, cautionary statements and all information on the labels of all products used.

Clarity	Princep DF
diuron	Princep Liquid
Endurance	Ronstar 50 WP
Escort	Sahara
Krovlar I DF	simazine
Oust XP	Surflan
Outrider®	Telar
Pendulum 3.3 EC	Vanquish
Pendulum WDG	2,4-D

See the "Tank Mixtures" section of this label for tank-mixing instructions.

### Release of Bermudagrass or Bahiagrass

#### Dormant Applications

This product may be used to control or partially control many winter annual weeds and tall fescue for effective release of dormant bermudagrass or bahiagrass. Treat only when turf is dormant and prior to spring green-up. This product may also be tank-mixed with Outrider or Oust XP for residual control. Tank mixtures of this product with Oust XP may delay green-up.

For best results on winter annuals, treat when plants are in an early growth stage (below 6 inches in height) after most have germinated. For best results on tall fescue, treat when fescue is at or beyond the 4- to 6-leaf stage.

Apply 8 to 64 fluid ounces of this product in a tank mixture with 3/4 to 1-1/3 ounces Outrider herbicide per acre. Read and follow all label directions for Outrider herbicide.

Apply 8 to 64 fluid ounces of this product per acre alone or in a tank mixture with 1/4 to 1 ounce per acre of Oust XP. Apply the labeled rates in 10 to 40 gallons of water per acre. Use only in areas where bermudagrass or bahiagrass are desirable ground covers and where some temporary injury or discoloration can be tolerated. To avoid delays in green-up and minimize injury, add no more than 1 ounce of Oust XP per acre on bermudagrass and no more than 1/2 ounce of Oust XP per acre on bahiagrass and avoid treatments when these grasses are in a semi-dormant condition.

#### Actively Growing Bermudagrass

This product may be used to control or partially control many annual and perennial weeds for effective release of actively growing bermudagrass. Apply 1 to 3 pints of this product in 10 to 40 gallons of spray solution per acre. Use the lower rate when treating annual weeds below 6 inches in height (or runner length). Use the higher rate as weeds increase in size or as they approach flower or seedhead formation. These rates will also provide partial control of the following perennial species:

Bahiagrass	Johnsongrass
Bluestem, silver	Trumpet creeper
Fescue, tall	Vaseygrass

This product may be tank mixed with Outrider for control or partial control of Johnsongrass and other weeds listed in the Outrider label. Use 8 to 32 fluid ounces of this product with 3/4 to 1-1/3 ounces of Outrider. Use the higher rates of both products for control of perennial weeds or annual weeds greater than 6 inches in height.

This product may be tank mixed with Oust XP. If tank-mixed, use no more than 1 to 2 pints of this product with 1 to 2 ounces of Oust XP per acre. Use the lower rates of each product to control annual weeds less than 6 inches in height (or runner length) that are listed in this label and the Oust XP label. Use the higher rates as annual weeds increase in size and approach the flower or seedhead stages. These rates will also provide partial control of the following perennial weeds:

Bahiagrass	Fescue, tall
Bluestem, silver	Johnsongrass
Broomsedge	Poorjoe
Dallisgrass	Trumpet creeper
Dock, curly	Vaseygrass
Dogfennel	Vervain, blue

Use only on well-established bermudagrass. Bermudagrass injury may result from the treatment, but regrowth will occur under moist conditions. Repeat applications of the tank mix in the same season causes severe injury.

#### Actively Growing Bahiagrass

For suppression of vegetative growth and seedhead inhibition of bahiagrass for approximately 45 days, apply 6 fluid ounces of this product in 10 to 40 gallons of water per acre. Apply 1 to 2 weeks after full green-up or after mowing to a uniform height of 3 to 4 inches. This application must be made prior to seedhead emergence.

For suppression up to 120 days, apply 4 fluid ounces of this product per acre, followed by an application of 2 to 4 fluid ounces per acre about 45 days later. Make no more than 2 applications per year.

This product may be used for control or partial control of Johnsongrass and other weeds listed on the Outrider label in actively growing bahiagrass. Apply 1-1/2 to 4-3/4 ounces of this product with 0.75 to 1.33 ounces of Outrider per acre. Use the higher rates for control of perennial weeds or annual weeds greater than 6 inches in height. Use only on well-established bahiagrass.

A tank mixture of this product plus Oust XP may be used. Apply 6 fluid ounces of this product plus 1/4 ounce of Oust XP per acre 1 to 2 weeks following an initial spring mowing. Make only one application per year.

## 8.10 Utility Sites

This product is labeled for use along electrical power, pipeline and telephone rights-of-way, and in other sites associated with these rights-of-way, substations, roadsides, railroads or similar rights-of-way that run in conjunction with utilities.

This product may be used in utility sites and substations for bare ground, trim-and-edge, spot treatment of unwanted vegetation and to eliminate unwanted weeds growing in established shrub beds or ornamental plantings. This product may be used prior to planting a utility site to ornamentals, flowers, turfgrass (sod or seed), or beginning construction projects.

Repeated applications of this product may be used, as weeds emerge, to maintain bare ground.

This product is also labeled for use in preparing or establishing wildlife openings within these sites, maintaining access roads and for side trimming along utility rights-of-way.

#### Tank Mixtures

Tank mixtures of this product may be used to increase the spectrum of control for herbaceous weeds, woody brush and trees provided that the specific product is registered for application to the desired site. When tank mixing, read and carefully observe the label claims, cautionary statements and all information on the labels of all products used. Use according to the most restrictive precautionary statements for each product in the mixture. Any labeled rate of this product may be used in a tank mix.

For control of herbaceous weeds, use the lower labeled tank mixture rates. For control of dense stands or tough-to-control woody brush and trees, use the higher labeled rates.

**TANK MIXTURES:** This product may be tank mixed with the following products for use in utility sites, provided that the specific product used is labeled for use on these sites. Refer to the individual product labels for approved sites and application rates.

Arsenal	Outrider
atrazine <sup>1</sup>	pendimethalin <sup>1</sup>
Barricade 65WG	Plateau
dicamba <sup>1</sup>	Ronstar 50 WP
diuron <sup>1</sup>	Sahara
Endurance	simazine <sup>1</sup>
Escort	Surflan AS
Escort XP	Surflan WDG
Garlon 3A <sup>2</sup>	Telar DF
Garlon 4 <sup>3</sup>	Transline
Krenite	Vanquish
Krovar I DF	Velpar DF
Oust	Velpar L
Oust XP	2,4-D <sup>1</sup>

<sup>1</sup> Tank mixtures with product containing this generic active ingredient may be made provided the specific product is labeled for application at the use site.

<sup>2</sup> Ensure that Garlon 3A is thoroughly mixed with water according to label directions before adding this product. Have spray mixture agitating at the time this product is added to avoid spray incompatibility problems.

<sup>3</sup> For side trimming treatments, use this product alone or in a tank mixture with Garlon 4.

### Bare Ground and Trim-and-Edge

This product may be used in utility sites and substations for bare ground, trim-and-edge around objects, spot treatment of unwanted vegetation and to eliminate unwanted weeds growing in established shrub beds or ornamental plantings. This product may be used prior to planting a utility site to ornamentals, flowers, turfgrass (sod or seed), or beginning construction projects.

Repeated applications of this product may be used, as weeds emerge, to maintain bare ground.

This product may be tank mixed with the following products. Refer to these products' labels for approved non-crop sites and application rates.

Arsenal	Plateau
Banvel	Princep DF
Barricade 65WG	Princep Liquid
Diuron	Ronstar 50 WP
Endurance	Sahara
Escort	simazine
Garlon 3A	Surflan

## 9.0 WEEDS CONTROLLED

Always use the higher rate of this product per acre within the labeled range when weed growth is heavy or dense or weeds are growing in an undisturbed (non-cultivated) area.

Reduced results may occur when treating weeds heavily covered with dust. For weeds that have been mowed, grazed or cut, allow regrowth to occur prior to treatment.

For low-volume directed spray applications, use a 5- to 10-percent solution of this product for control or partial control of annual weeds, perennial weeds, or woody brush and trees. Spray coverage must be uniform with at least 50 percent of the foliage contacted. Coverage of the top one-half of the plant is important for best results. To ensure adequate spray coverage, spray both sides of large or tall woody brush and trees, when foliage is thick and dense, or where there are multiple resprouts.

Refer to the following label sections for labeled rates for the control of annual and perennial weeds and woody brush and trees. For difficult to control perennial weeds and woody brush and trees, where plants are growing under stressed conditions, or where infestations are dense, this product may be used at 5 to 10 quarts per acre for enhanced results.

## 9.1 Annual Weeds

Use 1 quart per acre if weeds are less than 6 inches in height or runner length and 1.5 quarts to 4 quarts per acre if weeds are over 6 inches in height or runner length or when weeds are growing under stressed conditions.

For spray-to-wet applications, apply a 1/2-percent solution of this product to weeds less than 6 inches in height or runner length. Apply prior to seedhead formation in grass or bud formation in broadleaf weeds. For annual weeds over 6 inches tall, or for smaller weeds growing under stressed conditions, use a 1- to 2-percent solution. Use the higher rate for tough-to-control species or for weeds over 24 inches tall.

### WEED SPECIES

Anoda, spurred	Medusahead*
Barley*	Morningglory ( <i>Ipomoea spp</i> )
Barley, little*	Mustard, blue*
Barnyardgrass*	Mustard, tansy*
Bassia, fivehook	Mustard, tumble*
Bittercress*	Mustard, wild*
Bluegrass, annual*	Nightshade, black*
Bluegrass, bulbous*	Oats
Brome, downy*	Panicum browntop*
Brome, Japanese*	Panicum, fall*
Buttercup*	Panicum, Texas*
Castorbean	Pennycress, field*
Cheatgrass*	Pepperweed, Virginia*
Cheeseweed ( <i>Malva parviflora</i> )	Pigweed*
Chervil*	Puncturevine
Chickweed*	Purslane, common
Cocklebur*	Pusley, Florida
Copperleaf, hophornbeam	Ragweed, common*
Copperleaf, Virginia	Ragweed, giant
Coreopsis, plains/tickseed*	Rice, red
Corn*	Rocket, London*
Crabgrass*	Rocket, yellow
Cupgrass, woolly*	Rye*
Dwarfdandelion*	Ryegrass*
Eclipta*	Sandbur, field*
Falsedandelion*	Sesbania, hemp
Falseflix, smallseed*	Shattercane*
Fiddleneck	Shepherd's-purse*
Filaree	Sicklepod
Fleabane, annual*	Signalgrass, broadleaf*
Fleabane, hairy	Smartweed, ladythumb*
( <i>Coryza bonariensis</i> )*	Smartweed, Pennsylvania*
Fleabane, rough*	Sorghum, grain (milo)*
Foxtail*	Southistle, annual
Foxtail, Carolina*	Spanishneedles
Geranium, Carolina	Speedwell, com*
Goatgrass, jointed*	Speedwell, purslane*
Goosegrass	Sprangletop*
Groundsel, common*	Spurge, annual
Henbit	Spurge, prostrate*
Horseweed/Marestail	Spurge, spotted*
( <i>Coryza canadensis</i> )	Spurry, umbrella*
Itchgrass*	Starthistle, yellow
Johnsongrass, seedling	Stinkgrass*
Junglerice	Sunflower*
Knotweed	Teaweed/Prickly sida
Kochia	Thistle, Russian
Lamb's-quarters*	Velvetleaf
Lettuce, prickly*	Wheat*
Mannagrass, eastern*	Wild oats*
Mayweed	Witchgrass*

\*When using field broadcast equipment (aerial applications or boom sprayers using flat-fan nozzles) these species will be controlled or partially controlled using 1 pint of this product per acre. Applications must be made using 3 to 10 gallons of carrier volume per acre. Use nozzles that ensure thorough coverage of foliage and treat when weeds are in an early growth stage.

## 9.2 Perennial Weeds

Best results are obtained when perennial weeds are treated after they reach the reproductive stage of growth (seedhead initiation in grasses and bud formation in broadleaves). For non-flowering plants, best results are obtained when the plants reach a mature stage of growth. In many situations, treatments are required prior to these growth stages. Under these conditions, use the higher application rate within the labeled range.

Use a 2-percent solution on tough-to-control perennials like bermudagrass, dock, field bindweed, hemp dogbane, milkweed and Canada thistle.

Ensure thorough coverage when using spray-to-wet treatments using hand-held equipment. When using hand-held equipment for low-volume directed spot treatments, apply a 5- to 10-percent solution of this product.

Allow 7 or more days after application before tillage.

Weed Species	Rate (QT/A)	Hand-Held % Solution
Alfalfa*	1	2
Alligatorweed*	4	1.5
Anise (fennel)	2 - 4	1 - 2
Artichoke, Jerusalem	3 - 5	2
Bahiagrass	3 - 5	2
Beachgrass, European ( <i>Ammophila arenaria</i> )	—	5
Bentgrass*	1.5	2
Bermudagrass	5	2
Bermudagrass, water (knotgrass)	1.5	2
Bindweed, field	4 - 5	2
Bluegrass, Kentucky	2	2
Blueweed, Texas	4 - 5	2
Brackenfern	3 - 4	1 - 1.5
Bromegrass, smooth	2	2
Bursage, woolly-leaf	—	2
Canarygrass, reed	2 - 3	2
Cattail	3 - 5	2
Clover, red, white	3 - 5	2
Cogongrass	3 - 5	2
Dallisgrass	3 - 5	2
Dandelion	3 - 5	2
Dock, curly	3 - 5	2
Dogbane, hemp	4	2
Fescue (except tall)	3 - 5	2
Fescue, tall	1 - 3	2
Guineagrass	3	1
Hemlock, poison	2 - 4	1 - 2
Horsenettle	3 - 5	2
Horseradish	4	2
Iceland	2	1.5 - 2
Ivy, German	2 - 4	1 - 2
Johnsongrass	2 - 3	1
Kikuyugrass	2 - 3	2
Knapweed	4	2
Lantana	—	1 - 1.25
Lespedeza	3 - 5	2
Milkweed, common	3	2
Muhly, wirestem	2	2
Mullein, common	3 - 5	2

Weed Species	Rate (QT/A)	Hand-Held % Solution
Napiergrass	3 - 5	2
Nightshade, silverleaf	2	2
Nutsedge, purple, yellow	3	1 - 2
Orchardgrass	2	2
Pampasgrass	3 - 5	1.5 - 2
Paragrass	3 - 5	2
Pepperweed, perennial	4	2
Phragmites*	3 - 5	1 - 2
Quackgrass	2 - 3	2
Redvine*	2	2
Reed, giant	4 - 5	2
Ryegrass, perennial	2 - 3	1
Smartweed, swamp	3 - 5	2
Spurge, leafy*	—	2
Sweet potato, wild*	—	2
Thistle, artichoke	2 - 3	1 - 2
Thistle, Canada	2 - 3	2
Timothy	2 - 3	2
Torpedograss*	4 - 5	2
Trumpetcreeper*	2 - 3	2
Vaseygrass	3 - 5	2
Velvetgrass	3 - 5	2
Wheatgrass, western	2 - 3	2

\*Partial control

### 9.3 Woody Brush and Trees

Apply this product after full leaf expansion, unless otherwise directed in this label or separate supplemental label or Fact Sheet published by Bayer CropScience LP. Use the higher rate for larger plants and/or dense areas of growth. On vines, use the higher rate for plants that have reached the woody stage of growth. Best results are obtained when application is made in late summer or fall after fruit formation.

In arid areas, best results are obtained when applications are made in the spring to early summer when brush species are at high moisture content and are flowering.

Ensure thorough coverage when using spray-to-wet treatments using handheld equipment. When using hand-held equipment for low-volume directed spray spot treatments, apply a 5- to 10-percent solution of this product.

Symptoms may not appear prior to frost or senescence with fall treatments.

Allow 7 or more days after application before tillage, mowing or removal. Repeat treatments may be necessary to control plants regenerating from underground parts or seed. Some autumn colors on undesirable deciduous species are acceptable provided no major leaf drop has occurred. Reduced performance may result if fall treatments are made following a frost.

Weed Species	Broadcast Rate (QT/A)	Hand-Held Spray-to-Wet % Solution
Alder	3 - 4	1 - 1.5
Ash*	2 - 5	1 - 2
Aspen, quaking	2 - 3	1 - 1.5
Bearclover (Beamat)*	2 - 5	1 - 2
Beech*	2 - 5	1 - 2
Birch	2	1
Blackberry	3 - 4	1 - 1.5
Blackgum*	2 - 5	1 - 2
Bracken	2 - 5	1 - 2
Broom, French, Scotch	2 - 5	1.5 - 2
Buckwheat, California*	2 - 4	1 - 2
Cascara*	2 - 5	1 - 2
Catsclaw*	—	1 - 1.5

Ceanothus*	2 - 5	1 - 2
Chamise*	2 - 5	1
Cherry; bitter, black, pin	2 - 3	1 - 1.5
Coyotebrush	3 - 4	1.5 - 2
Creeper, Virginia	2 - 5	1 - 2
Deerweed	2 - 5	1
Dogwood*	2 - 5	1 - 2
Elderberry	2	1
Elm*	2 - 5	1 - 2
Eucalyptus	—	2
Flower, monkey flower*	2 - 4	1 - 2
Gorse*	2 - 5	1 - 2
Hasardia*	2 - 4	1 - 2
Hawthorn	2 - 3	1 - 1.5
Hazel	2	1
Hickory*	2 - 5	1 - 2
Honeysuckle	3 - 4	1 - 1.5
Hornbeam, American*	2 - 5	1 - 2
Ivy, poison	4 - 5	2
Kudzu	4	2
Locust, black*	2 - 4	1 - 2
Madrone resprouts*	—	2
Manzanita*	2 - 5	1 - 2
Maple, red*	2 - 4	1 - 1.5
Maple, sugar	—	1-1.5
Maple, vine*	2 - 5	1 - 2
Oak; black, white*	2 - 4	1 - 2
Oak, post	3 - 4	1 - 1.5
Oak, northern pin	2 - 4	1 - 1.5
Oak, poison	4 - 5	2
Oak, scrub*	2 - 4	1 - 1.5
Oak, southern red	2 - 3	1 - 1.5
Olive, Russian*	2 - 5	1 - 2
Peppertree, Brazilian (Florida holly)*	2 - 5	1 - 2
Persimmon*	2 - 5	1 - 2
Pine	2 - 5	1 - 2
Poplar, yellow*	2 - 5	1 - 2
Redbud, eastern	2 - 5	1 - 2
Rose, multiflora	2	1
Sage, black	2 - 4	1
Sage, white*	2 - 4	1 - 2
Sage brush, California	2 - 4	1
Salmonberry	2	1
Saltcedar*	2 - 5	1 - 2
Sassafras*	2 - 5	1 - 2
Sourwood*	2 - 5	1 - 2
Sumac; laurel, poison, smooth, sugarbush, winged *	2 - 4	1 - 2
Sweetgum	2 - 3	1 - 1.5
Swordfern*	2 - 5	1 - 2
Tallowtree, Chinese	—	1
Tanoak resprouts*	—	2
Thimbleberry	2	1
Tobacco, tree*	2 - 4	1 - 2
Toyon*	-	2
Trumpetcreeper	2 - 3	1 - 1.5
Waxmyrtle, southern*	2 - 5	1 - 2
Willow	3	1
Yerba Santa, California*	—	2

\*Partial control

## 10.0 LIMIT OF WARRANTY AND LIABILITY

Bayer CropScience LP warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes set forth in the Complete Directions for Use label booklet ("Directions") when used in accordance with those Directions under the conditions described therein. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, NO OTHER EXPRESS WARRANTY OR IMPLIED WARRANTY OF FITNESS FOR PARTICULAR PURPOSE OR MERCHANTABILITY IS MADE. This warranty is also subject to the conditions and limitations stated herein.

Buyer and all users shall promptly notify this Company of any claims whether based in contract, negligence, strict liability, other tort or otherwise.

To the extent consistent with applicable law, buyer and all users are responsible for all loss or damage from use or handling which results from conditions beyond the control of this Company, including, but not limited to, incompatibility with products other than those set forth in the Directions, application to or contact with desirable vegetation, unusual weather, weather conditions which are outside the range considered normal at the application site and for the time period when the product is applied, as well as weather conditions which are outside the application ranges set forth in the Directions, application in any manner not explicitly set forth in the Directions, moisture conditions outside the moisture range specified in the Directions, or the presence of products other than those set forth in the Directions in or on the soil, crop or treated vegetation.

This Company does not warrant any product reformulated or repackaged from this product except in accordance with this Company's stewardship requirements and with express written permission from this Company.

TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, THE EXCLUSIVE REMEDY OF THE USER OR BUYER, AND THE LIMIT OF THE LIABILITY OF THIS COMPANY OR ANY OTHER SELLER FOR ANY AND ALL LOSSES, INJURIES OR DAMAGES RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT (INCLUDING CLAIMS BASED IN CONTRACT, NEGLIGENCE, STRICT LIABILITY, OTHER TORT OR OTHERWISE) SHALL BE THE PURCHASE PRICE PAID BY THE USER OR BUYER FOR THE QUANTITY OF THIS PRODUCT INVOLVED, OR, AT THE ELECTION OF THIS COMPANY OR ANY OTHER SELLER, THE REPLACEMENT OF SUCH QUANTITY, OR, IF NOT ACQUIRED BY PURCHASE, REPLACEMENT OF SUCH QUANTITY, IN NO EVENT SHALL THIS COMPANY OR ANY OTHER SELLER BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES.

Upon opening and using this product, buyer and all users are deemed to have accepted the terms of this LIMIT OF WARRANTY AND LIABILITY which may not be varied by any verbal or written agreement. If terms are not acceptable, return at once unopened.

Outrider, Ranger PRO, Ranger PRO and Design are registered trademarks of Bayer Group. All other trademarks are the property of their respective owners.

This product is protected by U.S. Patent Nos. 5,683,958; 5,703,015; 6,063,733; 6,121,199; 6,121,200. No license granted under any non-U.S. patent(s).

EPA Reg. No. 524-517

In case of an emergency involving this product, or for medical assistance, Call Collect, day or night, 1-800-334-7577.

Packed For:  
BAYER CROPSCIENCE LP  
800 N. LINDBERGH BLVD.  
ST. LOUIS, MISSOURI, 63167 USA  
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# Ranger

## PRO® Herbicida

### Instrucciones completas para el uso

El herbicida Ranger PRO® es un herbicida profesional completo de postemergencia y de amplia efectividad, para el control de malezas en zonas industriales, céspedes y ornamentales.

**EVITE EL CONTACTO DEL HERBICIDA CON EL FOLLAJE, TALLOS, RAICES NO LEÑOSAS EXPUESTAS O FRUTOS EXPUESTOS DE LAS COSECHAS, PLANTAS Y ARBOLES DESEABLES. EN CASO CONTRARIO ES PROBABLE QUE SUFRAN GRAVES DAÑOS O SEAN DESTRUIDOS TOTALMENTE.**

#### INGREDIENTE ACTIVO:

\*Glifosato, N-(fosfonometil)glicina, en forma de su sal de isopropilamina..... **41.0%**

**OTROS INGREDIENTES** (incluyendo surfactante): ..... **59.0%**  
**100.0%**

\*Contiene 480 gramos por litro o 4 libras por galón americano del ingrediente activo glifosato, en forma de su sal de isopropilamina. Equivalente a 356 gramos por litro o 3 libras por galón americano del ácido, glifosato.

Manténgase fuera del alcance de los niños.

## ¡PRECAUCION!

Lea las precauciones dentro de la etiqueta.

No todos los productos recomendados en esta etiqueta han sido registrados para su uso en California. Verifique el estado de registro de cada producto en California antes de utilizarlo.

ESTE ES UN PRODUCTO DE USO FINAL. BAYER CROPSCIENCE LP NO TIENE LA INTENCIÓN Y NO LA HA REGISTRADO PARA SU REFORMULACIÓN O REEMBALAJE.

PARA INFORMACION SOBRE EL PRODUCTO O AYUDA PARA UTILIZAR ESTE PRODUCTO, LLAME GRATIS AL, 1-866-99BAYER (1-866-992-2937).

EN CASO DE QUE SE PRESENTE UNA EMERGENCIA RELACIONADA CON ESTE PRODUCTO, O PARA OBTENER AYUDA MEDICA, LLAME POR COBRAR A CUALQUIER HORA DEL DIA O DE LA NOCHE, AL TELEFONO, 1-800-334-7577.

Registro en la EPA N° 524-517

Empacado Para:  
BAYER CROPSCIENCE LP  
800 N. LINDBERGH BLVD.  
ST. LOUIS, MISSOURI, 63167 USA

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## 1.0 INGREDIENTES

### INGREDIENTE ACTIVO:

\*Glifosato, N-(fosfonometil)glicina, en forma de su sal de isopropilamina ..... 100.0%

OTROS INGREDIENTES (incluyendo surfactante): ..... 59.0%

\*Contiene 480 gramos por litro o 4 libras por galón americano del ingrediente activo glifosato, en forma de su sal de isopropilamina. Equivalente a 356 gramos por litro o 3 libras por galón americano del ácido, glifosato.

Este producto está protegido por la patente de los Estados Unidos Nos. 5,683,958; 5,703,015; 6,063,733; 6,121,199; 6,121,200. No se han otorgado licencias bajo ninguna patente que no sea de los Estados Unidos.

## 2.0 TELEFONOS IMPORTANTES

PARA INFORMACION SOBRE EL PRODUCTO O AYUDA PARA UTILIZAR ESTE PRODUCTO, LLAME GRATIS AL, 1-866-99BAYER (1-866-992-2937).

EN CASO DE QUE SE PRESENTE UNA EMERGENCIA RELACIONADA CON ESTE PRODUCTO, O PARA OBTENER AYUDA MEDICA, LLAME POR COBRAR A CUALQUIER HORA DEL DIA O DE LA NOCHE, AL TELEFONO, 1-800-334-7577.

## 3.0 ADVERTENCIAS

### 3.1 Riesgos para seres humanos y animales domésticos

## Manténgase fuera del alcance de los niños.

# ¡PRECAUCION!

IRRITA LOS OJOS.

Evite el contacto con los ojos y con la ropa.

**PRIMEROS AUXILIOS:** Llame al centro de envenenamientos o a un médico para que le indique el tratamiento.

**SI ENTRA EN CONTACTO CON LOS OJOS**

- Mantenga abiertos los ojos y enjuague lenta y cuidadosamente con agua durante 15 a 20 minutos.
- Si usa lentes de contacto, quíteselos después de los primeros 5 minutos, y continúe enjuagando los ojos.

- Tenga a mano el envase o la etiqueta del producto cuando llame al centro de envenenamientos o al médico, o cuando vaya a procurarse tratamiento.
- También puede llamar por cobrar al teléfono 1-800-334-7577, las 24 horas, para obtener información sobre el tratamiento médico de urgencia.
- Este producto está identificado como **herbicida Ranger PRO®**, Registro de la EPA N° 524-517.

**ANIMALES DOMESTICOS:** Este producto se considera relativamente no tóxico para los perros y otros animales domésticos; sin embargo, la ingestión de este producto o de grandes cantidades de vegetación recientemente tratada puede resultar en una irritación gastrointestinal temporal (vómito, diarrea, cólico, etc.). Si se observan dichos síntomas, dé al animal suficiente cantidad de líquidos para evitar la deshidratación. Si los síntomas continúan por más de 24 horas, llame al veterinario.

### Equipo de protección personal (PPE)

**Las personas que aplican o manejan este producto deben usar:** camisas de manga larga, así como pantalones largos, zapatos y calcetín. Siga las instrucciones del fabricante para limpiar y mantener el equipo de protección personal. En caso de no tener dichas instrucciones para piezas lavables, use detergente y agua muy caliente. Mantenga y lave el equipo de protección personal separado de las demás piezas a lavarse.

Deseche la ropa y otros materiales absorbentes que se hayan empapado o se encuentren muy contaminados con el concentrado de este producto. No los vuelva a utilizar.

En los casos en los cuales el personal encargado de manejar el producto lo hace en ambientes cerrados, cabinas cerradas o aviones, de manera tal que se cumplan los requisitos listados en "Worker Protection Standard (WPS) for agricultural pesticides" (Normas para la Protección de los Trabajadores que trabajan con pesticidas usados en la agricultura) [40 CFR 170.240 (d) (4-6)], los requisitos para el equipo de protección personal del trabajador pueden ser reducidos o modificados de acuerdo a lo que se especifica en las normas WPS.

### Recomendaciones de seguridad para el usuario

El usuario debe:

- Lavarse las manos antes de comer, beber, masticar goma, usar tabaco o de usar el servicio higiénico.
- Quitarse la ropa inmediatamente en caso de que el pesticida entre dentro de ésta. Luego debe lavarse muy bien y ponerse ropa limpia.

## 3.2 Riesgos al medio ambiente

No aplique directamente al agua, en áreas donde el agua superficial esté presente o en áreas donde haya mareas altas y bajas por debajo del nivel medio de mareas altas. No contamine el agua cuando lave los equipos ni cuando elimine las aguas de lavado de los mismos.

## 3.3 Riesgos de orden físico o químico

Para mezclar, almacenar y aplicar la solución de este producto, se deben usar solamente envases de acero inoxidable, fibra de vidrio, plástico o envases de acero recubiertos internamente con plástico.

NO MEZCLE, ALMACENE O APLIQUE ESTE PRODUCTO O SUS SOLUCIONES PARA ROCIAR EN RECIPIENTES O TANQUES ROCIADORES DE ACERO GALVANIZADO O DE ACERO NO RECUBIERTO (EXCEPTO SI ES ACERO INOXIDABLE). Este producto o la solución para rociar reaccionan con el material de dichos recipientes y tanques, lo cual produce hidrógeno, que puede formar una mezcla de gases altamente combustibles. Si esta mezcla de gases entra en contacto con llamas, chispas, el soplete de un soldador, un cigarrillo encendido o cualquier otra fuente de encendido, puede inflamarse o explotar y causar heridas graves a personas.

## INSTRUCCIONES PARA EL USO

Si uso de este producto de cualquier manera que sea inconsistente con las instrucciones dadas en la etiqueta es una violación de las leyes federales. Este producto sólo puede utilizarse de acuerdo con las indicaciones sobre el modo de empleo que figuran en esta etiqueta o en las etiquetas o fichas técnicas adicionales de Bayer CropScience LP publicadas por separado. El etiquetado complementario se puede encontrar en Internet en los sitios web [www.agrian.com](http://www.agrian.com), [www.cdms.net](http://www.cdms.net) o [www.greenbook.net](http://www.greenbook.net) u obtenerlo contactando a su distribuidor autorizado de Bayer CropScience LP o al representante de Bayer CropScience LP.

No aplique este producto de alguna manera que entre en contacto con los trabajadores u otras personas, ya sea directamente o por medio de alguna corriente de aire. Solamente las personas que los manipulen y que usen equipo protector podrán estar en el área durante su aplicación. Para verificar requisitos específicos de su tribu o estado, consulte con la agencia responsable de la regulación del uso de pesticidas.

### Requisitos para el uso en la agricultura

Use este producto siguiendo estrictamente las instrucciones de la etiqueta y de acuerdo con "Worker Protection Standard", 40 CFR Sección 170. Estas normas contienen los requisitos para proteger a los trabajadores agrícolas en haciendas, bosques, viveros e invernaderos, así como a aquellos trabajadores que manejan pesticidas usados en la agricultura. Las normas contienen los requisitos para entrenar, descontaminar, para dar aviso y para asistencia de emergencia. También contienen instrucciones específicas y excepciones que tienen que ver con el contenido de esta etiqueta en lo relacionado con el equipo para la protección personal (PPE) e intervalos de entrada restringida. Los requisitos mencionados en esta sección se aplican únicamente a los usos de este producto que están regulados por las Normas para la Protección de los Trabajadores (WPS).

No entre ni permita la entrada de personal al área tratada durante el intervalo de entrada restringida (REI) de 4 horas.

El equipo de protección personal (PPE) permitido por el Estándar de Protección al Trabajador (WPS) necesario para una entrada prematura a lugares tratados y que implique el contacto con cualquier cosa que haya sido tratada como plantas, suelo o agua, es: overoles /monos, guantes resistentes a los productos químicos de más de 14 mil de espesor, fabricados con materiales como caucho (goma) butílico, caucho natural, neopreno o caucho nitrilo, zapatos y calcetines.

### Requisitos para usos no agrícolas

Los requisitos en esta sección son para los usos de este producto que NO están cubiertos por WPS (40 CFR Sección 170) para el uso de pesticidas en la agricultura. Las regulaciones del WPS se aplican cuando el producto se usa para obtener productos agrícolas en haciendas, bosques, viveros e invernaderos.

Mantenga a las personas y a los animales domésticos fuera del área tratada hasta que la solución rociada se haya secado.

## 4.0 ALMACENAMIENTO Y DESECHO

Son fundamentales el almacenamiento y la eliminación adecuados de los pesticidas para evitar la exposición de las personas y el medio ambiente como consecuencia de pérdidas y derrames del producto, excedentes o desechos y actos de vandalismo. No permita que este producto contamine el agua, los alimentos de las personas y animales o las semillas por medio del almacenamiento y la eliminación.

**ALMACENAMIENTO DEL PESTICIDA:** Guarde los pesticidas lejos de los alimentos para personas, los alimentos para mascotas, los alimentos para animales, las semillas, los fertilizantes y los materiales de uso veterinario. Mantenga el envase bien cerrado para evitar derramamientos y contaminación.

**ELIMINACIÓN DEL PESTICIDA:** Para evitar desechos, use todo el material contenido en este envase, incluyendo los residuos del enjuague, aplicándolo según las indicaciones de la etiqueta. Si no es posible evitar los desechos, ofrezca el producto restante a una planta de eliminación de desechos o a un programa de eliminación de pesticidas. Estos programas suelen ser manejados por gobiernos estatales o locales o por la industria. Todos los desechos deben seguir los procedimientos federales, estatales y locales aplicables.

**ELIMINACIÓN DEL ENVASE:** Envase no rellenable. No vuelva a usar ni rellenar este envase.

**MANIPULACIÓN DEL ENVASE:** Enjuague tres veces o enjuague por presión el envase (o equivalente) inmediatamente después de su uso.

Enjuague tres veces de la siguiente forma: Vacíe el contenido restante del envase en el equipo de aplicación o en un tanque de mezclador y drene durante 10 segundos después de que el flujo comience a gotear. Llene el envase con agua hasta un 1/4 de su capacidad y vuelva a taparlo. Agítelo durante 10 segundos.

Vierta los residuos del enjuague en el equipo de aplicación o en un tanque de mezclador o conserve los residuos del enjuague para su uso o eliminación posterior. Drene durante 10 segundos después de que el flujo comience a gotear. Repita este procedimiento dos veces más.

Para enjuagar por presión proceda como se indica a continuación: Vacíe el contenido restante del envase en el equipo de aplicación o en un tanque mezclador y continúe drenando durante 10 segundos después de que el flujo comience a gotear. Sostenga el envase en posición invertida sobre el equipo de aplicación o el tanque mezclador o recoja los residuos del enjuague para su uso o eliminación posterior. Inserte la boquilla de enjuague por presión en la parte lateral del envase y enjuague a una presión de aproximadamente 40 PSI durante 30 segundos como mínimo. Drene durante 10 segundos después de que el flujo comience a gotear.

Una vez limpios, algunos envases de pesticida de plástico pueden llevarse a un centro de acopio de envases o ser recogidos para su reciclaje. Para encontrar el centro más cercano, póngase en contacto con su distribuidor de productos químicos o con Bayer CropScience LP en el 1-866-99BAYER (1-866-992-2937). Si no es posible reciclar el envase, deséchelo conforme a las regulaciones y procedimientos federales, estatales y locales, que pueden incluir permear el envase debidamente enjuagado y desecharlo en un relleno sanitario.

## 5.0 INFORMACION GENERAL

**Descripción del producto:** Este producto es un herbicida sistémico de aplicación post-emergencia foliar, sin actividad residual en el suelo. Controla un amplio espectro de malezas anuales, malezas perennes, matorrales leñosos y árboles. Está formulado como un líquido soluble en agua que contiene surfactante y no es necesario ni se recomienda el agregado de otro surfactante. Puede aplicarse utilizando equipos convencionales después de su dilución y mezclado con agua o con otros medios de transporte según las instrucciones de la etiqueta.

**Aparición de los síntomas:** Este producto se mueve dentro de la planta desde el punto de aplicación sobre el follaje hasta las raíces. Los efectos visibles incluyen que la planta se marchite y se vuelva amarilla de forma gradual, hasta que su parte exterior se torne completamente color café; mientras tanto, las partes de la planta que están bajo tierra se deterioran completamente. Los efectos visibles en la mayoría de las malezas anuales se pueden apreciar entre los 2 y los 4 días después de la aplicación, pero en la mayoría de las malezas perennes es posible que no se observen hasta después de 7 días o más. El frío extremo o el cielo muy nublado después de la aplicación pueden retardar la actividad del producto y hacer que el efecto visual se demore.

**Etapas de malezas:** Las malezas anuales son más fáciles de controlar cuando son pequeñas. Para lograr el mejor control de la mayoría de las malezas perennes, el tratamiento debe realizarse en las últimas etapas de crecimiento, cerca de su etapa de madurez. Vea en las secciones "MALEZAS CONTROLADAS" de esta etiqueta las proporciones específicas para cada tipo de maleza.

Aplique siempre la mayor cantidad de producto dentro del rango indicado cuando las malezas son muy densas o cuando crecen en áreas no tocadas (no cultivadas). Puede haber una disminución de los resultados cuando se traten malezas afectadas por enfermedades o dañadas por los insectos, malezas cubiertas con mucho polvo o malezas en malas condiciones de crecimiento.

**Modo de acción en las plantas:** El ingrediente activo de este producto inhibe una enzima hallada sólo en las plantas y microorganismos que es esencial para la formación de aminoácidos específicos.

**Prácticas culturales:** Se podrá observar una reducción en el efecto si se aplica el producto a malezas anuales o perennes que hayan sido segadas, que hayan servido de alimento para animales o hayan sido cortadas, y que no hubiesen crecido nuevamente hasta el nivel recomendado para el tratamiento.

**Resistencia a la lluvia:** La lluvia torrencial poco después de la aplicación lavará el producto del follaje y se requerirá una nueva aplicación para obtener un control adecuado.

**Cobertura de la pulverización:** Para obtener mejores resultados, la cobertura del rocío debe ser completa y uniforme. No rocíe el follaje hasta el punto de escurrimiento.

**No actividad en el suelo:** Las malezas deben haber emergido en el momento de la aplicación para poder ser controladas por este producto. Las malezas que germinen de semillas después de la aplicación no serán controladas. Las plantas no emergidas con rizomas o raíces subterráneas de malezas perennes no conectadas no se verán afectadas por el herbicida y continuarán creciendo.

**Cantidades de aplicación máximas:** Las cantidades de aplicación o uso máximas especificadas en esta etiqueta están expresadas en unidades de volumen (onzas fluidas o cuartos de galón) de este producto por acre. No obstante, las dosis máximas de aplicación permitidas corresponden al uso de este producto en combinación con otros herbicidas que contienen glifosato como principio activo, tanto si son aplicados como mezclas de tanque o por separado, en función de las libras totales de glifosato (libras de ácido equivalente) por acre. Si se aplica más de un producto que contiene glifosato al mismo sitio dentro del mismo año, debe asegurarse de que el uso total de glifosato (libras de ácido equivalente) no exceda el máximo permitido. El total combinado de todos los tratamientos no debe exceder 10.6 cuartos de galón de este producto (10.6 libras de glifosato) por acre por año. Vea en la sección "INGREDIENTES" de esta etiqueta información importante sobre el producto.

### ATENCIÓN

EVITE EL CONTACTO DEL HERBICIDA CON EL FOLLAJE, TALLOS, RAICES NO LEÑOSAS EXPUESTAS O FRUTOS EXPUESTOS DE LAS COSECHAS, PLANTAS Y ARBOLES DESEABLES. EN CASO CONTRARIO ES PROBABLE QUE SUFRAN GRAVES DAÑOS O SEAN DESTRUIDOS TOTALMENTE.

EVITE EL ACARREO. CUANDO EL PRODUCTO SE APLIQUE, SE DEBE TENER MUCHO CUIDADO PARA PREVENIR EL DAÑO A PLANTAS Y CULTIVOS DESEABLES.

No permita que la solución del herbicida se nebulice, gotee, sea acarreada o salpique sobre la vegetación deseable. Una cantidad pequeña puede ser suficiente para causar daños graves o destruir las cosechas, plantas u otras áreas que no se desea tratar. La probabilidad de que ocurran daños por el uso de este producto aumenta cuando hay muchas ráfagas de viento, a medida que aumenta la velocidad del viento, cuando la velocidad del viento cambia constantemente o cuando existen otras condiciones meteorológicas que favorecen la dispersión del rociado. Cuando se esté aplicando el producto con un rociador, evite la combinación de presiones y tipos de boquilla que puedan dar como resultado salpicaduras o partículas finas (niebla), que tienen muchas probabilidades de que el producto sea acarreado. EVITE LA APLICACIÓN A ALTA VELOCIDAD O PRESIÓN EXCESIVAS.

**NOTA:** El uso de este producto de cualquier manera contraria a las indicaciones contenidas en esta etiqueta, puede resultar en lesiones a personas, animales o cosechas o pueden ocurrir otras consecuencias no deseadas.

## 5.1 Gestión de resistencia de malezas

GRUPO	9	HERBICIDA
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El glifosato, el principio activo de este producto, es un herbicida del grupo 9 según el sistema de clasificación de efecto de la Weed Science Society of America. Todas las poblaciones de malezas pueden contener plantas naturalmente resistentes a los herbicidas del grupo 9. Las especies de malezas resistentes a los herbicidas del grupo 9 pueden tratarse con buenos resultados utilizando herbicidas de otro grupo o adoptando otras prácticas culturales o mecánicas.

Para reducir al mínimo la incidencia de biotipos resistentes al glifosato, siga las siguientes recomendaciones generales con respecto a la gestión de malezas:

- Haga un reconocimiento del sitio de la aplicación antes y después de haber aplicado herbicidas.
- Comience a controlar las malezas cuanto antes, cuando sean todavía relativamente pequeñas.
- Donde sea apropiado, incorpore otros herbicidas y prácticas culturales o mecánicas como parte del sistema de control de malezas.
- Utilice la cantidad indicada en la etiqueta para las malezas más difíciles de controlar en el sitio. Evite las mezclas de tanque con otros herbicidas que reducen la eficacia de este producto (por antagonismo) o las recomendaciones de mezclas de tanque que alientan la utilización de cantidades de este producto inferiores a las recomendaciones de la etiqueta.
- Controle las malezas omítidas e impida que echen semilla.
- Limpie los equipos antes de trasladarse de un sitio a otro para reducir al mínimo la propagación de semillas de malezas.
- Utilice semillas comerciales nuevas con la menor cantidad posible de semillas de malezas.
- Informe cualquier incidencia de incumplimiento repetido de este producto en una hierba en particular a su representante de Bayer CropScience LP, minorista local o agente de extensión del condado.

## 5.2 Recomendaciones de gestión de biotipos de malezas resistentes al glifosato

**NOTA:** Las pruebas adecuadas son fundamentales para confirmar la resistencia de las malas hierbas al glifosato. Comuníquese con su representante de Bayer CropScience LP para determinar si se ha confirmado la resistencia a algún biotipo de malezas en particular en su área. Las instrucciones de control para los biotipos confirmados como resistentes al glifosato están disponibles en el etiquetado suplementario o las hojas informativas publicadas por separado para este producto y se pueden obtener de su distribuidor local o representante de Bayer CropScience LP.

Debido a que no es posible determinar la existencia de nuevas malezas resistentes al glifosato hasta que se haya utilizado el producto y se cuente con la confirmación científica correspondiente, Bayer CropScience LP no será responsable de ninguna pérdida que pudiera tener lugar en el caso de que este producto no lograra controlar de forma eficaz los biotipos de malezas resistentes al glifosato.

Siga las prácticas correctas de gestión de malezas para reducir la propagación de biotipos resistentes al glifosato confirmados:

- Si en su zona existe naturalmente un biotipo resistente, para lograr su control puede mezclar este producto en un tanque o aplicarlo secuencialmente con un herbicida debidamente etiquetado con efecto diferente.
- También se pueden utilizar prácticas de control culturales y mecánicas según corresponda.
- Haga un reconocimiento de los lugares tratados después de las aplicaciones de herbicida y controle las omisiones de biotipos resistentes antes de que echen semilla.
- Limpie minuciosamente los equipos antes de abandonar los lugares que se saben que contienen biotipos resistentes.

## 6.0 MEZCLA

Para mezclar, almacenar y aplicar la solución de este producto, se deben usar solamente envases de acero inoxidable, fibra de vidrio, plástico o envases de acero recubiertos internamente con plástico.

**NO MEZCLE, ALMACENE NI APLIQUE ESTE PRODUCTO NI SOLUCIONES PARA ROCIAR DE ESTE PRODUCTO EN ENVASES DE ACERO GALVANIZADO O ACERO NO REVESTIDO (SALVO ACERO INOXIDABLE) NI EN TANQUES DE ROCÍO.**

Proceda con precaución para evitar el reflujo del líquido a la fuente de transporte. Utilice dispositivos antirreflujo cuando así lo requieran las reglamentaciones estatales o locales.

Limpie las piezas del rociador inmediatamente después de su utilización lavándolas bien con agua.

**NOTA: PUEDE OCURRIR UNA DISMINUCIÓN DE LOS RESULTADOS SI SE UTILIZA AGUA QUE CONTIENE TIERRA, TAL COMO AGUA CON BARRO VISIBLE O AGUA DE CHARCAS O ACEQUIAS QUE NO ESTE CLARA.**

## 6.1 Mezcla con agua

Este producto se mezcla fácilmente con agua. La solución para rociar se debe mezclar de la siguiente forma: Ponga la cantidad correcta de agua limpia en el tanque en el cual se va a preparar la mezcla. Agregue la cantidad recomendada de este producto cuando ya está cerca de completarse el llenado con agua y mezcle con cuidado (bien). Es posible que durante la mezcla y rocío, la solución produzca espuma. Para evitar o minimizar la formación de espuma, evite el uso de agitadores mecánicos, cierre las tuberías de derivación y de retorno en el fondo del tanque, y si es necesario, use compuestos aprobados para evitar la formación de espuma o para eliminar la espuma ya formada.

## 6.2 Mezclas de tanque

Este producto no proporciona control de malezas residuales. Este producto puede mezclarse en un tanque con otros herbicidas para lograr el control de malezas residuales, un espectro de control de malezas más amplio o un efecto alternativo. Lea y siga siempre las indicaciones de las etiquetas de todos los productos utilizados en la mezcla. Use conforme a las precauciones más restrictivas. Para la mezcla en tanque, puede utilizarse cualquier cantidad de este producto que se encuentre dentro del rango indicado en la etiqueta.

Cuando esta etiqueta indique una mezcla de tanque con un ingrediente activo genérico como diurón, 2,4-D o dicamba, el usuario será responsable de asegurarse de que la etiqueta del producto de mezcla permita la aplicación específica.

El comprador y todos los usuarios serán responsables de cualquier pérdida o daño que pudiera ocurrir como consecuencia del uso o manipulación de mezclas de este producto con herbicidas u otros materiales que no estén expresamente recomendados en esta etiqueta. La mezcla de este producto con herbicidas u otros materiales no recomendados en esta etiqueta puede dar como resultado una reducción en su rendimiento.

## 6.3 Procedimiento para mezclas de tanque

Cuando haga mezclas de tanque, lea y siga cuidadosamente las instrucciones de la etiqueta, las precauciones y toda la información contenida en las etiquetas de todos los productos utilizados. Agregue el producto al tanque de mezcla según las instrucciones de la etiqueta. Agite continuamente y agregue la cantidad indicada en la etiqueta de este producto

Agite continuamente hasta usar totalmente el contenido del tanque. Si se deja que la mezcla para rociar se asiente, agite bien para que la mezcla vuelva a estar en suspensión antes de continuar con el rocío.

A fin de minimizar la formación de espuma, mantenga las tuberías de retorno lo más cerca del fondo del tanque. El tamaño del cerridor en la boquilla o de los cerridores en las tuberías no debe ser menor al número 50.

Siempre determine previamente la compatibilidad de la mezcla de este producto, que viene en tanque rotulado, con agua como vehículo, mezclando cantidades pequeñas proporcionales con anticipación. Asegúrese de que la mezcla en tanque específica esté registrada para su aplicación en el área deseada.

Refiérase a la sección "Mezclas de tanque" para ver las precauciones adicionales.

## 6.4 Mezcla de soluciones en porcentaje

Prepare la cantidad deseada de la solución para rociar, mezclando las proporciones de este producto con agua, según se muestra en la siguiente tabla:

### Solución para rociar

Volumen deseado	Cantidad de Ranger PRO herbicida					
	1/2%	1%	1-1/2%	2%	5%	10%
1 gal	2/3 oz	1-1/3 oz	2 oz	2-2/3 oz	6-1/2 oz	13 oz
25 gal	1 pt	1 qt	1-1/2 qt	2 qt	5 qt	10 qt
100 gal	2 qt	1 gal	1-1/2 gal	2 gal	5 gal	10 gal

2 cucharadas = 1 onza fluida

Cuando se usen rociadores tipo mochila, o para bombeo, se recomienda que la cantidad indicada en la etiqueta de este producto se mezcle con agua en un envase grande. Llene el rociador con la solución mezclada.

## 6.5 Surfactante

Se pueden emplear surfactantes no iónicos cuyo rótulo indique que pueden usarse con herbicidas. No reduzca las dosis de este producto cuando agregue surfactante. Cuando agregue surfactante adicional, use una concentración de surfactante de 0,5 por ciento (2 cuartos de galón por cada 100 galones de solución de rocío) cuando utilice surfactantes que contengan por lo menos 70 por ciento de ingrediente activo, o una concentración de surfactante de 1 por ciento (4 cuartos de galón por cada 100 galones de solución de rocío) en el caso de aquellos surfactantes que contengan menos de 70 por ciento de ingrediente activo. Lea y cumpla cuidadosamente con las precauciones y toda la información adicional que aparezca en el rótulo del surfactante.

## 6.6 Colorantes o tinturas

A este producto se le pueden agregar colorantes o tinturas para marcar, que sean aprobados para uso agrícola. Los colorantes o tinturas utilizados en las soluciones en aerosol de este producto pueden reducir su rendimiento, especialmente a bajas concentraciones del producto o a bajas diluciones. Para usar los colorantes y tinturas siga las instrucciones del fabricante.

## 6.7 Aditivos para controlar el acarreo del producto

Se pueden utilizar aditivos para el control de la deriva en todos los tipos de equipo, a excepción de aplicadores por rotación y barras de esponja. Cuando se use un aditivo para el control de la deriva, lea y cumpla cuidadosamente con las declaraciones preventivas y toda la información adicional que aparezca en la etiqueta del aditivo. El uso de aditivos para el control de la deriva puede afectar la cobertura del rocío, lo que puede dar como resultado una reducción en el rendimiento.

## 7.0 EQUIPOS Y TECNICAS PARA LA APLICACION

No use ningún sistema de irrigación para aplicar este producto.

**APLIQUE ESTAS SOLUCIONES PARA ROCIAR UTILIZANDO EQUIPOS DEBIDAMENTE MANTENIDOS Y CALIBRADOS QUE SEAN CAPACES DE ROCIAR EL VOLUMEN DESEADO.**

### MANEJO DE LA DERIVA POR ROCIADO

EVITE LA DERIVA. DEBE USARSE EXTREMO CUIDADO EN LA APLICACION DE ESTE PRODUCTO PARA EVITAR DAÑOS A LA VEGETACION DESEADA.

No permita que la solución del herbicida empañe, gotee, se derive o salpique sobre la vegetación deseada, ya que minúsculas cantidades de este producto pueden causar daños graves o destrucción del cultivo, plantas u otras áreas que no se pretendía tratar.

Es la responsabilidad del aplicador evitar la deriva por rocío en el lugar de aplicación. La interacción de varios factores relacionados con el clima y el equipo determina la posibilidad de deriva por rocío. El aplicador y/o el cultivador son responsables de considerar todos estos factores al tomar decisiones.

## 7.1 Equipo aéreo

**NO APLIQUE ESTE PRODUCTO CON EQUIPOS AEROS EXCEPTO BAJO LAS CONDICIONES QUE SE ESPECIFICAN EN ESTA ETIQUETA.**

PARA LA APLICACION AEREA EN CALIFORNIA, CONSULTE LA ETIQUETA EN EL SUPLEMENTO FEDERAL PARA APLICACIONES AEREAS EN DICHO ESTADO, PARA CONOCER LAS INSTRUCCIONES, RESTRICCIONES Y REQUISITOS ESPECIFICOS.

PARA EVITAR DAÑAR LA VEGETACION DESEADA ADJUNTA, SE DEBEN MANTENER ZONAS TAMPON ADECUADAS.

Evite la aplicación directa sobre cualquier cuerpo de agua.

Use las proporciones recomendadas de este producto con 3 a 25 galones de agua por acre.

Los rociadores gruesos tienen menos probabilidades de producir deriva; por lo tanto, no utilice boquillas o configuraciones de boquilla que apliquen el producto en forma de gotitas finas. No incline las boquillas hacia adelante en el flujo de aire y no aumente el volumen de rocío aumentando la presión de la boquilla. Pueden usarse aditivos para el control de la deriva. Cuando se use un aditivo para el control de la deriva, lea y cumpla cuidadosamente con las declaraciones preventivas y toda la información adicional que aparezca en la etiqueta del aditivo.

Asegúrese de que la aplicación sea uniforme—A fin de evitar que queden áreas sin tratar, que la aplicación no sea uniforme o que las aplicaciones se traslapen, se deben usar marcadores adecuados.

### Mantenimiento de aviones

EL CONTACTO PROLONGADO DE ESTE PRODUCTO CON PARTES DE ACERO QUE NO ESTA RECUBIERTO CON ALGÚN TIPO DE PROTECCION, PUEDE DAR COMO RESULTADO LA CORROSION Y POSIBLEMENTE QUE LAS PARTES FALLEN. Es posible prevenir la corrosión recubriendo las partes con pintura orgánica, que cumple con las especificaciones aero-espaciales MIL-C-38413. Al final de cada día de trabajo, para evitar la corrosión de las partes expuestas, lave muy bien el avión a fin de remover los residuos de este producto que se acumulan durante el rocío o por derramamientos. Las partes del tren de aterrizaje son extremadamente susceptibles.

## MANEJO DE LA DERIVA POR ROCIADO AÉREO

Deben seguirse los siguientes requerimientos de manejo de la deriva para evitar el movimiento de ésta fuera de objetivo en aplicaciones aéreas a campos de cultivo agrícola.

1. La distancia del pulverizador más externo en la barra distribuidora no debe exceder 3/4 del largo de la envergadura o rotor.
2. Los pulverizadores deben siempre apuntar hacia atrás, paralelos a la corriente de aire, nunca hacia abajo más de 45 grados. En los estados con reglamentos más estrictos, éstos deben observarse.

### Importancia del tamaño de la gotita

La forma más eficaz de reducir la posibilidad de deriva es la aplicación de gotitas grandes. La mejor estrategia de manejo de la deriva es la aplicación de las gotitas más grandes que provean suficiente cobertura y control. La aplicación de gotitas más grandes reduce la posibilidad de deriva, pero no la evitará si las aplicaciones se realizan inadecuadamente o bajo condiciones ambientales desfavorables (vea las secciones de **Viento**, **Temperatura** y **humedad**, e **Inversiones de temperatura** en esta etiqueta).

### Control del tamaño de la gotita

- **Volumen:** Use pulverizadores de velocidad de flujo alta para aplicar el mayor volumen de rocío práctico. Los pulverizadores con mayores velocidades de flujo producen gotitas más grandes.
- **Presión:** Use las presiones de rocío más bajas recomendadas para la boquilla. La presión más alta reduce el tamaño de la gotita y no mejora la penetración del todo. Cuando sean necesarias velocidades de flujo mayores, use la boquilla con velocidad de flujo mayor en lugar de aumentar la presión.
- **Número de pulverizadores:** Use el número mínimo de pulverizadores que provean cobertura uniforme.
- **Orientación del pulverizador:** Oriente los pulverizadores de modo que el rocío sea liberado hacia atrás, paralelo a la corriente de aire, produzca gotitas más grandes que en otras orientaciones. Una deflexión significativa de la horizontal reducirá el tamaño de la gotita y aumentará la posibilidad de deriva.
- **Tipo de pulverizador:** Use un tipo de pulverizador que esté diseñado para la aplicación prevista. Con la mayoría de los tipos de pulverizadores, los ángulos de rociado más angostos producen gotitas más grandes. Considere el uso de pulverizadores de deriva baja. Los pulverizadores de flujo sólido orientados hacia atrás producen gotitas más grandes que otros tipos de pulverizador.
- **Largo de la barra distribuidora:** Para algunos tipos de uso, la reducción del largo efectivo de la barra distribuidora a menos de 3/4 de la envergadura o el largo del rotor puede reducir más la deriva sin reducir el ancho de la hilera (pasada).
- **Altura de la aplicación:** Las aplicaciones no deben realizarse a una altura mayor que 10 pies por encima de la copa de las plantas más grandes, a menos que se requiera mayor altura por razones de seguridad del aeroplano. La realización de las aplicaciones a la menor altura que sea segura reduce la exposición de las gotitas a la evaporación y el viento.

### Ajuste de la hilera (pasada)

Cuando las aplicaciones se lleven a cabo con viento lateral, la banda de aspersión se desplazará a favor del viento. Por ello, en los extremos con o contra el viento del campo, el aplicador debe compensar este desplazamiento ajustando la trayectoria del aeroplano contraria al viento. La distancia de ajuste de la hilera debe aumentar, cuando aumenta la posibilidad de deriva (mayor viento, gotitas más pequeñas, etc.).

### Viento

La posibilidad de deriva es menor con velocidades del viento entre 2 y 10 mph. Sin embargo, muchos factores, incluyendo el tamaño de las gotitas y el tipo de equipo determinan la posibilidad de deriva a una velocidad determinada. Debe evitarse la aplicación menos de 2 mph debido a la dirección variable del viento y la posibilidad alta de inversión. NOTA: El terreno local puede influir en los patrones de viento. Cada aplicador debe conocer los patrones (vientos) locales y cómo éstos afectan la deriva.

### Temperatura y humedad

Cuando se realizan aplicaciones con humedad relativa baja, fije el equipo para que produzca gotitas más grandes para compensar por la evaporación. La evaporación de gotitas es más grave cuando las condiciones son calurosas y secas.

## Inversiones de temperatura

No deben realizarse aplicaciones durante una inversión de temperatura debido a que la posibilidad de deriva es alta. Las inversiones de temperatura restringen la mezcla de aire vertical, lo que causa que pequeñas gotitas suspendidas permanezcan en una nube concentrada. Esta nube puede moverse en direcciones no predecibles debido a los vientos variables leves que son comunes durante las inversiones. Las inversiones de temperatura están caracterizadas por temperaturas en aumento con altitud y son comunes en las noches con cobertura de nubes limitada y poco o ningún viento. Comenzan a formarse cuando se mete el sol y a menudo continúan en la mañana. Su presencia puede indicarse por neblina en el suelo; sin embargo, si la neblina no está presente, las inversiones también pueden identificarse por el movimiento del humo desde una fuente del suelo o por el generador de humo de un aeroplano. El humo en capas que se mueve lateralmente en una nube concentrada (bajo condiciones de poco viento) indica una inversión, mientras que el humo que se mueve hacia arriba y se disipa rápidamente indica buena mezcla de aire vertical.

### Áreas sensibles

Este producto sólo se debe aplicar cuando la posibilidad de deriva hacia zonas adyacentes susceptibles (como por ejemplo, áreas residenciales, masas de agua, hábitat conocido de especies amenazadas o en peligro de extinción, cultivos que no sean el objetivo) sea mínima, (como por ejemplo, cuando el viento sopla lejos de las áreas susceptibles).

## 7.2 Equipo de aplicación terrestre

Use las proporciones indicadas en la etiqueta de este producto con 3 a 40 galones de agua por acre para aplicaciones al voleo, a menos que se indique de otra manera en esta etiqueta en otras etiquetas o fichas técnicas complementarias publicadas por Bayer CropScience LP. A medida que la densidad de las malezas aumenta, el volumen de rocío se debe aumentar también para conseguir una cobertura completa, pero siempre dentro de los límites indicados en la etiqueta. A fin de evitar un rocío muy fino, seleccione la boquilla cuidadosamente. Para obtener mejores resultados con equipo a nivel del terreno, use boquillas tipo abanico plano. Asegúrese de que las gotas del rocío se distribuyan uniformemente.

## 7.3 Mochila o equipo de alto volumen

Aplique el producto al follaje de la vegetación que se desea controlar. En aplicaciones de rocío para mojar, la cobertura del follaje debe ser completa y uniforme. No rocíe hasta el punto de escurrimiento. Use rociadores gruesos solamente.

Refiérase a las instrucciones "Malezas anuales" de la sección "MALEZAS CONTROLADAS" para ver las proporciones y restricciones específicas.

## 7.4 Equipo especializado

Este producto puede ser diluido con agua y aplicado usando rociadores de recirculación, aplicadores con pantalla, rociadores con capucha, aplicadores por rotación o barras de esponja, sobre las malezas indicadas que crecen en cualquier lugar indicado en esta etiqueta.

EVITE EL CONTACTO DEL HERBICIDA CON LA VEGETACION DESEABLE. El contacto con este producto con la vegetación deseable, podría resultar en daños o en una destrucción de la planta.

### Recirculación del rocío

Los rociadores de recirculación dirigen la solución hacia los tipos de malezas que crecen sobre vegetación deseable, mientras que la solución que no ha sido interceptada por las malezas se recoge y se retorna al tanque para volverla a usar.

Los aplicadores utilizados por encima de la vegetación deseable deben ser calibrados de tal manera que el rocío o el punto de contacto más bajo esté por lo menos a 2 pulgadas arriba de la vegetación deseable. Gotas, niebla, espuma o salpicaduras del herbicida en contacto con la vegetación deseable pueden causar con mucha probabilidad descoloración, atrofia o destrucción.

Se obtienen mejores resultados cuando una mayor cantidad de la mezcla entra en contacto con el herbicida. Las malezas que no entran en contacto con la solución herbicida no serán afectadas. Esto puede ocurrir en lugares donde las malezas están muy concentradas, cuando la infestación es grave o donde la altura de las malezas es variada, lo que no permite que todas sean tocadas por el herbicida. En estos casos puede hacerse necesario repetir el tratamiento.

## Aplicadores con pantalla y con capucha

Los rociadores con pantalla o con capucha aplican la solución del herbicida directamente sobre las malezas, al mismo tiempo que protegen la vegetación deseable, para que no sea tocada por el herbicida. Use boquillas que aseguren un recubrimiento uniforme en toda el área tratada. En los rociadores con pantalla, mantenga las pantallas debidamente colocadas a fin de proteger la vegetación que no se desee destruir. SE DEBE TENER MUCHO CUIDADO PARA EVITAR EL CONTACTO DEL HERBICIDA CON LA VEGETACION DESEABLE.

### Aplicadores por rotación y barras de esponja

Los aplicadores por rotación o de esponja aplican la solución del herbicida frotando las malezas con un material absorbente que contenga la solución del herbicida. El equipo debe ser diseñado, mantenido y operado de manera que la solución del herbicida no haga contacto con la vegetación deseable. Opere este equipo a velocidades inferiores a las 5 millas por hora. En áreas donde la infestación es grave, se puede mejorar la eficacia reduciendo la velocidad, así se asegura que el frotoador esté siempre adecuadamente saturado con la solución del herbicida. Se obtienen mejores resultados si se aplica 2 veces en direcciones opuestas.

Evite fugas o goteos sobre la vegetación deseable. Ajuste la altura de los aplicadores a fin de asegurar un contacto adecuado con las malezas. Mantenga limpias las superficies de rotación. Tenga presente que en terrenos inclinados, el herbicida puede migrar causando goteos en la parte baja y el secado de las mechas en la parte superior del aplicador por rotación.

No use aplicadores por rotación cuando las malezas estén mojadas.

Mezcle solamente la cantidad de solución que se usará durante el período de un día, debido a que el uso de sobras de días anteriores puede dar como resultado un efecto menos eficiente. Inmediatamente después de usar este producto, lave bien el aplicador usando bastante agua.

**Para aplicadores de cordón o de mecha de esponja**—Puede emplearse soluciones que oscilan entre 33 al 75 por ciento de este producto en agua.

**Para aplicadores de panel y sistemas de alimentación a presión**—Se pueden usar soluciones que oscilan entre 33 al 100 por ciento de este producto con agua.

Cuando se aplica de acuerdo a las recomendaciones, este producto CONTROLA las siguientes malezas:

Corn, volunteer	Sicklepod
Panicum, Texas	Spanishneedles
Rye, common	Starbur, bristly
Shattercane	

Cuando se aplica de acuerdo a las recomendaciones, este producto SUPRIME las siguientes malezas:

Beggarweed, Florida	Ragweed, common
Bermudagrass	Ragweed, giant
Dogbane, hemp	Smutgrass
Dogfennel	Sunflower
Guineagrass	Thistle, Canada
Johnsongrass	Thistle, musk
Milkweed	Vaseygrass
Nightshade, silverleaf	Velvetleaf
Pigweed, redroot	

## 7.5 Sistemas por inyección

Este producto puede usarse con sistemas de rocío por inyección, ya sean aéreos o a nivel del terreno. Puede usarse como concentrado líquido o diluido antes de la inyección en el chorro de rocío. No mezcle este producto con concentraciones de otros productos sin diluir cuando use los sistemas por inyección salvo que se recomiende específicamente.

## 7.6 Equipo de aplicación por goteo controlado

La proporción de este producto aplicado por acre usando el equipo de aplicación por goteo controlado no debe ser menor que la cantidad indicada en esta etiqueta cuando se usa equipo convencional para aplicaciones al voleo. Cuando se usa el equipo aplicador por goteo controlado montado en un vehículo, use de 2 a 15 galones de agua por acre.

Los equipos de goteo controlado producen un rociado que es difícil de ver. Se debe tener especial cuidado para evitar que el rociado o el acarreo entre en contacto con el follaje o cualquier otra parte verde de la vegetación que no se quiere tratar, ya que en caso contrario, es probable que ésta sea dañada o destruida.

## 8.0 RECOMENDACIONES SEGUN AREAS Y USO

A continuación aparecen las instrucciones detalladas para cada área.

A menos que se especifique lo contrario en esta etiqueta o en otras etiquetas o fichas técnicas complementarias publicadas por Bayer CropScience LP pueden hacerse aplicaciones para controlar las malezas indicadas en las tablas de malezas anuales, perennes y matorrales leñosos. Vea también la sección "EQUIPO SELECTIVO".

### 8.1 Troncos cortados

El tratamiento de troncos cortados puede hacerse en cualquier área listada en esta etiqueta. Este producto controla muchas especies de matorrales leñosos y árboles. Aplique este producto usando equipo adecuado para garantizar la cobertura completa del cambium. Corte los árboles o sus brotes cerca de la superficie del suelo. Aplique una solución de este producto del 50 al 100 por ciento a la superficie recién cortada, inmediatamente después del corte. Demorar la aplicación puede reducir la eficacia del producto. Para obtener mejores resultados, la aplicación deberá hacerse durante los períodos de crecimiento activo y expansión completa de las hojas.

NO HAGA LAS APLICACIONES SOBRE TRONCOS CORTADOS CUANDO LAS RAÍCES DE LOS MATORRALES LEÑOSOS O ARBOLES DESEABLES PUEDEN ESTAR INJERTADAS A LAS RAÍCES DE LOS TRONCOS CORTADOS. Algunos brotes, tallos o árboles pueden compartir el mismo sistema radicular. Árboles que están contiguos, que tienen la misma edad, altura y separación pueden indicar raíces compartidas. Cuando se trata a uno o más árboles que tienen raíces en común, tanto si están injertados como si comparten el sistema radicular, es probable que se produzca un daño en los brotes/árboles no tratados.

### 8.2 Preparación del lugar para forestación

Este producto puede ser utilizado para controlar o controlar parcialmente malezas leñosas, árboles y malezas herbáceas en forestaciones, y preparar o crear claros para la vida silvestre en estos lugares y para mantener los caminos de las explotaciones forestales.

Este producto puede ser utilizado para preparar el lugar antes de plantar cualquier especie de árbol, como árboles de Navidad, eucaliptos, cultivos de árboles híbridos y viveros dedicados a la silvicultura.

Utilice proporciones más concentradas de este producto dentro de los márgenes recomendados para controlar o controlar parcialmente malezas leñosas, árboles y malezas herbáceas perennes difíciles de controlar. Para obtener resultados óptimos, aplique este producto a árboles y arbustos leñosos en crecimiento activo después de la expansión completa de las hojas y antes de que éstas adquieran color otoñal y se caigan. Incremente la concentración dentro del margen recomendado para controlar malezas herbáceas perennes en cualquier momento después de la emergencia y antes de que aparezcan inflorescencias, flores o bayas.

Utilice proporciones menos concentradas de este producto dentro del margen recomendado para controlar malezas herbáceas anuales y malezas herbáceas perennes en crecimiento activo después de que aparezcan inflorescencias, flores o bayas. Aplique al follaje de malezas herbáceas anuales en crecimiento activo en cualquier momento después de la emergencia.

Este producto carece de actividad herbicida o residual en la tierra. Si es necesario repetir las aplicaciones, no exceda los 10,6 cuartos de galón de este producto por acre por año.

MEZCLAS PARA TANQUE: Se pueden emplear mezclas de tanque con este producto para aumentar el espectro de la vegetación controlada. Antes de preparar una mezcla de tanque, lea y siga al pie de la letra las instrucciones, las advertencias de precaución y toda la información en las etiquetas de todos los productos utilizados. Use la mezcla conforme a las advertencias de precaución más estrictas indicadas para cada producto en la mezcla.

**NOTA:** Para la preparación de sitios de forestación, asegúrese de que el producto para mezclar en tanque esté aprobado antes de plantar las especies deseadas. Respete las restricciones del intervalo de plantación.

Todas las proporciones recomendadas de este producto se pueden utilizar en una mezcla de tanque con los siguientes productos para la preparación de sitios de forestación.

Arsenal Applicators Concentrate	Garlon 3A
Chopper	Garlon 4
Chopper Gen2	Oust XP
Escort	

Para controlar malezas herbáceas, utilice las proporciones de menor concentración recomendadas para la mezcla de tanque. Para controlar grupos densos o difíciles de arbustos leñosos y árboles, utilice las proporciones de mayor concentración recomendadas en mezcla de tanque.

No aplique este producto para aplicaciones al voleo en la parte superior de coníferas para forestación o árboles de madera dura a menos que se indique lo contrario en esta etiqueta o en otras etiquetas o fichas técnicas complementarias publicadas por Bayer CropScience LP.

### 8.3 Áreas generales y áreas industriales

Este producto puede ser utilizado en áreas no cultivables como aeropuertos, conjuntos de apartamentos, sitios comerciales, orillas de acequias, caminos de entrada de automóviles, acequias secas, canales secos, filas de vallas, áreas de forestación, campos de golf, invertaderos, zonas industriales, áreas de paisaje, depósitos de madera, zonas de manufactura, solares municipales, zonas naturales, complejos de oficinas, cultivos ornamentales, parques, áreas de estacionamiento, zonas con tanques de petróleo e instalaciones de bombeo, vías de ferrocarril, áreas recreativas, áreas residenciales, derechos de paso, bordes de carreteras, escuelas, umbráculos, complejos deportivos, áreas de almacenamiento, substaciones, zonas de césped, zonas de servicios públicos, zonas de almacenes, otras áreas públicas y zonas en la que se realiza gestión de vida silvestre.

También se puede utilizar este producto en áreas de cultivos no alimenticios, como granjas de árboles de Navidad, criaderos de plantas y granjas de césped o para semillas de césped.

A menos que se especifique lo contrario, pueden realizarse aplicaciones para controlar las malezas indicadas en la sección "MALEZAS CONTROLADAS" de esta etiqueta.

#### Control general de malezas, recortado de bordes y suelo limpio de malezas

Este producto puede utilizarse en áreas no cultivables y de cultivos no alimenticios. Puede aplicarse con cualquiera de los equipos descritos en este librito. Puede usarse para el recortado de bordes alrededor de objetos en áreas no cultivables, para tratamiento localizado de vegetación no deseable y para eliminar las malezas no deseadas que crecen en cuadros de arbustos establecidos y plantaciones ornamentales. Este producto puede usarse antes de plantar un área con plantas ornamentales, flores, césped (tepes o semillas), o antes de colocar asfalto o de comenzar un proyecto de construcción.

Pueden hacerse aplicaciones repetidas de este producto, a medida que emergen las malezas, para mantener el suelo limpio de malezas.

MEZCLAS DE TANQUE: Este producto se puede mezclar en un tanque con los siguientes productos, siempre que éstos estén aprobados para el área de uso deseada. Consulte las etiquetas de estos productos para informarse sobre las áreas de uso y las dosis de aplicación aprobadas.

Arsenal	Karmex	Ronstar 50 WSP
Barricade 65WG	Krovat 1 DF	Sahara
Clarity	Oust XP	simazine
diuron	Pendulum 3.3 EC	Surflan
Endurance	Pendulum WDG	Telar
Escort	Plateau	Vanquish
Garlon 3 <sup>A</sup>	Princep DF	2,4-D
Garlon 4	Princep Liquid	

Este producto más las mezclas en tanque de dicamba no se pueden aplicar por rocío aéreo en California.

Cuando se aplica como mezcla de tanque para mantener el suelo limpio de malezas, este producto proporciona control sobre las malezas anuales emergidas y control o parcial control sobre las malezas perennes emergidas, matorrales leñosos y árboles.

Para controlar o controlar parcialmente las malezas perennes siguientes, aplique 1 a 2 cuartos de galón de este producto más 2 a 8 onzas de Oust XP por acre.

Fescue, tall
Johnsongrass
Poorjoe
Quackgrass
Vasegrass
Vervain, blue

#### Segador químico - Plantas perennes

Este producto suprime las hierbas perennes mencionadas en esta sección para servir como sustituto del sago. Use 8 onzas fluidas de este producto por acre cuando trate extensiones de tall fescue (*Festuca arundinacea*), fine fescue (*Festuca rubra*), orchardgrass (*Dactylis glomerata*), quackgrass (*Elytrigia repens*) o reed canarygrass (*Phalaris arundinacea*). Use 6 onzas fluidas de este producto por acre cuando trate Kentucky bluegrass. Aplique el tratamiento en 10 a 40 galones de solución para rociar por acre.

Uselo solamente en áreas en las que puede tolerarse un daño o decoloración temporal de las hierbas perennes.

#### Segador químico - Plantas anuales

Para suprimir el crecimiento de algunas hierbas anuales, tales como el ballico, la cebada silvestre y la avena lola anuales que crecen en céspedes agrestes al borde de las carreteras u otras áreas industriales, aplique de 4 a 5 onzas fluidas de este producto en 10 a 40 galones de solución de rocío por acre. Las aplicaciones se deben realizar cuando las hierbas anuales crezcan activamente y antes de que las semillas se encuentren en la etapa de "boot" del desarrollo. Los tratamientos pueden perjudicar a las hierbas deseadas.

#### Especie *Bromus* y Medusahead en pasturas y praderas

**Especie *Bromus*.** Este producto puede ser utilizado para tratar downy brome (*Bromus tectorum*), Japanese brome (*Bromus japonicus*), soft chess (*Bromus mollis*) y cheatgrass (*Bromus secalinus*) que se encuentran en lugares industriales, pasturas y praderas. Aplique por difusión, 8 a 16 onzas fluidas de este producto por acre.

Para obtener mejores resultados, el tratamiento debe coincidir con la emergencia temprana del epicótilo de las plantas más maduras. Demorar la aplicación hasta esta etapa del desarrollo maximizará la emergencia de otros brotes de malezas de pastos. Las aplicaciones se deben hacer todos los años sobre el mismo lugar hasta que se agoten los bancos de semilla y se puedan reestablecer en el lugar los pastos perennes deseados.

**Medusahead.** Para tratar medusahead, aplique 16 onzas fluidas de este producto por acre, tan pronto como las plantas se encuentren en desarrollo activo y antes de la etapa de 4 hojas. Las aplicaciones se pueden hacer en el otoño o en la primavera.

Las aplicaciones sobre *Bromus* y sobre medusahead se pueden hacer utilizando equipo de pulverización terrestre o aéreo. Las aplicaciones aéreas para estos usos se pueden hacer utilizando equipos para aeronaves de ala fija o para helicóptero. Para aplicaciones aéreas, diluya en 2 a 10 galones de agua por acre. Para aplicaciones utilizando equipo terrestre, diluya en 10 a 20 galones de agua por acre. Cuando se aplica de acuerdo a las instrucciones de esta etiqueta, no hay restricciones al pastoreo.

#### Césped latente (durmiente)

Este producto puede usarse para controlar o suprimir muchas malezas anuales de invierno y tall fescue para el alivio eficaz de céspedes de bermudagrass y bahiagrass laterales. Trate solamente cuando el césped esté latente y antes de reverdecer en la primavera.

Aplique de 8 a 64 onzas fluidas de este producto por acre. Aplique las dosis recomendadas en 10 a 40 galones de agua por acre. Utilice sólo en áreas donde bermudagrass o bahiagrass sean coberturas de terreno convenientes y donde pueda tolerarse algún daño temporal o decoloración.

Los tratamientos en exceso de 16 onzas fluidas por acre pueden dañar o retrasar el reverdecer en las áreas donde se hace mucho mantenimiento, como campos de golf y jardines. NO aplique mezclas de tanque de este producto más Oust XP en áreas de césped donde se hace mucho mantenimiento. Para otros usos, vea la sección "Vías de ferrocarril" de esta etiqueta, que proporciona dosis para el tratamiento de bermudagrass latente y la sección "Bordes de las carreteras" de esta etiqueta, que proporciona dosis para tratamientos de bermudagrass y bahiagrass latentes.

#### **Bermudagrass de crecimiento activo**

Este producto puede emplearse para controlar total o parcialmente muchas malezas anuales y perennes a fin de obtener una distribución eficaz de bermudagrass de crecimiento activo. NO aplique más de 16 onzas fluidas de este producto por acre en áreas de céspedes de alto mantenimiento. NO aplique mezclas de tanque de este producto más Oust en áreas de céspedes de alto mantenimiento. Para otros usos, vea la sección "BORDES DE LAS CARRETERAS" de esta etiqueta, que proporciona dosis para tratamientos de bermudagrass de crecimiento activo. Utilicelo sólo en áreas donde puede tolerarse algún daño temporal o descoloración.

#### **Renovación del césped, producción de semillas y tepes**

Este producto controla la mayoría de la vegetación existente antes de la renovación del césped o de establecer céspedes cultivados por semilla o tepes. Para un control máximo de la vegetación existente, demore la siembra o cobertura de césped a fin de determinar si las partes de la planta que quedan bajo tierra vuelven a crecer. Cuando sea necesario repetir el tratamiento, permita que las plantas se desarrollen lo suficiente antes de volver a tratar. Para controlar más eficientemente las hierbas de estación caliente, como bermudagrass, se debe aplicar este producto en el verano o en el otoño. En lugares donde la vegetación existente esté creciendo y el césped esté bajo un programa de siega, aplique este producto después de omitir por lo menos un corte del césped para permitir un crecimiento suficiente a fin de que el rociado sea interceptado por las plantas.

No remueva la tierra ni las partes de la planta que estén bajo tierra antes del tratamiento. La labranza o las técnicas de renovación como corte vertical, perforación o rebanado deben esperar 7 días después de la aplicación a fin de permitir la absorción adecuada en las partes de la planta que estén bajo tierra.

Pueden plantarse los céspedes convenientes siguiendo los procedimientos anteriormente mencionados.

Puede utilizarse equipo de mano para el tratamiento en sitio de vegetación no deseada que crezca en el césped existente. Puede utilizarse equipo de difusión o de mano para controlar los restos de tepes u otra vegetación no deseada después de cosechar el tepe.

Si las dosis de aplicación ascienden a 3 qt (cuartos de galón) por acre o menos, no se requiere un período de espera entre el tratamiento y la alimentación o pastoreo del ganado. Si la dosis es mayor de 3 qt por acre, retire el ganado doméstico antes de la aplicación y espere 8 semanas después de la aplicación antes de pastorear o cosechar.

## **8.4 Manejo de hábitats**

#### **Restauración y mantenimiento de hábitats**

Este producto puede ser usado para controlar la vegetación exótica y otras plantas indeseables en áreas de manejo de hábitats y en áreas naturales, incluyendo pastizales y refugios para la fauna silvestre. Pueden hacerse aplicaciones para permitir la recuperación de las especies de plantas nativas, antes de plantar dichas especies nativas deseables, y a otros requisitos similares de control de la vegetación de amplia efectividad. A fin de eliminar selectivamente ciertas plantas indeseables, se pueden hacer aplicaciones en puntos específicos para controlar y mejorar el hábitat.

#### **Sitios donde se siembran alimentos para la fauna silvestre**

Este producto puede ser usado para preparar el terreno donde se desea sembrar alimentos para la fauna silvestre. Cualquier especie de alimento para la fauna silvestre puede ser sembrada después de aplicar este producto, o también se puede permitir que las especies nativas vuelvan a poblar el área. Si hace falta labrar para preparar el terreno antes de sembrar las semillas, espere 7 días después de aplicar este producto antes de arar a fin de permitir la absorción adecuada en las partes de la planta que estén bajo tierra.

## **8.5 Inyección y chorro (matorrales leñosos y árboles)**

Este producto puede aplicarse por inyección o chorro para el control total o parcial de matorrales leñosos y árboles. Aplique este producto usando equipo adecuado, que debe ser capaz de penetrar en el tejido viviente. Aplique el equivalente a 1/25 onza fluida (1 mL) de este producto por cada 2 ó 3 pulgadas de diámetro del tronco a la altura del pecho (DBH en inglés). La mejor forma de hacerlo es aplicando una solución del 50 al 100 por ciento, este producto, con un chorro continuo alrededor del árbol o en cortes espaciados uniformemente alrededor del árbol y por debajo del nivel de las ramas. A medida que el diámetro del árbol aumenta, se obtienen mejores resultados con el chorro continuo alrededor del árbol o en cortes espaciados muy cerca entre sí alrededor del árbol. Evite las aplicaciones que permiten el escurrimiento de material cuando se chorea alrededor del árbol o sobre los cortes en árboles que tienen la facilidad de exudar savia de los cortes. En especies de este tipo, haga los cortes de manera oblicua a fin de producir el efecto de copa y use el producto sin diluir. Para obtener mejores resultados, la aplicación debe tener lugar durante períodos de crecimiento activo y expansión completa de las hojas. En especies de este tipo, haga los cortes de manera oblicua a fin de producir el efecto de copa y use el producto sin diluir. Para obtener mejores resultados, la aplicación debe tener lugar durante períodos de crecimiento activo y expansión completa de las hojas.

## **8.6 Plantas ornamentales, viveros y árboles de Navidad**

#### **Post-dirigido y recortado de bordes**

Este producto puede ser utilizado antes como un rocío post-dirigido alrededor de especies ornamentales leñosas establecidas, como arborvitae, azalea, boxwood, crabapple, eucalyptus, euonymus, fir, douglas fir, jopjoba, hollies, lilac, magnolia, maple, oak, poplar, privet, pine, spruce y yew, que crecen en viveros, en granjas de árboles de Navidad o en otros sitios de producción de árboles no alimenticios. Este producto también puede ser utilizado para recortado de bordes alrededor de árboles, edificios, aceras y carreteras, plantas en macetas y otros objetos de viveros.

Las plantas deseables pueden ser protegidas de la solución usando pantallas o cubriéndolas con cartón o con algún otro material impermeable. ESTE PRODUCTO NO SE RECOMIENDA PARA ROCIARSE DESDE ARRIBA SOBRE PLANTAS ORNAMENTALES Y ÁRBOLES DE NAVIDAD. Se debe tener mucho cuidado para que el rocío, aerosol o vapor de este producto no hagan contacto con el follaje o la corteza de las especies ornamentales establecidas.

#### **Preparación del terreno**

Este producto puede ser usado antes de plantar cualquier tipo de planta ornamental, de vivero o árboles de Navidad.

#### **Aplicadores por frotación**

Este producto se puede usar mediante aplicadores de mecha de esponja u otro tipo de aplicadores por frotación adecuados, para controlar total o parcialmente la vegetación indeseable alrededor de eucalptos o álamos. Consulte la sección "Equipo especializado" de este rótulo para obtener mayor información sobre el uso adecuado de los aplicadores por frotación.

#### **Invernaderos/cobertizos**

Este producto puede ser usado para controlar las malezas que estén creciendo en o alrededor de los invernaderos y cobertizos. No debe haber vegetación que no se quiera destruir y los equipos de ventilación deben estar apagados.

## **8.7 Parques, áreas recreativas y residenciales**

Este producto puede usarse en parques, áreas recreativas y residenciales. Puede aplicarse con cualquiera de los equipos descritos en este librito. Puede usarse para el recortado de bordes alrededor de árboles, vallas, caminos, alrededor de edificios, aceras y otros objetos en estas áreas. Puede usarse para tratamiento localizado de vegetación no deseable y para eliminar las malezas no deseables que crecen en cuadros de arbustos establecidos y plantaciones ornamentales. Este producto puede usarse antes de plantar un área con plantas ornamentales, flores, césped (tepes o semillas), o antes de colocar asfalto o de comenzar un proyecto de construcción.

Todas las instrucciones de la sección "Áreas no cultivadas y áreas industriales" son válidas para los parques y áreas recreativas.

## **8.8 Vías de ferrocarril**

Todas las instrucciones de la sección "Áreas no cultivadas y áreas industriales" son válidas para las vías de ferrocarril.

#### **Suelo vacío, balastos y bordes, cruces y tratamiento localizado**

Este producto puede ser usado para mantener el suelo limpio de malezas en balastos y bordes de las vías de ferrocarril. Pueden hacerse aplicaciones repetidas de este producto, a medida que emergen las malezas, para mantener el suelo limpio de malezas. Este producto puede usarse para controlar las malezas altas y mejorar la línea visual en los cruces de ferrocarril y reducir la necesidad de segar a lo largo de las servidumbres de vía. Para aplicaciones en los cruces, pueden usarse hasta 80 galones de solución para rociar por acre.

Este producto puede mezclarse en tanque con los siguientes productos para tratamiento de balastos, bordes, tratamientos localizados, suelo limpio de malezas y cruces:

Arsenal	Krovat 8 DF
Clarity	Oust XP
diuron	Sahara
Escort	Spike
Garlon 3A	Telar
Garlon 4	Vanquish
Hyvar X	2,4-D

#### **Control de matorrales**

Este producto puede ser usado para controlar matorrales leñosos y árboles en las servidumbres de vía. Aplique de 4 a 10 cuartos de galón de este producto por acre para aplicaciones desmenuadas, usando boquillas tipo aguillón o sin aguillón. Pueden usarse hasta 80 galones de solución para rociar por acre. Aplique una solución de 3/4 a 2 por ciento de este producto cuando haga aplicaciones de rociado para mojar a gran escala. Aplique una solución de 5 a 10 por ciento de este producto cuando haga aplicaciones de rociado dirigido a pequeña escala para tratamientos localizados. Este producto puede ser mezclado con los siguientes productos para un mejor control de los matorrales leñosos y árboles:

Arsenal	Garlon 4
Escort	Tordon K
Garlon 3A	

#### **Mantenimiento del Bermudagrass**

Este producto puede ser usado para controlar o controlar parcialmente muchas malezas anuales y perennes para el mantenimiento eficaz de bermudagrass que esté creciendo activamente. Aplique de 1 a 3 pintas de este producto en un máximo de 80 galones de solución para rociar por acre. Para tratar malezas anuales que tengan menos de 6 pulgadas de altura (o el largo de los tallos), use las proporciones más bajas. Use la proporción más alta a medida que las malezas aumenten de tamaño o cuando estén cerca de la floración o de la formación de semillas. Estas proporciones también controlan parcialmente las siguientes especies perennes:

Bahiagrass	Johnsongrass
Bluestem, silver	Trumpetcreeper
Fescue, tall	Vaseygrass

Este producto puede ser mezclado con Oust XP. Si se mezcla en tanques, no use más de 1 a 3 pintas de este producto con 1 a 2 onzas de Oust XP por acre. Para tratar malezas anuales listadas en esta etiqueta en la etiqueta de Oust XP, que tengan menos de 6 pulgadas de altura (o el largo de los tallos), use las proporciones más bajas de cada producto. Use la proporción más alta a medida que las malezas aumenten de tamaño o cuando estén cerca de la floración o de la formación de semillas. Estas proporciones también controlan parcialmente las siguientes especies perennes:

Bahiagrass	Fescue, tall
Blackberry	Johnsongrass
Bluestem, silver	Poorjoe
Broomsedge	Raspberry
Dallisgrass	Trumpetcreeper
Dewberry	Vaseygrass
Dock, curly	Vervain, blue
Dogfennel	

Úselo solamente en bermudagrass que esté bien establecido. Como resultado del tratamiento, el bermudagrass puede sufrir deterioro, pero volverá a crecer si se riega. No se recomienda repetir el tratamiento en la misma estación, ya que esto puede ocasionar daños graves al bermudagrass.

## 8.9 Bordos de las Carreteras

Todas las instrucciones de la sección "Áreas no cultivadas y áreas industriales" son válidas para bordes de las carreteras.

### Tratamiento de bordes

Este producto puede ser usado en los bordes de las carreteras. Puede aplicarse con rociadores de agullón, rociadores de agullón con pantalla, boquillas descentradas de gran volumen, equipo de mano y equipos similares.

### Barandas y otros obstáculos para la siega

Este producto puede ser usado para controlar las malezas que crecen debajo de las barandas y alrededor de la señalización y otros objetos en los bordes de las carreteras.

### Tratamiento localizado

Este producto puede ser usado como tratamiento localizado para controlar la vegetación indeseable que crece a lo largo de los bordes de las carreteras.

### Mezclas de tanque

Este producto puede mezclarse en tanque con los siguientes productos para tratamientos de bordes, barandas, localizados y de suelo vacío siempre y cuando dichos productos estén aprobados para su uso en dichos sitios. Lea y siga con cuidado las indicaciones, declaraciones preventivas y toda la demás información incluida en las etiquetas de los productos utilizados:

Clarity	Princep DF
diuron	Princep Liquid
Endurance	Ronstar 50 WSP
Escort	Sahara
Krovax I DF	simazine
Oust XP	Surflan
Outrider®	Telar
Pendulum 3.3 EC	Vanquish
Pendulum WDG	2,4-D

Vea las instrucciones generales para mezclas de tanque en la sección "Mezclas de tanques" de esta etiqueta.

### Mantenimiento del Bermudagrass y Bahiagrass

#### Aplicaciones cuando están latentes (durmientes)

Este producto puede usarse para controlar o controlar parcialmente muchas malezas anuales de invierno y tall fescue para el alivio eficaz de bermudagrass y bahiagrass latentes. Trate solamente cuando el césped esté latente y antes de su reverdecer primaveral. Este producto puede mezclarse en tanque con el herbicida Outrider o Oust XP para el control residual. Las mezclas de tanque de este producto con Oust XP pueden retrasar el reverdecer.

Para obtener mejores resultados con malezas anuales de invierno, haga el tratamiento cuando las plantas estén en una etapa temprana de su crecimiento (menos de 6 pulgadas de altura) después de que la mayoría haya germinado. Para obtener mejores resultados con tall fescue, haga el tratamiento cuando el fescue esté en o después de su etapa de 4 a 6 hojas.

Aplique de 8 a 64 onzas de este producto en una mezcla de tanque con 3/4 a 1-1/3 de onza de herbicida Outrider por acre. Lea y siga todas las instrucciones de la etiqueta del herbicida Outrider.

Aplique de 8 a 64 onzas fluidas de este producto por acre, solo en mezcla de tanque con 1/4 a 1 onza de Oust XP por acre. Aplique las proporciones recomendadas en 10 a 40 galones de agua por acre. Use solamente en áreas donde el bermudagrass o bahiagrass son deseables y en las que puede tolerarse un poco de daño o decoloración. Para evitar que el reverdecer se retrarde y para minimizar el daño, no agregue más de 1 onza de Oust XP por acre sobre bermudagrass y no más de 1/2 onza de Oust XP por acre sobre bahiagrass, y evite el tratamiento cuando estas hierbas se encuentren en estado semilátente.

#### Bermudagrass que esté creciendo activamente

Este producto puede ser usado para controlar total o parcialmente muchas malezas anuales y perennes para el mantenimiento eficaz de bermudagrass que esté creciendo activamente. Aplique de 1 a 3 pintas de este producto en 10 a 40 galones de solución para rociar por acre. Para tratar malezas anuales que tengan menos de 6 pulgadas de altura (o el largo de los tallos), use las proporciones más bajas. Use la proporción más alta a medida que las malezas aumenten de tamaño o cuando estén cerca de la floración o de la formación de semillas. Estas proporciones también controlan parcialmente las siguientes especies perennes:

Bahiagrass  
Bluestem, silver  
Fescue, tall

Johnsongrass  
Trumpetcreeper  
Vaseygrass

Este producto puede ser mezclado en tanque con el Outrider para el control o el control parcial de *Sorghum halepense* (Johnsongrass) y otras malas hierbas indicadas en la etiqueta del Outrider. Use de 8 a 32 onzas de este producto con 3/4 a 1-1/3 onzas de Outrider. Utilice las proporciones más altas de ambos productos para el control de malas hierbas perennes o anuales que tengan una altura superior a 6 pulgadas.

Este producto puede ser mezclado con Oust XP Si se mezcla en tanques, no use más de 1 a 2 pintas de este producto con 1 a 2 onzas de Oust XP por acre. Para tratar malezas anuales listadas en esta etiqueta y en las etiquetas de Oust XP, que tengan menos de 6 pulgadas de altura (o el largo de los tallos), use las proporciones más bajas de cada producto. Use la proporción más alta a medida que las malezas aumenten de tamaño o cuando estén cerca de la floración o de la formación de semillas. Estas proporciones también controlan parcialmente las siguientes especies perennes:

Bahiagrass  
Bluestem, silver  
Broomsedge  
Dallisgrass  
Dock, curly  
Dogfennel

Fescue, tall  
Johnsongrass  
Poojico  
Trumpetcreeper  
Vaseygrass  
Vervain, blue

Úselo solamente en bermudagrass que esté bien establecido. Como resultado del tratamiento, el bermudagrass puede sufrir deterioro, pero volverá a crecer si se riega. No se recomienda repetir el tratamiento con la mezcla de tanque en la misma estación, ya que esto puede ocasionar daños graves al bermudagrass.

#### Bahiagrass que esté creciendo activamente

Para suprimir el crecimiento vegetativo y la inhibición de la formación de semillas de bahiagrass durante aproximadamente 45 días, aplique 6 onzas fluidas de este producto en 10 a 40 galones de agua por acre. Aplique de 1 a 2 semanas después de reverdecer completo o después de cortar a una altura uniforme de 3 a 4 pulgadas. Esta aplicación debe ser hecha antes de la emergencia de las semillas.

Para la supresión durante un máximo de 120 días, aplique 4 onzas fluidas de este producto por acre, y a continuación una aplicación de 2 a 4 onzas fluidas por acre unos 45 días más tarde. No haga más de 2 aplicaciones al año.

Este producto se puede utilizar para el control o el control parcial de *Sorghum halepense* (Johnsongrass) y otras malas hierbas indicadas en la etiqueta de Outrider, en *Paspalum notatum* (bahiagrass) en crecimiento activo. Aplique de 1-1/2 a 4-3/4 onzas de este producto con 0.75 a 1.33 onzas de Outrider por acre. Utilice las proporciones más altas para el control de malas hierbas perennes o anuales que tengan una altura superior a 6 pulgadas. Utilice sólo en *Paspalum notatum* (bahiagrass) bien establecido.

Utilice las mezclas del tanque de este producto con Oust XP Aplique 6 onzas fluidas de este producto con 0.25 onzas de Oust XP por acre, 1 a 2 semanas después de la primera siega de la primavera. Haga solamente 1 aplicación al año.

## 8.10 Sitos de servicios públicos

Este producto puede ser utilizado junto a derechos de paso para alimentación eléctrica, conductos y teléfonos y en otros lugares asociados con estos derechos de paso, como subestaciones, bordes de carreteras, líneas de ferrocarril o derechos de paso similares para servicios públicos.

Este producto puede ser utilizado en áreas de servicios públicos y subestaciones para el mantenimiento del suelo limpio de malezas, el recortado de bordes y el tratamiento localizado de vegetación no deseable, así como para eliminar las malezas no deseables que crecen en cuadros de arbustos establecidos o plantaciones ornamentales. Este producto puede ser utilizado antes de plantar un área de servicios públicos con plantas ornamentales, flores y césped (panes de césped o semillas) o antes de comenzar un proyecto de construcción.

Pueden hacerse aplicaciones repetidas de este producto, a medida que emergen las malezas, para mantener el suelo limpio de malezas.

Este producto también puede ser utilizado para preparar o establecer zonas de reserva de vida silvestre dentro de estos sitios, manteniendo los caminos de acceso y para el recorte lateral a lo largo de los derechos de paso.

### Mezclas de tanque

Se pueden emplear mezclas de tanque con este producto para aumentar el espectro de control de malezas herbáceas, arbustos leñosos y árboles, siempre que el producto específico esté registrado para su aplicación en el terreno deseado. Antes de preparar una mezcla de tanque, lea y siga al pie de la letra las instrucciones, las advertencias de precaución y toda la información en las etiquetas de todos los productos utilizados. Use la mezcla conforme a las advertencias de precaución más estrictas indicadas para cada producto en la mezcla. Pueden utilizarse en mezclas de tanque todas las proporciones recomendadas de este producto.

Para controlar malezas herbáceas, utilice las proporciones de menor concentración recomendadas para la mezcla de tanque. Para controlar grupos densos o difíciles de arbustos leñosos y árboles, utilice las proporciones de mayor concentración recomendadas.

**MEZCLAS DE TANQUE:** Este producto se puede mezclar en tanque con los siguientes productos para su uso en áreas de servicios públicos, siempre y cuando los productos estén aprobados para su uso en dichos sitios. Refiérase a las etiquetas de cada producto para los sitios y proporciones de aplicación aprobados.

Arsenal	Outrider
atrazine <sup>1</sup>	pendimethalin <sup>1</sup>
Barricade 65WG	Plateau
dicamba <sup>1</sup>	Ronstar 50 WP
diuron <sup>1</sup>	Sahara
Endurance	simazine <sup>1</sup>
Escort	Surflan AS
Escort XP	Surflan WDG
Garlon 3A <sup>2</sup>	Telar DF
Garlon 4 <sup>3</sup>	Transline
Krenite	Vanquish
Krovax I DF	Velpar DF
Oust	Velpar L
Oust XP	2,4-D <sup>1</sup>

<sup>1</sup> Pueden realizarse mezclas en tanque con productos que contienen este ingrediente activo genérico siempre y cuando dichos productos estén aprobados para su aplicación en el lugar deseado.

<sup>2</sup> Antes de agregar este producto, asegúrese de haber mezclado completamente Garlon 3A con agua, conforme a las instrucciones de la etiqueta. Para evitar problemas de incompatibilidad de rocío, agite la mezcla del rocío en el momento en que se agregue este producto.

<sup>3</sup> Para tratamientos de recorte lateral, use este producto solo o en una mezcla en tanque con Garlon 4.

### Tierra desprovista de vegetación y podas y bordes

Este producto se puede utilizar en sitios de servicios públicos o subestaciones para terreno desprovisto de vegetación y para objetos con bordes recortados, para tratamiento localizado de vegetación no deseable y para eliminar las malezas no deseables que crecen en cuadros de arbustos establecidos y plantaciones ornamentales. Este producto puede usarse antes de plantar un área con plantas ornamentales, flores, césped (tepes o semillas), o antes de colocar asfalto o de comenzar un proyecto de construcción.

Pueden hacerse aplicaciones repetidas de este producto, a medida que emergen las malezas, para mantener el suelo limpio de malezas.

Este producto se puede mezclar en tanque con los siguientes productos. Consulte en las etiquetas de estos productos los lugares aprobados para emplearlos en el establecimiento no cultivados y las proporciones de aplicación.

Arsenal	Plateau
Banvel	Princep DF
Barricade 65WG	Princep Liquid
Diuron	Ronstar 50 WP
Endurance	Sahara
Escort	simazine
Garlon 3A	Surflan

## 9.0 TIPOS DE MALEZAS CONTROLADAS

Use siempre la proporción más alta de este producto por acre, dentro de las proporciones recomendadas, cuando las malezas son densas o cuando crecen en un área no tocada (no cultivada).

Puede haber una disminución de los resultados cuando se traten malezas cubiertas con mucho polvo. Para las malezas que han sido segadas, pastadas o cortadas, permita que vuelvan a crecer antes del tratamiento.

Cuando realice aplicaciones de rocío dirigido a pequeña escala, utilice una solución de 5 a 10 por ciento de este producto para el control total o parcial de malezas anuales, malezas perennes o matorrales leñosos y árboles. La cobertura del rocío debe ser uniforme y tomar contacto con al menos el 50 por ciento del follaje. La cobertura de la mitad superior de la planta es importante para obtener resultados óptimos. Para asegurar la cobertura del rocío adecuada, rocíe ambos lados de los matorrales leñosos y de los árboles grandes o altos, cuando el follaje es espeso y denso o cuando hay varios rebrotes.

Vea las secciones siguientes para las proporciones recomendadas para el control de malezas, matorrales leñosos y árboles anuales y perennes. Para las malezas, matorrales leñosos y árboles difíciles de controlar, donde las plantas crecen en condiciones de estrés, o donde la infestación es densa, pueden usarse 5 a 10 cuartos de galón por acre de este producto para obtener mejores resultados.

## 9.1 Malezas anuales

Use 1 cuarto de galón por acre si las malezas tienen menos de 6 pulgadas de altura o largo de los tallos y 1.5 cuartos a 4 cuartos de galón por acre si las malezas tienen más de 6 pulgadas de altura o largo de los tallos o cuando las malezas crecen en condiciones de estrés.

Para aplicaciones de rocío para mojar, aplique una solución de 1/2 por ciento de este producto a las malezas que tengan menos de 6 pulgadas de altura o largo de los tallos. Haga la aplicación antes de la formación de semillas para la hierba, o la formación de yemas para las malezas de hoja ancha. Para las malezas anuales que tienen más de 6 pulgadas de altura o las malezas más pequeñas que crecen en condiciones de estrés, use una solución del 1 al 2 por ciento. Use la dosis más alta para las especies difíciles de controlar o las malezas de más de 24 pulgadas de altura.

### ESPECIES DE MALEZAS

Anoda, spurred	Foxtail, Carolina*
Barley*	Cerarium, Carolina
Barley, little*	Goatgrass, jointed*
Barnyardgrass*	Goosegrass
Bassia, fivehook	Groundsel, common*
Bittercress*	Henbit
Bluegrass, annual*	Horseweed/Marestail
Bluegrass, bulbous*	( <i>Coryza canadensis</i> )
Brome, downy*	Itchgrass*
Brome, Japanese*	Johnsongrass, seedling
Buttercup*	Junglerice
Castorbean	Knotweed
Cheatgrass*	Kochia
Cheeseweed ( <i>Malva parviflora</i> )	Lamb's-quarters*
Chervil*	Lettuce, prickly*
Chickweed*	Mannagrass, eastern*
Cocklebur*	Mayweed
Copperleaf, hophornbeam	Medusahead*
Copperleaf, Virginia	Morningglory ( <i>Ipomoea spp</i> )
Coreopsis, plains/tickseed*	Mustard, blue*
Corn*	Mustard, tansy*
Crabgrass*	Mustard, tumble*
Cupgrass, woolly*	Mustard, wild*
Dwarfandelion*	Nightshade, black*
Eclipta*	Oats
Falsedelion*	Panicum browntop*
Falsesax, smallseed*	Panicum, fall*
Fiddleneck	Panicum, Texas*
Filaree	Pennycress, field*
Fleabane, annual*	Pepperweed, Virginia*
Fleabane, hairy	Pigweed*
Fleabane, rough*	( <i>Coryza bonariensis</i> )*
Fleabane, rough*	Puncturevine
Fleabane, rough*	Purslane, common
Foxtail*	Pusley, Florida

Ragweed, common*	Spanishneedles
Ragweed, giant	Speedwell, corn*
Rice, red	Speedwell, purslane*
Rocket, London*	Sprangletop*
Rocket, yellow	Spurge, annual
Rye*	Spurge, prostrate*
Ryegrass*	Spurge, spotted*
Sandbur, field*	Spurry, umbrella*
Sesbania, hemp	Starthistle, yellow
Shattercane*	Stinkgrass*
Shepherd's-purse*	Sunflower*
Sicklepod	Teaweed/Prickly sida
Signalgrass, broadleaf*	Thistle, Russian
Smartweed, ladythumb*	Velvetleaf
Smartweed, Pennsylvania*	Wheat*
Sorghum, grain (milo)*	Wild oats*
Sowthistle, annual	Witchgrass*

\* Cuando use equipos de aplicación diseminada a nivel del terreno (aplicaciones aéreas o rociadores de agulón con boquillas tipo abanico plano), estas especies serán controladas o controladas parcialmente con 1 pinta de este producto por acre. Las aplicaciones deben hacerse usando de 3 a 10 galones de volumen por acre. Use boquillas que garanticen una cobertura completa del follaje y haga el tratamiento cuando las malezas estén en su etapa temprana de crecimiento.

## 9.2 Malezas perennes

Los mejores resultados se obtienen cuando las malezas perennes son tratadas una vez que han alcanzado la etapa reproductiva de su crecimiento (inicio de las semillas para hierbas y formación de yemas para malezas de hoja ancha). Para las plantas sin flores, los mejores resultados se obtienen cuando las plantas alcanzan el estado de madurez. En muchos casos, se requiere el tratamiento antes de estas etapas del crecimiento. En estos casos, use la proporción más alta dentro de las proporciones recomendadas.

Use una solución del 2 por ciento en malezas perennes difíciles de controlar como pasto bermudagrass, dock, field bindweed, hemp dogbane, milkweed y Canada thistle.

Asegúrese de que la cobertura sea a fondo cuando emplee tratamientos de rocío para mojar con equipo de mano. Cuando se utilice equipo manual para tratamientos puntuales localizados de bajo volumen, aplique una solución de 5 a 10 por ciento de este producto.

Esperar 7 días o más después de la aplicación antes de labrar.

Especies de malezas	Proporción (cuartos por acre)	% de solución de mano
Alfalfa*	1	2
Alligatorweed*	4	1.5
Anise (fennel)	2 - 4	1 - 2
Artichoke, Jerusalem	3 - 5	2
Bahiagrass	3 - 5	2
Beachgrass, European ( <i>Ammophila arenaria</i> )	—	5
Bentgrass*	1.5	2
Bermudagrass	5	2
Bermudagrass, water (knotgrass)	1.5	2
Bindweed, field	4 - 5	2
Bluegrass, Kentucky	2	2
Blueweed, Texas	4 - 5	2
Brackenfern	3 - 4	1 - 1.5
Bromegrass, smooth	2	2
Bursage, woolly-leaf	—	2
Canarygrass, reed	2 - 3	2
Cattail	3 - 5	2
Clover, red, white	3 - 5	2
Cogongrass	3 - 5	2

Dallisgrass	3 - 5	2
Dandelion	3 - 5	2
Dock, curly	3 - 5	2
Dogbane, hemp	4	2
Fescue (except tall)	3 - 5	2
Fescue, tall	1 - 3	2
Guineagrass	3	1
Hemlock, poison	2 - 4	1 - 2
Horsenettle	3 - 5	2
Horseradish	4	2
Iceland	2	1.5 - 2
Ivy, German	2 - 4	1 - 2
Johnsongrass	2 - 3	2
Kikuyugrass	2 - 3	2
Knapweed	4	2
Lantana	—	1 - 1.25
Lepedeza	3 - 5	2
Milkweed, common	3	2
Muhly, wirestem	2	2
Mullein, common	3 - 5	2
Napiergrass	3 - 5	2
Nightshade, silverleaf	2	2
Nutsedge, purple, yellow	3	1 - 2
Orchardgrass	2	2
Pampasgrass	3 - 5	1.5 - 2
Paragrass	3 - 5	2
Pepperweed, perennial	4	2
Phragmites*	3 - 5	1 - 2
Quackgrass	2 - 3	2
Redvine*	2	2
Reed, giant	4 - 5	2
Ryegrass, perennial	2 - 3	1
Smartweed, swamp	3 - 5	2
Spurge, leafy*	—	2
Sweet potato, wild*	—	2
Thistle, artichoke	2 - 3	1 - 2
Thistle, Canada	2 - 3	2
Timothy	2 - 3	2
Torpedograss*	4 - 5	2
Trumpetcreeper*	2 - 3	2
Vaseygrass	3 - 5	2
Velvetweed	3 - 5	2
Wheatgrass, western	2 - 3	2

\*Control parcial

## 9.3 Matorrales leñosos y árboles

Aplique este producto después de la formación completa de hojas, a menos que se indique lo contrario en esta etiqueta o en otras etiquetas o fichas técnicas complementarias publicadas por Bayer CropScience LP. Para las plantas más grandes y/o donde la densidad de la vegetación sea alta, use la proporción más alta. En las plantas enredaderas que han alcanzado el estado leñoso de crecimiento, use las proporciones más altas. Los mejores resultados se obtienen cuando se aplica a finales del verano o en el otoño, después de la formación de frutos.

En zonas áridas, se obtienen mejores resultados cuando se aplica en la primavera o a principios del verano cuando las especies que crecen como matorrales tienen alto contenido de humedad y florecen.

Cuando haga tratamientos de rocío para mojar con equipos de mano, asegúrese de que la cobertura sea total. Cuando use equipos de mano para tratamientos localizados con rocío dirigido de poco volumen, aplique una solución del 5 al 10 por ciento de este producto.

Es posible que los síntomas no aparezcan antes de las heladas o del envejecimiento con tratamientos de otoño.

Permita que pasen 7 o más días después de la aplicación antes de labrar, segar o remover. Es posible que se necesite repetir el tratamiento para tratar plantas que emergen de partes enterradas o de semillas. Un poco de colorido otoñal es aceptable en plantas indeseables que pierden las hojas en el otoño, siempre y cuando no hayan sufrido mayor pérdida de hojas. Si la aplicación de otoño se realiza después de que hayan ocurrido heladas, es posible que se obtengan resultados deficientes.

Especies de malezas	Proporción (cuartos por acre)	% de solución de mano de rociador para mojar
Alder	3 - 4	1 - 1.5
Ash*	2 - 5	1 - 2
Aspen, quaking	2 - 3	1 - 1.5
Bearclover (Bearnat)*	2 - 5	1 - 2
Beech*	2 - 5	1 - 2
Birch	2	1
Blackberry	3 - 4	1 - 1.5
Blackgum*	2 - 5	1 - 2
Bracken	2 - 5	1 - 2
Broom: French, Scotch	2 - 5	1.5 - 2
Buckwheat, California*	2 - 4	1 - 2
Cascara	2 - 5	1 - 2
Catsclaw*	—	1 - 1.5
Ceanothus*	2 - 5	1 - 2
Chamise*	2 - 5	1
Cherry: bitter, black, pin	2 - 3	1 - 1.5
Coyotebrush	3 - 4	1.5 - 2
Creepers, Virginia	2 - 5	1 - 2
Deerweed	2 - 5	1
Dogwood*	2 - 5	1 - 2
Elderberry	2	1
Elm*	2 - 5	1 - 2
Eucalyptus	—	2
Flower, monkey flower*	2 - 4	1 - 2
Gorse*	2 - 5	1 - 2
Hasardia*	2 - 4	1 - 2
Hawthorn	2 - 3	1 - 1.5
Hazel	2	1
Hickory*	2 - 5	1 - 2
Honeysuckle	3 - 4	1 - 1.5
Hornbeam, American*	2 - 5	1 - 2
Ivy, poison	4 - 5	2
Kudzu	4	2
Locust, black*	2 - 4	1 - 2
Madrone resprouts*	—	2
Manzanita*	2 - 5	1 - 2
Maple, red*	2 - 4	1 - 1.5
Maple, sugar	—	1-1.5
Maple, vine*	2 - 5	1 - 2
Oak: black, white*	2 - 4	1 - 2
Oak, post	3 - 4	1 - 1.5
Oak, northern pin	2 - 4	1 - 1.5
Oak, poison	4 - 5	2
Oak, scrub*	2 - 4	1 - 1.5
Oak, southern red	2 - 3	1 - 1.5
Olive, Russian*	2 - 5	1 - 2
Peppertree, Brazilian (Florida holly)*	2 - 5	1 - 2
Persimmon*	2 - 5	1 - 2
Pine	2 - 5	1 - 2
Poplar, yellow*	2 - 5	1 - 2
Redbud, eastern	2 - 5	1 - 2

Rose, multiflora	2	1
Sage, black	2 - 4	1
Sage, white*	2 - 4	1 - 2
Sage brush, California	2 - 4	1
Salmonberry	2	1
Saltcedar*	2 - 5	1 - 2
Sassafras*	2 - 5	1 - 2
Sourwood*	2 - 5	1 - 2
Sumac; laurel, poison, smooth, sugarbush, winged *	2 - 4	1 - 2
Sweetgum	2 - 3	1 - 1.5
Swordfern*	2 - 5	1 - 2
Tallowtree, Chinese	—	1
Tanoak resprouts*	—	2
Thimbleberry	2	1
Tobacco, tree*	2 - 4	1 - 2
Toyon*	—	2
Trumpet creeper	2 - 3	1 - 1.5
Waxmyrtle, southern*	2 - 5	1 - 2
Willow	3	1
Yerba Santa, California*	—	2

\*Control parcial

## 10.0 LIMITES EN LA GARANTIA Y EN LA RESPONSABILIDAD

Bayer CropScience LP garantiza que este producto concuerda con la descripción química de la etiqueta y es razonablemente adecuado para los propósitos descritos en el librito titulado Instrucciones Completas para el Uso ("Instrucciones") cuando se usa de acuerdo con dichas Instrucciones y las condiciones que allí se detallan. SEGUN LO ESTABLECIDO EN LA LEY VIGENTE, NO SE HACE NINGUNA OTRA GARANTIA EXPRESA O IMPLICITA ACERCA DE LA IDONEIDAD PARA UN USO PARTICULAR O COMERCIALIZABILIDAD. Esta garantía está sujeta también a las condiciones y limitaciones que aquí se indican.

El comprador y todos los usuarios deberán reportar con prontitud a esta Compañía acerca de cualquier reclamo que se base en un contrato, negligencia, estricta responsabilidad, y otros actos ilícitos.

Según lo establecido en la ley vigente, el comprador y todos los usuarios son responsables por todas las pérdidas o daños que resultasen por el uso o manipulación en condiciones que estén más allá del control de esta Compañía, incluyendo pero no limitándose a: incompatibilidad con productos que no sean los señalados en las Instrucciones, aplicación o contacto con vegetación que no se quiera destruir, condiciones climáticas inusuales, condiciones de clima que estén fuera de los límites que se consideran normales en el lugar de la aplicación y para el período de tiempo en el cual se aplica, así como condiciones de clima que estén fuera de los límites indicados en las Instrucciones, aplicaciones que no estén explícitamente aconsejadas en las Instrucciones, condiciones de humedad que estén fuera de los límites establecidos en las Instrucciones, o la presencia de productos en la tierra o sobre ella, en las plantas o en la vegetación que se está tratando, diferentes a los indicados en las Instrucciones.

Esta Compañía no garantiza ningún producto reformulado o reempacado a partir de este producto, excepto de acuerdo con los requisitos de administración de esta Compañía y con el permiso expreso por escrito de esta Compañía.

SEGUN LO ESTABLECIDO EN LA LEY VIGENTE, LA ÚNICA Y EXCLUSIVA COMPENSACIÓN AL USUARIO O COMPRADOR Y EL LÍMITE DE RESPONSABILIDAD DE ESTA COMPAÑÍA O DE CUALQUIER OTRO VENDEDOR POR CUALQUIER PERDIDA O POR TODAS LAS PERDIDAS, PERJUICIOS O DAÑOS QUE RESULTASEN DEL USO O MANEJO DE ESTE PRODUCTO (INCLUYENDO RECLAMOS QUE SE BASEN EN UN CONTRATO, NEGLIGENCIA, ESTRUCTA RESPONSABILIDAD Y OTROS ACTOS ILÍCITOS) SERA EL PRECIO PAGADO POR EL USUARIO O EL COMPRADOR POR LA CANTIDAD INVOLUCRADA DE ESTE PRODUCTO, O A ELECCIÓN DE ESTA COMPAÑÍA O DE OTRO VENDEDOR, EL REEMPLAZO DE DICHA CANTIDAD, O SI NO SE OBTUVO MEDIANTE COMPRA SE REEMPLAZARÁ DICHA CANTIDAD DEL PRODUCTO. EN NINGUN CASO ESTA COMPAÑÍA U OTRO VENDEDOR SERAN RESPONSABLES POR DAÑOS INCIDENTALES, CONSECUENTES O ESPECIALES.

En el momento de abrir y usar el producto, se asume que el comprador y todos los usuarios han aceptado las condiciones de los LÍMITES EN LA GARANTIA Y EN LA RESPONSABILIDAD que no pueden variar por medio de ningún acuerdo verbal o escrito. Si las condiciones son inaceptables, devuelva el producto inmediatamente sin abrir el recipiente.

Outrider, Ranger PRO, Ranger PRO y Design son marcas registradas de la Bayer Group. Todas las demás marcas comerciales son propiedad de sus respectivos dueños.

Este producto está protegido por la patente de los Estados Unidos Nos. 5,683,958; 5,703,015; 6,063,733; 6,121,199; 6,121,200. No se han otorgado licencias bajo ninguna patente que no sea de los Estados Unidos.

Registro en la EPA N° 524-517

En caso de que se presente una emergencia relacionada con este producto, o para la ayuda médica, llame por cobrar a cualquier hora del día o de la noche, al teléfono 1-800-334-7577.

Empacado Para:  
BAYER CROPSCIENCE LP  
800 N. LINDBERGH BLVD.  
ST. LOUIS, MISSOURI, 63167 USA  
©2020

# Ranger Pro® Herbicide

Ranger PRO® herbicide is a complete broad-spectrum postemergence professional herbicide for industrial, turf and ornamental weed control.

**AVOID CONTACT OF HERBICIDE WITH FOLIAGE, STEMS, EXPOSED NON-WOODY ROOTS OR FRUIT OF CROPS, DESIRABLE PLANTS AND TREES, BECAUSE SEVERE INJURY OR DESTRUCTION IS LIKELY TO RESULT.**

Not all products listed in this label are registered for use in California. Check the registration status of each product in California before using.

**THIS IS AN END-USE PRODUCT. BAYER CROPSCIENCE LP DOES NOT INTEND AND HAS NOT REGISTERED IT FOR REFORMULATION OR REPACKAGING.**

<b>ACTIVE INGREDIENT:</b>	
*Glyphosate, N-(phosphonomethyl)glycine, in the form of its isopropylamine salt .....	<b>41.0%</b>
<b>OTHER INGREDIENTS</b> (including surfactant): .....	<b>59.0%</b>
	<b>100.0%</b>

\*Contains 480 grams per liter or 4 pounds per U.S. gallon of the active ingredient glyphosate, in the form of its isopropylamine salt. Equivalent to 356 grams per liter or 3 pounds per U.S. gallon of the acid, glyphosate.

### PRECAUTIONARY STATEMENTS: Hazards to Humans and Domestic Animals

Keep out of reach of children.

## CAUTION!

CAUSES EYE IRRITATION.  
Avoid contact with eyes or clothing.

<b>FIRST AID:</b> Call a poison control center or doctor for treatment advice.	
<b>IF IN EYES</b>	<ul style="list-style-type: none"> <li>• Hold eye open and rinse slowly and gently with water for 15 - 20 minutes.</li> <li>• Remove contact lenses if present after the first 5 minutes then continue rinsing eye.</li> </ul>
<ul style="list-style-type: none"> <li>• Have the product container or label with you when calling a poison control center or doctor, or going for treatment.</li> <li>• You may also contact <b>1-800-334-7577</b>, collect day or night, for emergency medical treatment information.</li> <li>• This product is identified as <b>Ranger PRO® herbicide, EPA Registration No. 524-517.</b></li> </ul>	

### DIRECTIONS FOR USE

It is a violation of Federal law to use this product in any manner inconsistent with its labeling.

# NET 2.5 GAL

## STORAGE AND DISPOSAL

Proper pesticide storage and disposal are essential to protect against exposure to people and the environment due to leaks and spills, excess product or waste, and vandalism. Do not allow this product to contaminate water, foodstuffs, feed or seed by storage or disposal.

**PESTICIDE STORAGE:** Store pesticides away from food, pet food, feed, seed, fertilizers, and veterinary supplies. Keep container closed to prevent spills and contamination.

**PESTICIDE DISPOSAL:** To avoid wastes, use all material in this container, including rinsate, by application in accordance with label directions. If wastes cannot be avoided, offer remaining product to a waste disposal facility or pesticide disposal program. Such programs are often run by state or local governments or by industry. All disposal must be in accordance with applicable Federal, State and local procedures.

**CONTAINER DISPOSAL:** Nonrefillable container. Do not reuse or refill this container.

**CONTAINER HANDLING:** Triple rinse or pressure rinse container (or equivalent) promptly after emptying.

Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times.

Pressure rinse as follows: Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container, and rinse at about 40 PSI for at least 30 seconds. Drain for 10 seconds after the flow begins to drip.

Once cleaned, some plastic pesticide containers can be taken to a container collection site or picked up for recycling. To find the nearest site, contact your chemical dealer or Bayer CropScience LP at 1-866-99BAYER (1-866-992-2937). If recycling is not available, dispose of in accordance with federal, state and local regulations and procedures, which may include puncturing the properly rinsed container and disposing in a sanitary landfill.

See attached labeling for complete Agricultural Use Requirements and Directions for Use.

FOR PRODUCT INFORMATION OR ASSISTANCE IN USING THIS PRODUCT,  
CALL TOLL-FREE, 1-866-99BAYER (1-866-992-2937).

IN CASE OF AN EMERGENCY INVOLVING THIS PRODUCT,  
OR FOR MEDICAL ASSISTANCE, CALL COLLECT, DAY OR NIGHT, 1-800-334-7577.

EPA Reg. No. 524-517  
EPA Est. 524-IA-1

Packed For:  
BAYER CROPSCIENCE LP  
800 N. LINDBERGH BLVD.  
ST. LOUIS, MISSOURI, 63167 USA  
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US62217586B 100125Bv2 11/20



**MONSANTO COMPANY**  
Safety Data Sheet  
Commercial Product

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## 1. PRODUCT AND COMPANY IDENTIFICATION

### 1.1. Product identifier

#### Ranger PRO® Herbicide

##### 1.1.1. Chemical name

Not applicable.

##### 1.1.2. Synonyms

None.

##### 1.1.3. EPA Reg. No.

524-517

### 1.2. Product use

Herbicide

### 1.3. Company

MONSANTO COMPANY, 800 N. Lindbergh Blvd., St. Louis, MO, 63167

**Telephone:** 800-332-3111, **Fax:** 314-694-5557

**E-mail:** safety.datasheet@monsanto.com

### 1.4. Emergency numbers

FOR CHEMICAL EMERGENCY, SPILL LEAK, FIRE, EXPOSURE, OR ACCIDENT Call CHEMTREC - Day or Night: 1-800-424-9300 toll free in the continental U.S., Puerto Rico, Canada, or Virgin Islands. For calls originating elsewhere: 703-527-3887 (collect calls accepted).  
FOR MEDICAL EMERGENCY - Day or Night: +1 (314) 694-4000 (collect calls accepted).

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## 2. HAZARDS IDENTIFICATION

### 2.1. Classification

OSHA Hazard Communication Standard, 29 CFR 1910.1200 (2012)

Acute toxicity, inhalation - Category 4

### 2.2. Label elements

#### 2.2.1. Signal word

WARNING!

#### 2.2.2. Hazard pictogram/pictograms



#### 2.2.3. Hazard statement/statements

Harmful if inhaled.

#### 2.2.4. Precautionary statement/statements

Avoid breathing dust/fume/gas/mist/vapours/spray.

Use only outdoors or in a well-ventilated area.

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

Call a POISON CENTER or doctor/physician if you feel unwell.

### 2.3. Appearance and odour (colour/form/odour)

Amber /Liquid / Sweet

### 2.4. OSHA Status

This product is hazardous according to the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

Refer to section 11 for toxicological and section 12 for environmental information.

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## 3. COMPOSITION/INFORMATION ON INGREDIENTS

### Active ingredient

Isopropylamine salt of N-(phosphonomethyl)glycine; {Isopropylamine salt of glyphosate}

### Composition

COMPONENT	CAS No.	% by weight (approximate)
Isopropylamine salt of glyphosate	38641-94-0	41
Other ingredients		59

The specific chemical identity is being withheld because it is trade secret information of Monsanto Company.

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## 4. FIRST AID MEASURES

Use personal protection recommended in section 8.

### 4.1. Description of first aid measures

- 4.1.1. Eye contact:** If in eyes, hold eye open and rinse slowly and gently for 15-20 minutes. Remove contact lenses, if present, after first 5 minutes, then continue rinsing. Call a poison control center or doctor for treatment advice. Immediately flush with plenty of water.
- 4.1.2. Skin contact:** Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.
- 4.1.3. Inhalation:** If inhaled, move person to fresh air. If person is not breathing, call emergency number or ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible. Call a poison control center or doctor for treatment advice.
- 4.1.4. Ingestion:** Call poison control center or doctor immediately 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 center or doctor. Do not give anything by mouth to an unconscious person.

### 4.2. Most important symptoms and effects, both acute and delayed

- 4.2.1. Eye contact, short term:** May cause temporary eye irritation.
- 4.2.2. Skin contact, short term:** Not expected to produce significant adverse effects when recommended use instructions are followed.
- 4.2.3. Inhalation, short term:** Not expected to produce significant adverse effects when recommended use instructions are followed.
- 4.2.4. Single ingestion:** Not expected to produce significant adverse effects when recommended use instructions are followed.

### 4.3. Indication of any immediate medical attention and special treatment needed

- 4.3.1. Advice to doctors:** This product is not an inhibitor of cholinesterase.
- 4.3.2. Antidote:** Treatment with atropine and oximes is not indicated.

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## 5. FIRE-FIGHTING MEASURES

### 5.1. Extinguishing media

**5.1.1. Recommended:** Water, foam, dry chemical, carbon dioxide (CO<sub>2</sub>)

### 5.2. Special hazards

#### 5.2.1. Unusual fire and explosion hazards

Minimise use of water to prevent environmental contamination.  
Environmental precautions: see section 6.

#### 5.2.2. Hazardous products of combustion

Carbon monoxide (CO), phosphorus oxides (P<sub>x</sub>O<sub>y</sub>), nitrogen oxides (NO<sub>x</sub>)

**5.3. Fire fighting equipment:** Self-contained breathing apparatus. Equipment should be thoroughly decontaminated after use.

### 5.4. Flash point

Does not flash.

---

## 6. ACCIDENTAL RELEASE MEASURES

### 6.1. Personal precautions

Use personal protection recommended in section 8.

### 6.2. Environmental precautions

**SMALL QUANTITIES:**

Low environmental hazard.

**LARGE QUANTITIES:**

Minimise spread.

Keep out of drains, sewers, ditches and water ways.

Notify authorities.

### 6.3. Methods for cleaning up

**SMALL QUANTITIES:**

Flush spill area with water.

**LARGE QUANTITIES:**

Absorb in earth, sand or absorbent material.

Dig up heavily contaminated soil.

Collect in containers for disposal.

Refer to section 7 for types of containers.

Flush residues with small quantities of water.

Minimise use of water to prevent environmental contamination.

Refer to section 13 for disposal of spilled material.

Use handling recommendations in Section 7 and personal protection recommendations in Section 8.

---

## 7. HANDLING AND STORAGE

Good industrial practice in housekeeping and personal hygiene should be followed.

### 7.1. Precautions for safe handling

When using do not eat, drink or smoke. Wash hands thoroughly after handling or contact. Thoroughly clean equipment after use. Do not contaminate drains, sewers and water ways when disposing of equipment rinse water. Refer to section 13 of the safety data sheet for disposal of rinse water.

### 7.2. Conditions for safe storage

Minimum storage temperature: -15 °C

Maximum storage temperature: 50 °C

**Compatible materials for storage:** stainless steel, fibreglass, plastic, glass lining

**Incompatible materials for storage:** galvanised steel, unlined mild steel, see section 10.

Keep out of reach of children.

Keep away from food, drink and animal feed.

Keep only in the original container.

Partial crystallization may occur on prolonged storage below the minimum storage temperature.

If frozen, place in warm room and shake frequently to put back into solution.

Minimum shelf life: 5 years.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1. Airborne exposure limits

Components	Exposure Guidelines
Isopropylamine salt of glyphosate	No specific occupational exposure limit has been established.
Other ingredients	No specific occupational exposure limit has been established.

**8.2. Engineering controls:** No special requirement when used as recommended.

### 8.3. Recommendations for personal protective equipment

**8.3.1. Eye protection:** If there is significant potential for contact: Wear chemical goggles.

**8.3.2. Skin protection:** No special requirement when used as recommended. If repeated or prolonged contact: Wear chemical resistant gloves.

**8.3.3. Respiratory protection:** No special requirement when used as recommended.

When recommended, consult manufacturer of personal protective equipment for the appropriate type of equipment for a given application.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

These physical data are typical values based on material tested but may vary from sample to sample. Typical values should not be construed as a guaranteed analysis of any specific lot or as specifications for the product.

Colour/colour range:	Amber
Odour:	Sweet
Form:	Liquid
Physical form changes (melting, boiling, etc.):	
Melting point:	Not applicable.
Boiling point:	No data.
Flash point:	Does not flash.
Explosive properties:	No data.
Auto ignition temperature:	No data.
Self-accelerating decomposition temperature (SADT):	No data.

Oxidizing properties:	No data.
Specific gravity:	1.162 @ 20 °C / 15.6 °C
Vapour pressure:	No significant volatility.
Vapour density:	Not applicable.
Evaporation rate:	No data.
Dynamic viscosity:	No data.
Kinematic viscosity:	No data.
Density:	1.162 g/cm <sup>3</sup> @ 20 °C
Solubility:	Water: Completely miscible.
pH:	4.4 - 5.0
Partition coefficient:	log Pow: < 0.00

## 10. STABILITY AND REACTIVITY

### 10.1. Reactivity

Reacts with galvanised steel or unlined mild steel to produce hydrogen, a highly flammable gas that could explode.

### 10.2. Stability

Stable under normal conditions of handling and storage.

### 10.3. Possibility of hazardous reactions

Reacts with galvanised steel or unlined mild steel to produce hydrogen, a highly flammable gas that could explode.

### 10.4. Incompatible materials

galvanised steel; unlined mild steel; see section 10.;  
Compatible materials for storage: see section 7.2.

### 10.5. Hazardous decomposition

Thermal decomposition: Hazardous products of combustion: see section 5.

## 11. TOXICOLOGICAL INFORMATION

This section is intended for use by toxicologists and other health professionals.

**Likely routes of exposure:** Skin contact, eye contact

### Potential health effects

**Eye contact, short term:** May cause temporary eye irritation.

**Skin contact, short term:** Not expected to produce significant adverse effects when recommended use instructions are followed.

**Inhalation, short term:** Not expected to produce significant adverse effects when recommended use instructions are followed.

**Single ingestion:** Not expected to produce significant adverse effects when recommended use instructions are followed.

Data obtained on similar products and on components are summarized below.

### Similar formulation

#### Acute oral toxicity

**Rat, LD50:** 5,108 mg/kg body weight  
Practically non-toxic.

**Acute dermal toxicity**

**Rat, LD50 (limit test):** > 5,000 mg/kg body weight  
Practically non-toxic. No mortality.

**Skin irritation**

**Rabbit, 6 animals, OECD 404 test:**  
Days to heal: 3  
Primary Irritation Index (PII): 0.5/8.0  
Essentially non irritating.

**Eye irritation**

**Rabbit, 6 animals, OECD 405 test:**  
Days to heal: 3  
Slight irritation.

**Acute inhalation toxicity**

**Rat, LC50, 4 hours, aerosol:** 2.9 mg/L  
Other effects: weight loss, breathing difficulty  
Practically non-toxic.

**Skin sensitization**

**Guinea pig, 3-induction Buehler test:**  
Positive incidence: 0 %

**N-(phosphonomethyl)glycine; { glyphosate acid}**

**Genotoxicity**

Not genotoxic.

**Carcinogenicity**

Not carcinogenic in rats or mice. Listed as Category 2A by the International Agency for Research on Cancer (IARC) but our expert opinion is that classification as a carcinogen is not warranted.

**Reproductive/Developmental Toxicity**

Developmental effects in rats and rabbits only in the presence of significant maternal toxicity.  
Reproductive effects in rats only in the presence of significant maternal toxicity.

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## 12. ECOLOGICAL INFORMATION

This section is intended for use by ecotoxicologists and other environmental specialists.

Data obtained on similar products and on components are summarized below.

**Similar formulation**

**Aquatic toxicity, fish**

**Rainbow trout (*Oncorhynchus mykiss*):**  
Acute toxicity, 96 hours, static, LC50: 5.4 mg/L  
Moderately toxic.

**Aquatic toxicity, invertebrates**

**Water flea (*Daphnia magna*):**  
Acute toxicity, 48 hours, static, EC50: 11 mg/L  
Slightly toxic.

**Arthropod toxicity**

**Honey bee (*Apis mellifera*):**  
Oral/contact, 48 hours, LD50: > 100 µg/bee  
Practically non-toxic.

**Similar formulation**

**Aquatic toxicity, algae/aquatic plants**

**Green algae (*Selenastrum capricornutum*):**

Acute toxicity, 72 hours, static, EbC50 (biomass): 12.4 mg/L  
Slightly toxic.

**Green algae (*Selenastrum capricornutum*):**

Acute toxicity, 72 hours, static, NOEC: 6.3 mg/L

**N-(phosphonomethyl)glycine: { glyphosate acid}**

**Bioaccumulation**

**Bluegill sunfish (*Lepomis macrochirus*):**

Whole fish: BCF: < 1  
No significant bioaccumulation is expected.

**Dissipation**

**Soil, field:**

Half life: 2 - 174 days  
Koc: 884 - 60,000 L/kg  
Adsorbs strongly to soil.

**Water, aerobic:**

Half life: < 7 days

---

**13. DISPOSAL CONSIDERATIONS**

**13.1. Waste treatment methods**

**13.1.1. Product**

Excess product may be disposed of by agricultural use according to label instructions. Keep out of drains, sewers, ditches and water ways. Recycle if appropriate facilities/equipment available. Burn in proper incinerator. Follow all local/regional/national/international regulations.

**13.1.2. Container**

See the individual container label for disposal information. Emptied containers retain vapour and product residue. Observe all labeled safeguards until container is cleaned, reconditioned or destroyed. Empty packaging completely. Triple or pressure rinse empty containers. Do NOT contaminate water when disposing of rinse waters. Ensure packaging cannot be reused. Do NOT re-use containers. Store for collection by approved waste disposal service. Recycle if appropriate facilities/equipment available. Follow all local/regional/national/international regulations.

Use handling recommendations in Section 7 and personal protection recommendations in Section 8.

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**14. TRANSPORT INFORMATION**

The data provided in this section is for information only. Please apply the appropriate regulations to properly classify your shipment for transportation.

**14.1. US Dept. of Transportation (DOT) Hazardous Materials Regulations (49 CFR Parts 105-180)**

Proper Shipping Name (Technical Name if required):	Not regulated for domestic ground transportation. ( )
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**14.2. IMDG Code**

Proper Shipping Name	Not regulated for transport under IMO Regulations ( )
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(Technical Name if required):	
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#### 14.3. IATA/ICAO

Proper Shipping Name (Technical Name if required):	Not regulated for transport under IATA/ICAO Regulations ()
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### 15. REGULATORY INFORMATION

#### 15.1. Environmental Protection Agency

##### 15.1.1. TSCA Inventory

All components are on the US EPA's TSCA Inventory

##### 15.1.2. SARA Title III Rules

Section 311/312 Hazard Categories: Immediate

Section 302 Extremely Hazardous Substances: Not applicable.

Section 313 Toxic Chemical(s): Not applicable.

##### 15.1.3. CERCLA Reportable quantity

Not applicable.

##### 15.1.4. Federal Insecticide, Fungicide, Rodenticide Act (FIFRA)

This chemical is a pesticide product regulated by the United States Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets (SDS), and for workplace labels of non-pesticide chemicals. The hazard information required on the pesticide label is reproduced below. The pesticide label also includes other important information, including directions for use.

CAUTION!

CAUSES EYE IRRITATION

Acute oral toxicity: FIFRA category IV.

Acute dermal toxicity: FIFRA category IV.

Acute inhalation toxicity: FIFRA category IV.

Skin irritation: FIFRA category IV.

Eye irritation: FIFRA category III.

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### 16. OTHER INFORMATION

The information given here is not necessarily exhaustive but is representative of relevant, reliable data.

Follow all local/regional/national/international regulations.

Please consult supplier if further information is needed.

In this document the British spelling was applied.

|| Significant changes versus previous edition.

	Health	Flammability	Instability	Additional Markings
NFPA	1	1	1	

0 = Minimal hazard, 1 = Slight hazard, 2 = Moderate hazard, 3 = Severe hazard, 4 = Extreme hazard

Full denomination of most frequently used acronyms. BCF (Bioconcentration Factor), BOD (Biochemical Oxygen Demand), COD (Chemical Oxygen Demand), EC50 (50% effect concentration), ED50 (50% effect dose), I.M. (intramuscular), I.P. (intraperitoneal), I.V. (intravenous), Koc (Soil adsorption coefficient), LC50 (50% lethality concentration), LD50 (50% lethality dose), LDLo (Lower limit of lethal dosage), LEL (Lower Explosion Limit), LOAEC (Lowest Observed Adverse Effect Concentration), LOAEL (Lowest Observed Adverse Effect Level), LOEC (Lowest Observed Effect Concentration), LOEL (Lowest Observed Effect Level), MEL (Maximum Exposure limit), MTD (Maximum Tolerated Dose), NOAEC (No Observed Adverse Effect Concentration), NOAEL (No Observed Adverse Effect Level), NOEC (No Observed Effect Concentration), NOEL (No Observed Effect Level), OEL (Occupational Exposure Limit), PEL (Permissible Exposure Limit), PII (Primary Irritation Index), Pow (Partition coefficient n-octanol/water), S.C. (subcutaneous), STEL (Short-Term Exposure Limit), STOT SE (Specific Target Organ Toxicity, Single Exposure), STOT RE (Specific Target Organ Toxicity, Repeated Exposure), TLV-C (Threshold Limit Value-Ceiling), TLV-TWA (Threshold Limit Value - Time Weighted Average), UEL (Upper Explosion Limit)

This Safety Data Sheet (SDS) serves different purposes than and DOES NOT REPLACE OR MODIFY THE EPA-APPROVED PRODUCT LABELING (attached to and accompanying the product container). This SDS provides important health, safety, and environmental information for employers, employees, emergency responders and others handling large quantities of the product in activities generally other than product use, while the labeling provides that information specifically for product use in the ordinary course.

Use, storage and disposal of pesticide products are regulated by the EPA under the authority of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) through the product labeling, and all necessary and appropriate precautionary, use, storage, and disposal information is set forth on that labeling. It is a violation of federal law to use a pesticide product in any manner not prescribed on the EPA-approved label.

Although the information and recommendations set forth herein (hereinafter "Information") are presented in good faith and believed to be correct as of the date hereof, MONSANTO Company or any of its subsidiaries makes no representations as to the completeness or accuracy thereof. Information is supplied upon the condition that the persons receiving same will make their own determination as to its suitability for the purposes prior to use. In no event will MONSANTO Company or any of its subsidiaries be responsible for damages of any nature whatsoever resulting from the use of or reliance upon information. NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OF ANY OTHER NATURE ARE MADE HEREUNDER WITH RESPECT TO INFORMATION OR TO THE PRODUCT TO WHICH INFORMATION REFERS.

**WILT DISEASES:  
OAK WILT AND  
DUTCH ELM DISEASE**

Use Shepherd Fungicide **only** as a preventative for Oak Wilt and Dutch Elm Disease. These fungi infect the vascular system and cause plugging throughout the tree; treatment of infected trees is rarely successful.

Symptomless trees immediately adjacent to a diseased tree should be considered infected and may not respond to treatment. Symptomless trees separated by a primary plow line from diseased trees may be uninfected and can be treated. Do not use on trees weakened by extreme environmental conditions such as heat, drought, flooding, etc. It is recommended that Shepherd Fungicide be administered by applicators trained in injection techniques and in the identification of Oak Wilt and Dutch Elm Disease.

In the upper Midwest, treat oaks after June 15. Wounds in oaks in the upper Midwest between May 15 and June 15 attract insects that transmit the oak wilt pathogen. Applications to oaks in other areas and to elms may be made at any time during the growing season, spring through fall, provided the bark is pliable enough to accept the chemical injections. One application provides season-long protection. Reevaluate disease conditions annually, particularly in high disease-risk areas or for high-value trees – retreatment can be made 12-months after initial treatment and annually thereafter. Inject Shepherd Fungicide into the flare, or base of the tree, to ensure even distribution throughout the vascular system.

Note: (1) Accurate diagnosis of Oak Wilt and Dutch Elm Disease is important, since Shepherd Fungicide provides only suppression of the diseases listed on this label. (2) Shepherd Fungicide will be most effective when used in conjunction with other cultural practices recommended for management of Oak Wilt and Dutch Elm Disease (removal of dead elm trees, pruning of diseased tree limbs and branches, control of bark beetles, etc.).

**CONIFER BLIGHTS**

**Diplodia Tip Blight** affects a variety of pines and kills current-year shoots, major branches, and ultimately entire trees. The most conspicuous symptom of diplodia blight is brown, stunted new shoots with short, brown needles. Needles on infected new shoots often become discolored (tan, brown) while still encased in fascicle sheaths. Presence of resin droplets and one or a few very short needles are usually the first indications that a new shoot is infected. Entire new shoots are killed rapidly by the fungus. Trees repeatedly infected have some branches killed back to the main stem.

Repeated infections reduce growth, deform trees, and ultimately kill them.

**Treatment will not cure already affected areas of the tree but will prevent the spread of infection.** Removal of dead branches, cones and fallen debris will reduce the amount of fungal spores available to cause new infections. Wait for dry fall weather to prune to avoid spreading spores on pruning equipment. Between cuts, sanitize tools by dipping in 70% alcohol or a 10% solution of household bleach in water.

Table 2. Ornamentals – Plant Species (Numbers in parentheses refer to diseases controlled. See Table 3.)		
Wood Ornamentals		Nonbearing Fruits and Nuts (Nurseries and Landscape Plantings)
Ash (4c) Azalea (2c, 4b) Crabapple (3c, 3q, 4c, 5a) Crape Myrtle (4a) Dogwood (3h, 4c) Douglas Fir (5b) Hawthorn (5a) Juniper (1a) Lilac (4c)	Oaks (3p) Pines (1b, 1c) Poplars (5b) Pyracantha (3o) (Outdoor Uses Only) Shasta Fir (5e)	Apple (3q, 4d, 5a) Cherry (2b, 3d) Citrus (3m) Nectarine (2b) Peach (2b) Pecan (3b, 3c, 3f, 3l, 3n, 4e) Plum (2b) Walnut (3j)

Table 3. Diseases	
1. Conifer Blights a. <i>Phomopsis juniperovora</i> (Phomopsis Blight) b. <i>Sirrococcus strobilinus</i> (Tip Blight) c. <i>Sphaeropsis sapinea</i> (Diplodia Tip Blight) 2. Flower Blight a. <i>Ascochyta chrysanthemi</i> (Ray Blight) b. <i>Monilinia</i> spp. c. <i>Ovulinia</i> spp. 3. Leaf Blights/Spots a. <i>Alternaria</i> spp. b. <i>Cercospora</i> spp. (Brown Leaf Spot) c. <i>Cladosporium</i> spp. (Scab) d. <i>Coccomyces hiemalis</i> e. <i>Colletotrichum</i> spp. f. <i>Cristulariella</i> spp. (Zonate leafspot) g. <i>Diplocarpon rosae</i> (Blackspot) h. <i>Discula</i> spp. (Anthracnose) i. <i>Fabraea maculata</i> (syn. Entomosporium maculata) j. <i>Gnomonia leptostyla</i> (Anthracnose)	k. <i>Heterosporium echinulatum</i> l. <i>Mycosphaerella caryigena</i> (Downy Spot) m. <i>Mycosphaerella fructicola</i> (Greasy Spot) n. <i>Septoria</i> spp. (Leaf Scorch) o. <i>Spilocaea pyracanthae</i> p. <i>Tubakia dryina</i> q. <i>Venturia inaequalis</i> (Scab) 4. Powdery Mildew a. <i>Erysiphe</i> spp. b. <i>Microsphaera</i> spp. c. <i>Oidium</i> spp. d. <i>Podosphaera</i> spp. e. <i>Sphaerotheca pannosa</i> 5. Rust a. <i>Gymnosporangium juniperi-viginianae</i> b. <i>Melampsora occidentalis</i> c. <i>Phragmidium</i> spp. d. <i>Puccinia</i> spp. e. <i>Pucciniastrum goeppertianum</i> f. <i>Uromyces dianthi</i>

**HOW TO USE THE ARBORSYSTEMS  
DIRECT-INJECT CHEMICALS WITH  
ARBORSYSTEMS DIRECT-INJECT TREE  
INJECTION SYSTEM**

- Use only ArborSystems Direct-Inject chemicals with your unit as they have been formulated specifically for the Direct-Inject system.
- Attach the chemical pack to the Direct-Inject unit and prepare the unit to make injections.
- Set the delivery volume on the unit.
- Follow the label directions in this booklet to determine the amount of chemical and number of injection sites.
- Determine where to make injections in the bark. Generally, the injection tip is inserted into the fissure (valley) of the tree bark. Inject thin-barked trees in the thicker part of the tree bark. Thick-barked trees require a longer injection tip.
- Make injections working around the circumference of the tree. Make Wedgle® Tip injections within 6" to 12" off the ground. Use the Portle® Tip for injecting Sycamores or thick-barked hardwoods such as elms at the base or flare of the tree.
- With a smooth motion, firmly squeeze the injection unit handles. This releases a pre-measured chemical dose to the tree.
- Continue making injections moving around the tree until the entire tree trunk has been treated.
- During use, periodically clean the Direct-Inject unit to prevent clogging.

**STORAGE AND DISPOSAL**

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

**Pesticide Storage:** Store in original 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 Handling:** Non-refillable container; do not reuse or refill this container. Completely empty pack into application equipment, then offer for recycling, if available, or dispose of empty pack in a sanitary landfill or by incineration.



800-698-4641 • Fax: 402-339-5011  
10168 L Street • Omaha, NE 68127

**NOTICE OF WARRANTY**

ArborSystems warrants that this product conforms to the chemical description on the label and is reasonably fit for use when used strictly in accordance with the directions on the labeling. To the extent consistent with applicable law, ArborSystems® does not make or authorize any agent or representative to make any other warranty, guarantee or representation, express or implied, concerning this product.

ArborSystems®, Shepherd®, Portle® and Wedgle® are registered trademarks of ArborSystems.

Direct-Inject™ and WedgeChek™ are trademarks of ArborSystems.

Direct Inject™ unit is protected by U.S. Patent #5,901,498  
Wedgle® Tip is protected by U.S. Patent #5,239,773  
WedgeChek™ is protected by U.S. Patent #5,797,215  
Portle® Tip is protected by U.S. Patent #7,178,286

**Keep Out of Reach of Children**  
**CAUTION**  
 See Inside for First Aid, additional Precautionary Statements and complete Directions for Use.

Contains 4.25 oz (117 grams) active ingredient per 1 qt 2 fl oz (1000 ml) pack.

per 4 fl oz (120 ml) pack.

Contains 0.5 oz (14 grams) active ingredient

Total.....100.00%

OTHER INGREDIENTS.....85.7%

Propiconazole (CAS No. 60207-90-1).....14.3%

**ACTIVE INGREDIENT:**

**For Systemic Fungicide Suppression of Selected Diseases in Ornamental Trees**

**An ArborSystems® Direct-Inject™ Chemical**

**SHEPHERD® Fungicide**

THIS PANEL  
GLUES TO  
CHEMICAL PACK

# SHEPHERD® Fungicide

An ArborSystems® Direct-Inject™ Chemical  
 • Easy • No Drilling • Saves Time and Money

## For Systemic Fungicide Suppression of Selected Diseases in Ornamental Trees

Intended for use by professional arborists/ applicators, foresters, grounds maintenance professionals and landscapers.

To be used only with the ArborSystems Direct-Inject Tree Injection System.



Tree Injection Solutions  
 800-698-4641 • Fax: 402-339-5011  
 10168 L Street • Omaha, NE 68127

EPA Reg. No. 69117-3 EPA Est. 69117-NE-1

## FIRST AID

**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 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 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.

**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.

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

You may also contact 1-800-222-1222 for emergency medical treatment advice.

**Note to Physician:** If ingested, induce emesis or lavage stomach; treat symptomatically.

# PRECAUTIONARY STATEMENTS

## HAZARDS TO HUMANS AND DOMESTIC ANIMALS

**CAUTION:** Harmful if swallowed, inhaled or absorbed through the skin. Avoid breathing vapor. Thoroughly wash with soap and water after handling. Remove and wash contaminated clothing before reuse.

## PERSONAL PROTECTIVE EQUIPMENT (PPE)

Some materials that are chemical-resistant to this product are listed below. If you want more options, follow the instructions for Category C on an EPA chemical-resistance category selection chart.

All handlers must wear:

- Long-sleeved shirt and long pants
- Chemical-resistant gloves, such as barrier laminate; butyl, nitrile and neoprene rubber; polyvinyl chloride (PVC); or Viton
- Shoes plus socks
- Protective eyewear

In addition, all handlers (mixers, loaders and applicators or individuals performing one or more of these tasks), who are applying this pesticide using hand-held equipment must wear:

- Long-sleeved shirt and long pants
- Shoes and socks and
- Chemical-resistant gloves.

## USER SAFETY REQUIREMENTS

**Users should:**

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

## USER SAFETY RECOMMENDATIONS

- Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.
- Immediately remove clothing/PPE if pesticide gets inside; then thoroughly wash and put on clean clothing.

- Immediately remove PPE after handling this product. Wash the outside of gloves before removing. As soon as possible thoroughly wash and change into clean clothing.

## ENVIRONMENTAL HAZARDS

This product is toxic to fish and shrimp. Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment washwater or rinsate.

## PHYSICAL OR CHEMICAL HAZARDS

Do not use or store near heat or open flame.

## DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application.

**Intended for use by professional arborists/ applicators, foresters, grounds maintenance professionals and landscapers.**

## RESTRICTIONS

**Do Not Inject Food-Bearing Plants**

## PRODUCT INFORMATION

### ARBORSYSTEMS®

### DIRECT-INJECT™ TREE INJECTION SYSTEM

The ArborSystems Direct-Inject Tree Injection System is a no-drill trunk injection method and is easy to use. Most trees are treated in as little as five minutes or less, allowing applicators to treat trees quickly. There is no need to wait for absorption (translocation). Chemical is injected into the cambial area (the active vascular system) of the tree. Because the chemical is placed right where the tree can use it, effectiveness of the chemical is increased. Use in sunny or overcast conditions, rainy or dry, at any time of day. As no drilling or implants are required, you can treat trees year after year, with no threat of long-term or permanent damage to the tree. This system minimizes wounding and promotes long-term tree health and vigor.

# INDICATIONS AND TREATMENT TIMING

**Table 1. Overview of Diseases and Treatments**

See Table 2 and Table 3 for additional information

**Note:** Apply the specified rate for a particular type of disease and evaluate for phytotoxicity and disease control prior to widespread use. Before using on trees or diseases which are not listed, test on a small scale basis.

Treatments	Dosage per injection site	Treatment timing
Make 1 injection for every 3" to 5" of trunk circumference	Higher dosages generally provide longer control	
<b>Conifer Blights</b> (See additional notes below)		
		Use for curative or preventive treatment.
<b>Diplodia Tip Blight</b> and other Conifer Blights such as Tip Blight in Pines and Junipers	2-4 ml	Treatments can be made any time during the growing season including in the fall <b>providing protection for up to two years.</b>
<b>Wilt Diseases</b> (See additional notes below)		
<b>Oak Wilt Disease</b> for an uninfected Oak (not including Red Oak)	3-5 ml	Apply only to uninfected trees. Wilt diseases can only be prevented, not cured.
<b>Dutch Elm Disease</b> for an uninfected Elm	5-10 ml	Applications should be made only during the growing season; spring through late summer, <b>providing a minimum of 12-month protection.</b>
<b>Anthracnose and Leaf Diseases in Hardwoods</b>		
<b>Anthracnose</b> in Sycamore	2 ml	For these diseases, use for prevention only. Applications are most effective when applied in late summer, around one month prior to the typical first frost, to suppress/prevent leaf disease in the following year.
<b>Leaf diseases</b> in Oaks, Crabapple, and non-bearing ornamentals including Cherry, Citrus, Pecan, Pyracantha and Walnut	1-2 ml	
<b>Powdery Mildew</b> in Ash, Dogwood, Lilac and non-bearing ornamental Crabapple and Pecan	1-2 ml	
<b>Flower Blight</b> of non-bearing ornamental Cherry, Peach, Plum	1-2 ml	
<b>Rust</b> on Douglas Fir, Hawthorn, Poplars, Shasta Fir, and non-bearing ornamental Crabapple	1-2 ml	Trees with leaf disease symptoms can be treated to prevent recurrence for the following year. <b>Annual treatments are required for prevention.</b>



Note: Because some treatments require large amounts of chemical per site, there may be occasions where it is difficult to keep all of the chemical dose in the injection site. If this is experienced, several options are possible:

- 1) Use the Portle or WedglePlus Injection Tips which have a check valve in the hub of each tip which keeps chemical in the tree until it is absorbed.
- 2) Reduce dosage volume by half and double the number of injection sites.
- 3) Inject half the dose at each site, mark the tree, continue treating other trees, then return to the marked tree and inject remaining dosage in each site.

# Safety Data Sheet

## 1 IDENTIFICATION

### Product Identifier:

**Product Name:** SHEPHERD® Fungicide

**EPA Reg. No.:** 69117-3

**Synonyms:** None

**Recommended Use:** Systemic fungicide in ornamental trees.

**Use Restrictions:** Do not inject food bearing plants. It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

**Supplier Information:** ArborSystems, Inc. d/b/a ArborSystems

10168 L Street

Omaha, NE 68127 USA

Toll Free: 800.698.4641

Phone: 402.339.4459

Fax: 402.339.5011

Email: [mike@arborsystems.com](mailto:mike@arborsystems.com)

Website: [www.arborsystems.com](http://www.arborsystems.com)

**Emergency Phone Number:** 1.800.222.1222 (Medical)

## 2 HAZARDS IDENTIFICATION

**Hazards Classification:** This mixture is considered hazardous by the 2012 OSHA Communication Standard (29 CFR 1910.1200).

Acute toxicity-Oral Category 4

Serious eye damage/eye irritation Category 2A

Skin sensitization Category 1

Reproductive toxicity Category 1B

Flammable liquids Category 4

**GHS Label Elements, including precautionary statements:**

**Signal Word:** Danger

**Hazards Statements:** Harmful if swallowed. Causes serious eye irritation. May cause an allergic skin reaction. May damage fertility or the unborn child. Combustible liquid.



**Appearance:** Amber

**Physical state:** Liquid

**Odor:** Alcohol

### Precautionary Statements:

**Prevention:** Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use protective gloves/clothing and eye/face protection. Thoroughly wash face, hands and any exposed skin after handling. Do not eat, drink or smoke when using this product. Avoid breathing dust/fume/gas/mist/vapors/spray. Do not allow contaminated work clothing out of the workplace. Keep away from flames and hot surfaces. No smoking.

**Response:** If exposed or concerned, get medical advice/attention.

**Eyes:** If in eyes, rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing if eye irritation persists. Get medical advice/attention.

**Skin:** If on skin, wash with soap and plenty of water. If skin irritation or rash occurs, get medical advice/attention. Wash contaminated clothing before reuse.

**Ingestion:** If swallowed, call a poison control center or doctor/physician if you feel unwell. Rinse mouth.

**Fire:** In case of fire, use CO<sub>2</sub>, dry chemical or foam to extinguish.

**Storage:** Store locked up in a cool, well-ventilated place.

**Disposal:** Dispose of contents/container to an approved waste disposal plant.

**Unknown Toxicity:** 100% of the mixture consists of ingredient(s) of unknown toxicity. 0% of the mixture consists of ingredient(s) of unknown acute oral toxicity. 100% of the mixture consists of ingredient(s) of unknown acute dermal toxicity. 100% of the mixture consists of ingredient(s) of unknown acute inhalation (gas, vapor, dust/mist) toxicity.

**Other Information:** Toxic to aquatic life with long-lasting effects.

# Safety Data Sheet

## 3 COMPOSITION / INFORMATION ON INGREDIENTS

Mixture:

Chemical Name	CAS Number	Percent	HMIRA* Registry No.	Date HMIRA filed and date exemption granted (if applicable)
Tetrahydrofurfuryl alcohol	97-99-4	85.7	-	-
Propiconazole [1-[2-(2,4-Dichlorophenyl-4-propyl-1,3-dioxolan-2-yl)-methyl-1H-1,2,4-triazole]	60207-90-1	14.3	-	-

\*Hazardous Material Information Review Act.

## 4 FIRST-AID MEASURES

**General Advice:** Show this SDS to the doctor in attendance.

**Inhalation:** Remove to fresh air.

**Eye Contact:** Immediately rinse with plenty of water, also under the eyelids, for at least 15 minutes. Keep eye wide open while rinsing. Do not rub affected area. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.

**Skin Contact:** Immediately wash off with soap and plenty of water while removing all contaminated clothes and shoes. May cause an allergic skin reaction. In the case of skin irritation or allergic reaction, see a physician.

**Ingestion:** Clean mouth with water and drink plenty of water afterwards. Never give anything by mouth to an unconscious person. Do **not** induce vomiting. Call a physician.

**Self-protection of the first aider:** Remove all sources of ignition. Ensure that medical personnel are aware of the material(s) involved. Take precautions to protect oneself and prevent spread of contamination. Wear personal protective clothing (see Section 8). Avoid contact with skin, eyes or clothing.

**Most Important Symptoms and Effects:** Itching, rashes, hives, burning sensation.

**Note to Physician:** May cause sensitization in susceptible persons. Treat symptomatically.

## 5 FIRE-FIGHTING MEASURES

**Suitable Extinguishing Media:** Dry chemical, CO<sub>2</sub>, water spray or alcohol-resistant foam.

**Unsuitable Extinguishing Media:** CAUTION: Use of water spray when fighting fire may be inefficient.

**Specific Hazards Arising from this Mixture:** Keep product and empty containers away from heat and sources of ignition. In the event of fire, cool tanks with water spray. Product is or contains a sensitizer; may cause sensitization by skin contact.

**Hazardous Combustion Products:** Carbon oxides.

**Sensitivity to Mechanical Impact:** None.

**Sensitivity to Static Discharge:** Yes.

**Protective Equipment and Precautions for Firefighters:** Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

## 6 ACCIDENTAL RELEASE MEASURES

**Personal Precautions:** Evacuate personnel to safe areas. Use personal protective equipment as required. See Section 8 for more information. Take precautionary measures against static discharges. Do not touch or walk through spilled material. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Keep people away from and upwind of spill/leak.

**Other Information:** Refer to protective measures listed in Sections 7 and 8.

**Containment Methods:** Stop leak if you can do so without risk. Do not touch or walk through spilled material. Dike far ahead of liquid spill for later disposal.

**Cleanup Methods:** Take precautionary measures against static discharges. Dam up. Soak up with inert absorbent material. Pick up and transfer to properly labeled containers.

# Safety Data Sheet

## 7 HANDLING AND STORAGE

**Precautions for Safe Handling:** Use personal protection equipment. Do not breathe vapor or mist. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Take precautionary measures against static discharges. Use with local exhaust ventilation. Handle in accordance with good industrial hygiene and safety practices. Avoid contact with skin, eyes or clothing. In case of insufficient ventilation, wear suitable respiratory equipment. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash before reuse. Remove contaminated shoes.

**Storage:** Keep containers tightly closed in a dry, cool and well-ventilated place. Keep out of the reach of children. Store locked up. Keep away from heat, sparks, flame and other sources of ignition (i.e., pilot lights, electric motors and static electricity). Keep in properly labeled containers. Store in accordance with applicable national and local regulations.

**Incompatible Products:** None known based on information supplied.

## 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

### Control Parameters - Exposure Limits

This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

**Appropriate Engineering Controls:** Showers, eyewash stations and ventilation systems.

### Individual Protection Measures – Personal Protective Equipment:

**Eye/Face:** Tight sealing safety goggles.

**Hand:** Wear suitable gloves.

**Skin/Body:** Wear suitable protective clothing.

**Respiratory:** No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

**Hygiene Measures:** Handle in accordance with good industrial hygiene and safety practices. Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product. Wash hands before breaks and immediately after handling the product. Do not allow contaminated work clothing out of the workplace. Regular cleaning of equipment, work area and clothing is recommended.

## 9 PHYSICAL AND CHEMICAL PROPERTIES

Auto-ignition temperature:	N/D	Partition coefficient: n-octanol/water:	N/D
Color:	Amber	pH:	4-7 (10% solution in water)
Decomposition temperature:	N/D	Physical state:	Liquid
Evaporation rate:	N/D	Relative density:	9.1 lbs/gal
Flammability (solid,gas):	N/A	Solubility(ies):	Complete in water
Flash point:	181°F	Upper/lower explosive limits:	N/D
Freezing point:	N/D	Upper/lower flammability limits:	N/D
Initial boiling point and range:	N/D	Vapor pressure:	N/D
Melting point:	N/A	Viscosity:	N/D
Odor:	Alcohol	N/A = Not Applicable	N/D = Not Determined

## 10 STABILITY AND REACTIVITY

**Reactivity:** No information available.

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

**Possibility of Hazardous Reactions:** None under normal processing.

**Hazardous Polymerization:** Does not occur.

**Conditions to Avoid:** Heat, flames and sparks.

**Incompatible Materials:** None known based on information provided.

**Hazardous Decomposition Products:** Carbon oxides.

## 11 TOXICOLOGICAL INFORMATION

### Product Information:

**Inhalation:** Specific test data for the mixture is not available. May cause irritation of respiratory tract.

**Eye Contact:** Specific test data for the mixture is not available. Causes serious eye irritation, based on components. May cause redness, itching and pain.

**Skin Contact:** May cause sensitization by skin contact. Specific test data for the mixture is not available. Repeated or prolonged skin contact may cause allergic reactions with susceptible persons, based on components. May cause irritation. Prolonged contact may cause redness and irritation.

**Ingestion:** Specific test data for the mixture is not available. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. Harmful if swallowed, based on components.

# Safety Data Sheet

## Component Information

Chemical Name / CAS Number	Oral LD50	Dermal LD50	Inhalation LD50
Tetrahydrofurfuryl alcohol / 97-99-4	= 1600 mg/kg (rat)	-	-
Propiconazole / 60207-90-1 [1-[2-(2,4-Dichlorophenyl-4-propyl-1,3-dioxolan-2-yl)-methyl-1H-1,2,4-triazole]	= 1517 mg/kg (rat)	> 4 g/kg (rat)	= 1264 mg/m <sup>3</sup> (rat) 4h

## Information on Toxicological Effects:

**Symptoms:** Itching, rashes, hives. May cause redness and tearing of eyes.

## Delayed and immediate effects as well as chronic effects from short and long-term exposure:

**Skin corrosion/irritation:** May cause skin irritation.

**Serious eye damage/irritation:** Classification based on data available for ingredients. Irritating to eyes.

**Respiratory or skin sensitization:** May cause sensitization by skin contact.

**Germ cell mutagenicity:** No information available.

**Carcinogenicity:** No information available.

**Reproductive toxicity:** Classification based on data available for ingredients. Contains a known or suspected reproductive toxin.

**STOT-single exposure:** No information available.

**STOT-repeated exposure:** No information available.

**Aspiration hazard:** No information available.

## Numerical Measures of Toxicity – Acute Toxicity:

The following value is calculated based on Chapter 3.1 of the GHS document: ATEmix (oral): 1,588.00 mg/kg

**Unknown acute toxicity:** 100% of the mixture consists of ingredient(s) of unknown toxicity. 0% of the mixture consists of ingredient(s) of unknown acute oral toxicity. 100% of the mixture consists of ingredient(s) of unknown acute dermal toxicity. 100% of the mixture consists of ingredient(s) of unknown acute inhalation (gas, vapor, dust/mist) toxicity.

## 12 ECOLOGICAL INFORMATION (NON-MANDATORY)

### Exotoxicity

Toxic to aquatic life with long-lasting effects.

Chemical Name / CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	<i>Daphnia magna</i> (water flea)
Tetrahydrofurfuryl alcohol / 97-99-4	-	48h LC <sub>50</sub> =3400 mg/L ( <i>Chaetodonoides</i> )	-	-

**Persistence and Degradability:** No information available.

**Bioaccumulation:** There is no data for this product

**Mobility:** No information available.

**Other Adverse Effects:** No information available.

## 13 DISPOSAL CONSIDERATIONS (NON-MANDATORY)

**Waste Treatment Disposal Methods – Waste from residues/unused product:** Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

**Contaminated Packaging:** Do no reuse empty containers.

## 14 TRANSPORT INFORMATION (NON-MANDATORY)

DOT, TGD, MEX, ICAO, IATA, IMDG/IMO, RID, ADR and ADN: Not regulated.

## 15 REGULATORY INFORMATION (NON-MANDATORY)

### International Regulations:

**Ozone-depleting substances:** Not applicable.

**Persistent Organic Pollutants:** Not applicable.

**Export Notification Requirements:** Not applicable.

### International Inventories:

**TSCA, DSL/NDSL, EINECS/ELINCS, ENCS, KECL, PICCS and AICS:** Contact supplier for inventory compliance status.

# Safety Data Sheet

**TSCA:** United States Toxic Substances Control Act Section 8(b) Inventory; **DSL/NDSL:** Canadian Domestic Substances List/Non-Domestic Substances List; **EINECS/ELINCS:** European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances; **ENCS:** Japan Existing and New Chemical Substances; **KECL:** Korean Existing and Evaluated Chemical Substances; **PICCS:** Philippines Inventory of Chemicals and Chemical Substances; and **AICS:** Australian Inventory of Chemical Substances.

## U.S. Federal Regulations:

**SARA 313:** Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 ("SARA"). This product contains the following chemical that is subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372:

Chemical Name	CAS Number	Weight %	SARA 313 Threshold Value %
Propiconazole [1-[2-(2,4-Dichlorophenyl-4-propyl-1,3-dioxolan-2-yl)-methyl-1H-1,2,4-triazole]	60207-90-1	14.3	1.0

## SARA 313.312 Hazard Categories:

**Acute Health Hazard:** Yes

**Chronic Health Hazard:** Yes

**Fire Hazard:** Yes

**Sudden Release of Pressure Hazard:** No

**Reactive Hazard:** No

**CWA (Clean Water Act):** This product does not contain any substances regulated as pollutants pursuant to the CWA (40 CFR §§ 122.21 and 122.42).

**FIFRA Information:** This chemical is a pesticide product registered by the United States Environmental Protection Agency and is subject to certain labeling requirements under Federal pesticide law. These requirements differ from the classification criteria and hazard information required for Safety Data Sheets ("SDSs") and for workplace labels of non-pesticide chemicals. The hazard information required on the pesticide label is reproduced below. The pesticide label also includes other important information, including Directions for Use.

## PRECAUTIONARY STATEMENTS

### Hazards to Humans & Domestic Animals

**CAUTION:** Harmful if swallowed, inhaled or absorbed through the skin. Avoid breathing vapor. Thoroughly wash with soap and water after handling. Remove and wash contaminated clothing before reuse.

### Personal Protective Equipment (PPE)

Some materials that are chemical-resistant to this product are listed below. If you want more options, follow the instructions for Category C on an EPA chemical-resistance category selection chart.

All handlers must wear:

- Long-sleeved shirt and long pants
- Chemical-resistant gloves, such as barrier laminate; butyl, nitrile and neoprene rubber; polyvinyl chloride (PVC); or Viton
- Shoes plus socks
- Protective eyewear

In addition, all handlers (mixers, loaders and applicators or individuals performing one or more of these tasks), who are applying this pesticide using hand-held equipment must wear:

- Long-sleeved shirt and long pants,
- Shoes and socks and
- Chemical-resistant gloves.

### User Safety Requirements

#### Users should:

- Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

### User Safety Recommendations

- Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.
- Immediately remove clothing/PPE if pesticide gets inside; then thoroughly wash and put on clean clothing.
- Immediately remove PPE after handling this product. Wash the outside of gloves before removing. As soon as possible thoroughly wash and change into clean clothing.

### Environmental Hazards

This product is toxic to fish and shrimp. Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment washwater or rinsate.

# Safety Data Sheet

## Physical or Chemical Hazards

Do not use or store near heat or open flame.

## U.S. State Regulations:

**California Proposition 65:** This product does not contain any Proposition 65 chemicals.

## U.S. State Right-to-Know Regulations

Chemical Name / CAS Number	Illinois	Massachusetts	New Jersey	Pennsylvania	Rhode Island
Tetrahydrofurfuryl alcohol / 97-99-4		X		X	
Propiconazole / 60207-90-1 [1-[2-(2,4-Dichlorophenyl-4-propyl-1,3-dioxolan-2-yl)-methyl-1H-1,2,4-triazole]			X		X

## 16 OTHER INFORMATION

### NFPA:

Health Hazards: 2

Flammability: 2

Instability: 0

Physical and Chemical Hazards-Personal Protection: X

### HMIS:

Health Hazards: 2\*

Flammability: 2

Physical Hazard: 0

Physical and Chemical Hazards-Personal Protection: X

\*Chronic Health Hazard

### SDS Information:

Date Prepared: 01/09/2023

Version: 3

Shepherd® is a registered trademark of ArborSystems

## DISCLAIMER

This Safety Data Sheet ("SDS") serves different purposes than, and DOES NOT REPLACE OR MODIFY, THE EPA-APPROVED PRODUCT LABELING (attached to and accompanying the product container). This SDS provides important health, safety and environmental information for employers, employees, emergency responders and others handling large quantities of the product in activities generally other than product use, while the labeling provides that information specifically for product use in the ordinary course. Use, storage and disposal of pesticide products are regulated by the EPA under the authority of FIFRA (Federal Insecticide, Fungicide and Rodenticide Act, as Amended) through the product labeling. All necessary and appropriate precautionary, use, storage and disposal information is set forth on that labeling. It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

Although the information and recommendations set for herein (hereinafter "information") are presented in good faith and believed to be correct as of the date hereof, ArborSystems makes no representations as to the completeness or accuracy thereof. Information is supplied upon the condition that the persons receiving same will make their own determination as to its suitability for the purposes prior to use. To the extent consistent with applicable law, in no event will ArborSystems be responsible for damages of any nature whatsoever resulting from the use of or reliance upon information. NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OF ANY OTHER NATURE ARE MADE HEREUNDER WITH RESPECT TO INFORMATION OR TO THE PRODUCT TO WHICH INFORMATION REFERS.

# Specimen Label

TRIFLURALIN	GROUP	3	HERBICIDE
ISOXABEN	GROUP	29	HERBICIDE



# Snapshot<sup>®</sup>

## 2.5TG

### SPECIALTY HERBICIDE

<sup>TM</sup>Trademarks of Corteva Agriscience and its affiliated companies

**A selective preemergence herbicide for control of certain broadleaf weeds and annual grasses in:**

- Landscape Ornamentals
- Christmas Tree Plantations
- Container Grown Ornamentals
- Field Grown Ornamentals
- Groundcovers/Perennials
- Non-Bearing Fruit and Nut Trees
- Non-Bearing Vineyards
- Non-Cropland

**Not for sale, distribution or use in New York State.**

Active Ingredients:

trifluralin: $\alpha, \alpha, \alpha$ -trifluoro-2,6-dinitro- <i>N</i> , <i>N</i> -dipropyl- <i>p</i> -toluidine.....	2.0%
isoxaben: <i>N</i> -[3-(1-ethyl-1-methylpropyl)-5- isoxazolyl]-2,6-dimethoxybenzamide and isomers.....	0.5%
Other Ingredients.....	97.5%
Total.....	100.0%

Contains 1.25 lb active ingredient per 50 lb bag.

## Precautionary Statements

### Hazards to Humans and Domestic Animals

EPA Reg. No. 62719-175

## Keep Out of Reach of Children

# CAUTION

**Causes Moderate Eye Irritation • Harmful If Swallowed Or Inhaled • Prolonged Or Frequently Repeated Skin Contact May Cause Allergic Reaction In Some Individuals**

**Avoid breathing dust or spray mist and contact with eyes or clothing. Wash thoroughly with soap and water after handling.**

### Personal Protective Equipment (PPE)

**Applicators and other handlers must wear:**

- Long-sleeved shirt and long pants
- Shoes plus socks

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

### Engineering Controls

When handlers use closed systems or enclosed cabs in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240 (d) (4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

## User Safety Recommendations

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Users should remove PPE immediately after handling this product. As soon as possible, wash thoroughly and change into clean clothing.

## First Aid

**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 swallowed:** Call a Poison Control Center or doctor immediately for treatment advice. Have a person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a 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 mouth-to-mouth if possible. Call a Poison Control Center or doctor for further treatment advice.

Have the product container or label with you when calling a Poison Control Center or doctor or going for treatment. You may also contact 1-800-992-5994 for emergency medical treatment information.

## Environmental Hazards

This pesticide is extremely toxic to freshwater marine, and estuarine fish and aquatic invertebrates including shrimp and oyster. Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not apply in a manner which will directly expose canals, lakes, streams, ponds, marshes or estuaries to aerial drift. Do not contaminate water when cleaning equipment or disposing of equipment washwaters.

Do not allow pesticide to enter or run off into storm drains, drainage ditches, gutters or surface waters. Applying this product in calm weather when rain is not predicted for the next 24 hours will help to ensure that wind or rain does not blow or wash pesticide off the treatment area. Sweeping any product that lands on a driveway, sidewalk, or street, back onto the treated area of the lawn or garden will help to prevent run off to water bodies or drainage systems.

**Non-Target Organism Advisory:** This product is toxic to plants and may adversely impact the forage and habitat of non-target organisms, including pollinators, in areas adjacent to the treated site. Protect the forage and habitat of non-target organisms by following label directions intended to minimize spray drift.

**Groundwater Advisory:** This pesticide has properties and characteristics associated with chemicals detected in groundwater. This chemical may leach into groundwater if used in areas where soils are permeable, particularly where the water table is shallow.

**Surface Water Advisory:** This pesticide may impact surface water quality due to runoff of rain water. This is especially true for poorly draining soil and soils with shallow groundwater. This product is classified as having a high potential for reaching surface water via runoff for several months or more after application. A level, well-maintained vegetative buffer strip between areas to which this product is applied and surface water features such as ponds, streams, and springs will reduce the potential loading of isoxaben from runoff water and sediment.

## Directions for Use

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

Read all Directions for Use carefully before applying.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your state or tribe, consult the agency responsible for pesticide regulation.

This product must be soil-incorporated within 24 hours of application either by mechanical incorporation or at least 0.5 inch of water (rainfall, irrigation). If a second incorporation is needed it should be delayed 3 to 5 days after the first incorporation and be completed prior to planting

### Agricultural Use Requirements

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR Part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements of this label about personal protective equipment (PPE), and restricted entry interval. The requirements in the box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is:

- Coveralls
- Waterproof gloves
- Shoes plus socks

### Non-Agricultural Use Requirements

The requirements of this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses.

For applications in landscape settings and in non-cropland sites, do not enter or allow others to enter the treated area until dusts have settled.

### Storage and Disposal

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

**Pesticide Storage:** Store in original container only. In case of spill, contain material and dispose as waste.

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

**Nonrefillable rigid containers 5 gallons or less:**

**Container Handling:** Nonrefillable container. Do not reuse or refill this container.

Triple rinse or pressure rinse container (or equivalent) promptly after emptying. **Triple rinse** as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. **Pressure rinse** as follows: Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container, and rinse at about 40 psi for at least 30 seconds. Drain for 10 seconds after the flow begins to drip. Then offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures allowed by state and local authorities.

**Nonrefillable nonrigid containers:**

**Container Handling:** Nonrefillable container. Do not reuse or refill this container. Completely empty bag into application equipment. Then offer for recycling if available, or dispose of in a sanitary landfill, or by incineration, or by other procedures allowed by state and local authorities.

**Refillable rigid containers larger than 5 gal:**

**Container Handling:** Refillable container. Refill this container with pesticide only. Do not reuse this container for any other purpose. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller. To clean the container before final disposal, empty the remaining contents from this container into application equipment or a mix tank. Fill the container about 10% full with water and, if possible, spray all sides while adding water. If practical, agitate vigorously or recirculate water with the pump for two minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times. Then offer for recycling if available, or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures allowed by state and local authorities.

### Storage and Disposal (Cont.)

**Nonrefillable rigid containers larger than 5 gal:**

**Container Handling:** Nonrefillable container. Do not reuse or refill this container.

Triple rinse or pressure rinse container (or equivalent) promptly after emptying. **Triple rinse** as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times. **Pressure rinse** as follows: Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container, and rinse at about 40 psi for at least 30 seconds. Drain for 10 seconds after the flow begins to drip. Then offer for recycling if available, or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures allowed by state and local authorities.

### Product Information

Snapshot® 2.5 TG specialty herbicide is a preemergence product for control of certain broadleaf weeds and annual grasses in container and landscape ornamentals, nursery stock, Christmas trees, groundcovers/perennials, non-bearing fruit and nut trees, non-bearing vineyards and non-cropland areas. Apply Snapshot 2.5 TG any time prior to germination of target weeds, or immediately after cultivation. Length of weed control will vary with rate of Snapshot 2.5 TG applied, weed population, potting media or soil conditions, temperature, watering regime, and other factors. Following application, user should monitor and observe level of weed control over time to determine when additional applications may be needed.

### Use Precautions

Snapshot 2.5 TG controls weeds growing from seed. Snapshot 2.5 TG does not control established weeds, weeds growing from stolons, rhizomes, or root pieces. Existing weeds should be controlled by cultivation or with postemergence herbicides. Weed residues, prunings and trash should be removed or thoroughly mixed into soil prior to treatment. Soil should be in good condition and free of clods at the time of application. A single rainfall or sprinkler irrigation of 0.5 inches or more, or flood irrigation is required to activate Snapshot 2.5 TG. Optimum weed control is obtained when Snapshot 2.5 TG is activated within 3 days of application. If rainfall or irrigation does not occur within 3 days of application and tillage is possible, Snapshot 2.5 TG may be activated using cultivation equipment capable of uniformly mixing the herbicide into the upper 1 to 2 inches of soil. Failure to activate Snapshot 2.5 TG within 3 days of application may result in erratic control of annual grasses. Do not apply when wind conditions favor drift of Snapshot 2.5 TG granules from the target area.

Repeat applications at 150 lb per acre and higher should not be made sooner than 60 days after a previous application of Snapshot 2.5 TG. Do not apply over 600 pounds per acre total of Snapshot 2.5 TG within a 12-month period.

**Tolerance of Turfgrass Adjacent to Ornamental Plantings:**

Accidental application to turf may occur when applying Snapshot 2.5 TG to ornamental plantings. Snapshot 2.5TG is not recommended for weed control in turfgrasses, but turfgrasses are generally tolerant to small amounts of this product that fall outside of the intended area of application.

### Use Restrictions

**In Arizona:** The state of Arizona has not approved Snapshot 2.5 TG for use on plants grown for agricultural/commercial production; such as on Christmas tree plantations, container grown or field grown ornamentals, non-bearing fruit and nut trees and non-bearing vineyards.

Not for sale, distribution or use in New York State.

Do not aerially apply Snapshot 2.5TG.

Do not apply Snapshot 2.5TG to turfgrass grown for seed.

**Treatment Species Not Listed on the Label for Snapshot 2.5 TG**

Users who wish to use Snapshot 2.5 TG on plant species not recommended on this label may determine the suitability for use by

treating a small number of such plants at a recommended rate. Prior to treatment of larger areas, the treated plants should be observed for any sign of herbicidal injury for during 30 to 60 days of normal growing conditions to determine if the treatment is safe to the target plant species. The user assumes responsibility for any plant damage or other liability resulting from use of Snapshot 2.5 TG on plant species not recommended on this label.

### Application Instructions

Apply Snapshot 2.5 TG using a drop or rotary-type spreader designed to apply granular herbicides or insecticides. Calibrate application equipment prior to use according to manufacturer's directions. Check frequently to be sure equipment is working properly and distributing granules uniformly. Do not use spreaders that apply material in narrow concentrated bands. Avoid skips or overlaps as poor weed control or crop injury may occur. More uniform application may be achieved by spreading half of the required amount of product over the area and then applying the remaining half in swaths at right angles to the first.

### Application Techniques for Applying Snapshot 2.5 TG

- When using a drop-type spreader, a splashboard mounted under the hopper will provide more even granule distribution.
- A chain fastened to the side of the spreader and allowed to drag on the soil surface can be used to mark the edge of the treated swath and help prevent skips or overlaps.
- For treating smaller areas or rows of nursery stock or ornamental beds, a hand held or push-type rotary applicator such as a whirlybird or cyclone unit is recommended. For hand held units, walk and turn the crank at a constant rate of speed.
- A shaker-type applicator made from a small container with holes punched in the bottom is recommended for small, difficult to treat areas. Carefully measure the amount of product needed to avoid over application.
- The weight-to-volume conversion table below provides equivalent amounts of Snapshot 2.5 TG.

### Broadcast Rates

Rate lb/Acre	Amount/1000 sq ft		Amount/100 sq ft	
	(lb)	(quarts)	(lb)	(cups)
100	2.30	1.75	0.23	0.7
150	3.45	2.60	0.35	1.0
200	4.60	3.50	0.46	1.4

1 lb of Snapshot 2.5 TG = 0.75 quart = 3 cups

### Spreader Settings as a Guide for Calibration

**Note:** These settings are provided as a suggested starting point in calibrating each individual spreader. Since no two spreaders are alike, these settings are not intended to be used as absolute recommendations by Corteva Agriscience or the spreader manufacturer.

Speed (mph)	Settings for Warren T-7 II Spreader		
	Target Rate of Snapshot 2.5 TG		
	100 lb/acre	150 lb/acre	200 lb/acre
2.0	2 1/2	3 1/4	3 3/4
2.5	3	3 1/2	4 1/4
3.0	3 1/4	4	5

Warren spreader settings are displayed in half-number increments only. The suggested settings that indicate quarter settings can be accomplished by placing the calibration arm between the half number marks on the spreader.

### Weeds Controlled or Suppressed

#### Weeds controlled when applied at 100 lb per acre (2.3 lb per 1000 sq ft):

Common Name	Scientific Name
aster, slender	<i>Aster exilis</i>
barnyardgrass	<i>Echinochloa crus-galli</i>
bluegrass, annual	<i>Poa annua</i>
bursage, annual	<i>Ambrosia acanthicarpa</i>
celery, wild	<i>Apium leptophyllum</i>
chickweed, common	<i>Stellaria media</i>
clover, white	<i>Trifolium repens</i>
crabgrass	<i>Digitaria</i> spp.
cudweed, purple	<i>Gnaphalium purpureum</i>
cupgrass, southwestern	<i>Eriochloa gracilis</i>
fiddleneck, coast	<i>Amsinckia intermedia</i>
filaree, redstem	<i>Erodium cicutarium</i>

### Weeds Controlled or Suppressed (Cont.)

#### Weeds controlled when applied at 100 lb per acre (2.3 lb per 1000 sq ft): (Cont.)

fleabane, blackleaved	<i>Conyza bonariensis</i>
fleabane, dwarf	<i>Conyza ramosissima</i>
foxtail, yellow	<i>Setaria glauca</i>
groundcherry, lanceleaf	<i>Physalis lanceifolia</i>
henbit	<i>Lamium amplexicaule</i>
horseweed	<i>Conyza canadensis</i>
jungerice	<i>Echinochloa colonum</i>
knotweed, prostrate	<i>Polygonum aviculare</i>
lambsquarters, common	<i>Chenopodium album</i>
mallow, little	<i>Malva parviflora</i>
mustard, Indian	<i>Brassica juncea</i>
mustard, wild	<i>Sinapis arvensis</i>
nightshade, black	<i>Solanum nigrum</i>
oat, wild	<i>Avena fatua</i>
panicum, fall	<i>Panicum dichotomiflorum</i>
pepperweed, Virginia	<i>Lepidium virginicum</i>
pigweed	<i>Amaranthus</i> spp.
pineappleweed	<i>Matricaria matricarioides</i>
plantain, slender	<i>Plantago elongata</i>
purslane, common	<i>Portulaca oleracea</i>
radish, wild	<i>Raphanus raphanistrum</i>
ragweed, common	<i>Ambrosia artemisiifolia</i>
rocket, London	<i>Sisymbrium irio</i>
rockpurslane, desert	<i>Calandrinia ciliata</i>
shepherdspurse	<i>Capsella bursa-pastoris</i>
sibara	<i>Sibara virginica</i>
smartweed, Pennsylvania	<i>Polygonum pensylvanicum</i>
sowthistle, annual	<i>Sonchus oleraceus</i>
speedwell, purslane	<i>Veronica peregrina</i>
sprangletop, Mexican	<i>Leptochloa univervia</i>
telegraphplant	<i>Heterotheca grandiflora</i>
thistle, Russian	<i>Salsola iberica</i>
witchgrass	<i>Panicum capillare</i>

#### Weeds controlled when applied at 150 lb per acre (3.5 lb per 1000 sq ft):

Common Name	Scientific Name
aster, heath	<i>Aster ericoides</i>
bittercress	<i>Cardamine oligosperma</i>
bittercress, hairy	<i>Cardamine hirsuta</i>
brassbuttons, southern	<i>Cotula australis</i>
carrot, wild	<i>Daucus carota</i>
chamberbitter	<i>Phyllanthus urinaria</i>
chickweed, mouseear	<i>Cerastium vulgatum</i>
dandelion	<i>Taraxacum officinale</i>
eclipta	<i>Eclipta prostrata</i>
fireweed	<i>Erechtites hieracifolia</i>
foxtail, giant	<i>Setaria faberi</i>
galinsoga, hairy	<i>Galinsoga ciliata</i>
geranium, Carolina	<i>Geranium carolinianum</i>
groundsel, common	<i>Senecio vulgaris</i>
ladythumb	<i>Polygonum persicaria</i>
lettuce, prickly	<i>Lactuca serriola</i>
lovegrass	<i>Eragrostis</i> spp.
mallow, dwarf	<i>Malva rotundifolia</i>
marestail	<i>Hippuris vulgaris</i>
mayweed	<i>Anthemis cotula</i>
morningglory, ivyleaf	<i>Ipomoea hederacea</i>
mustard, black	<i>Brassica nigra</i>
pennywort	<i>Hydrocotyle</i> spp.
phyllanthus, long-stalk	<i>Phyllanthus tenellus</i>
plantain, bracted	<i>Plantago aristata</i>
plantain, broadleaf	<i>Plantago major</i>
plantain, buckhorn	<i>Plantago lanceolata</i>
pokeweed, common	<i>Phytolacca americana</i>
rockpurslane, redmaids	<i>Calandrinia ciliata</i> var. <i>menziesii</i>
ryegrass, annual	<i>Lolium multiflorum</i>
sida, prickly	<i>Sida spinosa</i>
sorrell, red	<i>Rumex acetosella</i>

## Weeds Controlled or Suppressed (Cont.)

### Weeds controlled when applied at 150 lb per acre (3.5 lb per 1000 sq ft): (Cont.)

speedwell, thymeleaf	<i>Veronica serpyllifolia</i>
spurge, hyssop	<i>Euphorbia hyssopifolia</i>
spurge, spotted	<i>Euphorbia maculata</i>
sweetclover, yellow	<i>Melilotus officinalis</i>
tansymustard, green	<i>Descurainia pinnata</i>
velvetleaf	<i>Abutilon theophrasti</i>
woodsorrel, yellow	<i>Oxalis stricta</i>

### Weeds controlled when applied at 200 lb per acre (4.6 lb per 1000 sq ft):

Common Name	Scientific Name
barley, hare	<i>Hordeum leporinum</i>
bromegrass	<i>Bromus</i> spp.
burclover, California	<i>Medicago polymorpha</i>
cheat	<i>Bromus secalinus</i>
datura	<i>Datura</i> spp.
dogfennel	<i>Eupatorium capillifolium</i>
eveningprimrose	<i>Oenothera</i> spp.
fescue, rattail	<i>Vulpia myuros</i>
filaree, whitestem	<i>Erodium moschatum</i>
goosefoot, nettleleaf	<i>Chenopodium murale</i>
goosegrass	<i>Eleusine indica</i>
jimsonweed	<i>Datura stramonium</i>
knotweed, silversheath	<i>Polygonum argyrocoleon</i>
kochia	<i>Kochia scoparia</i>
medic, black	<i>Medicago lupulina</i>
mullein, turkey	<i>Eremocarpus setigerus</i>
nettle, burning	<i>Urtica urens</i>
nettle, stinging	<i>Urtica dioica</i>
ox tongue, bristly	<i>Picris echioides</i>
pimpernel, scarlet	<i>Anagallis arvensis</i>
sandbur, field	<i>Cenchrus incertus</i>
signalgrass	<i>Brachiaria</i> spp.
sowthistle, spiny	<i>Sonchus asper</i>
spurge, petty	<i>Euphorbia pepulus</i>
spurge, prostrate	<i>Euphorbia humistrata</i>
stinkgrass	<i>Eragrostis cilianensis</i>
sunflower	<i>Helianthus</i> spp.
swinecress	<i>Coronopus didymus</i>
thistle, musk	<i>Carduus nutans</i>
willoweed, panicle	<i>Epilobium paniculatum</i>
woodsorrel, creeping	<i>Oxalis corniculata</i>

### Weeds partially controlled or suppressed when applied at 200 lb per acre (4.6 lb per 1000 sq ft):

Common Name	Scientific Name
bindweed, field	<i>Convolvulus arvensis</i>
carpetweed	<i>Mollugo verticillata</i>
dock, curly	<i>Rumex crispus</i>
johnsongrass (seedling)	<i>Sorghum halepense</i>
mallow, Venice	<i>Hibiscus trionum</i>
milkweed, honeyvine	<i>Ampelamus albidus</i>
morningglory, tall	<i>Ipomoea purpurea</i>
panicum, Texas	<i>Panicum texanum</i>
pusley, Florida	<i>Richardia scabra</i>
shattercane	<i>Sorghum bicolor</i>

## Weed Resistance Management

Snapshot 2.5 TG, which contains the active ingredients trifluralin and isoxaben, is a Group 3 and 29 herbicide, respectively, based on the mode of action classification system of the Weed Science Society of America.

## Best Management Practices

Proactively implementing diversified weed control strategies to minimize selection for weed populations resistant to one or more herbicides is a best practice. A diversified weed management program may include the use of multiple herbicides with different modes of action and overlapping weed spectrum with or without tillage operations and/or other cultural practices. Research has demonstrated that using the

labeled rate and directions for use is important to delay the selection for resistance.

Scouting after herbicide application is important because it can facilitate the early identification of weed shifts and/or weed resistance and thus provide direction on future weed management practices. One of the best ways to contain resistant weed populations is to implement measures to avoid allowing weeds to reproduce by seed or to proliferate vegetatively. Cleaning equipment between sites and avoiding movement of plant material between sites will greatly aid in reducing the spread of resistant weed seed. The continued effectiveness of this product depends on the successful implementation of a weed resistance management program.

To aid in the prevention of developing weeds resistant to this product, users should:

- Scout fields before application to ensure herbicides and rates will be appropriate for the weed species and weed sizes present.
- Start with a clean field, using either a burndown herbicide application or tillage.
- If using post-emergence herbicides or tank mixes, control weeds early when they are relatively small.
- Apply full rates of Snapshot 2.5 TG for the most difficult to control weed in the field at the specified time to minimize weed escapes.
- Scout fields after application to detect weed escapes or shifts in control of weed species.
- Control weed escapes before they reproduce by seed or proliferate vegetatively.
- Report any incidence of non-performance of this product against a particular weed to your local company representative, local retailer, or county extension agent.
- Contact your local company representative, crop advisor, or extension agent to find out if suspected resistant weeds to these MOAs have been found in your region. Do not assume that each listed weed is being controlled by multiple mode of action. Products with multiple active ingredients are intended to broaden the spectrum of weeds that are controlled. Some weeds may be controlled by only one of the active ingredient in this product.
- If resistance is suspected, treat weed escapes with an herbicide having a mode of action other than Group 3 and 29 and/or use nonchemical methods to remove escapes, as practical, with the goal of preventing further seed production.
- Suspected herbicide-resistant weeds may be identified by these indicators:
  - Failure to control a weed species normally controlled by the herbicide at the dose applied, especially if control is achieved on adjacent weeds;
  - A spreading patch of non-controlled plants of a particular weed species; and
  - Surviving plants mixed with controlled individuals of the same species.

Additionally, users should follow as many of the following herbicide resistance management practices as is practical:

- Use a broad spectrum herbicide with other mode of action as a foundation in a weed control program, if appropriate.
- Utilize sequential applications of herbicides with alternative modes of action.
- Rotate the use of this product with non-Group 3 and 29 herbicides.
- Avoid making more than two sequential applications of Snapshot 2.5 TG and any other Group 3 and 29 herbicides within a single growing season unless mixed with an herbicide with a different mode of action with an overlapping spectrum for the difficult-to-control weeds.
- Incorporate non-chemical weed control practices, such as mechanical cultivation, crop rotation, cover crops and weed-free crop seeds, as part of an integrated weed control program.
- Use good agronomic principles that enhance crop development and crop competitiveness.
- Thoroughly clean plant residues from equipment before leaving fields suspected to contain resistant weeds and avoid moving plant material between sites.
- Manage weeds in and around fields to reduce weed seed production.

## Uses

### Ornamental Plantings

Snapshot 2.5 TG is recommended as a preemergence treatment for control of certain broadleaf weeds and annual grasses in container grown ornamentals, landscape ornamentals, field grown ornamentals, ground covers/perennials, Christmas trees, non-bearing fruit and nut crops, and non-bearing vineyards. Apply Snapshot 2.5 TG any time prior to germination of target weeds, or immediately after cultivation.

Refer to the General Information section of this label for General Use Precautions and information on application, application rates and weeds controlled.

**Use Restrictions:**

- To avoid possible injury, do not apply Snapshot 2.5 TG to:
- nursery, forest, or Christmas tree: seedling beds, cutting beds, or transplant beds.
  - nursery seedbeds or forest or Christmas tree seedling transplant beds.
  - unrooted liners or cuttings that have been planted in pots for the first time.
  - pots less than four inches wide.
  - bedding plants or areas where bedding plants will be planted or transplanted within one year following application.
  - groundcovers until they are established and well rooted.

Do not apply Snapshot 2.5 TG to newly transplanted ornamentals, nursery stock, Christmas trees, groundcovers, non-bearing fruit and nut trees and non-bearing vineyards until soil or potting media has been settled by packing and irrigation or rainfall and no cracks are present or injury may occur.

Repeat applications at 150 lb per acre and higher should not be made sooner than 60 days after a previous application of Snapshot 2.5 TG. Do not apply over 600 lb per acre total of Snapshot 2.5 TG within a 12-month period.

Where loss of stand has occurred in field grown ornamentals, use untreated soil as fill around roots when replacing plants or injury may occur.

**Note:** Injury on the following plant species has been observed following applications of Snapshot 2.5 TG and use is not recommended.

<b>Common Name</b>	<b>Scientific Name</b>
ballerina cranesbill	<i>Geranium cinereum 'Ballerina'</i>
bertram anderson lingwort	<i>Pulmonaria longifolia</i>
bugle	<i>Ajuga</i> spp.
cajuput tree	<i>Melaleuca quinquenervia</i>
candytuft	<i>Iberis</i> spp.
Carolina rhododendron	<i>Rhododendron carolinianum</i>
dwarf burning bush	<i>Euonymus alatus 'compacta'</i>
foxglove	<i>Digitalis purpurea</i>
green yucca	<i>Yucca recurvifolia</i>
hydrangea	<i>Hydrangea</i> spp.
luxuriant bleeding heart	<i>Dicentra luxuriant</i>
mountain sandwort	<i>Arenaria montana</i>
mustard	<i>Brassica</i> spp.
oak leaf acanthus	<i>Acanthus mollis</i>
prince of wales juniper	<i>Juniperus horizontalis 'Prince of Wales'</i>
purple coneflower	<i>Echinacea purpurea</i>
roseum elegans rhododendron	<i>Rhododendron catawbiense 'Roseum elegans'</i>
spurge	<i>Euphorbia</i> spp.
stonecrop	<i>Sedum</i> spp.
summer phlox	<i>Phlox paniculata</i>
white festival baby's breath	<i>Gypsophila paniculata</i>
wine periwinkle	<i>Vinca minor 'Atropurpurea'</i>

**Snapshot 2.5 TG may be used on the following established plant species (Note: Limitations on recommended treatment methods):**

**Trees**

<b>Scientific Name</b>	<b>Common Name</b>	<b>Recommended Treatment Method: C = Container Grown F = Field Grown</b>
<i>Abies balsamea</i>	fir, balsam	C, F
<i>Abies concolor</i>	fir, white	F
<i>Abutilon hybridum</i>	albus-flowering maple	C, F
	luteus-flowering maple	C, F
	roseus-flowering maple	C, F
	tangerine-flowering maple	C, F
	vesuvius red-flowering maple	F
<i>Acer ginnmala</i>	flame maple	F
<i>Acer rubrum</i>	red maple	F
	red sunset maple	F
<i>Acer saccharinum</i>	silver maple	C, F
<i>Alsophila australis</i>	Australian tree fern	C, F
<i>Areacastrum romanzoffianum</i>	queen palm	C, F
<i>Betula nigra</i>	birch, river	C, F
<i>Betula papyrifera</i>	paper birch	F
<i>Brachychiton populneus</i>	bottle tree	C, F
<i>Bucida buceras</i>	black olive	F
<i>Ceratonia siliqua</i>	carob	F
<i>Cercis canadensis</i>	redbud	C, F
<i>Chamaecyparis obtusa</i>	fillicoides-fernspray cypress	F

**Trees (Cont.)**

**Scientific Name**

*Chamaecyparis obtusa*  
*Chamaecyparis pisifera*

*Chamaedorea cataractarum*

*Chamaedorea costaricana*  
*Chamaedorea elegans*  
*Cornus florida*

*Crataegus viridis*  
*Cryptomeria japonica*  
*Cupaniopsis anacardioides*  
*Cupressocyparis x 'Emerald Isle'*

*Cupressus arizonica*  
*Cupressus glabra*  
*Cupressus sempervirens*  
*Dicksonia antarctica*  
*Elaeagnus angustifolia*  
*Elaeagnus x 'Gilt edge'*  
*Eucalyptus camaldulensis*  
*Eucalyptus cinerea*

*Eucalyptus microtheca*  
*Eucalyptus sideroxylon*  
*Ficus benjamina*

*Fraxinus udhei*  
*Ginkgo biloba*  
*Gleditsia triacanthos*

*Heteromeles arbutiflora*  
*Illicium floridanum*  
*Juniperus virginiana*  
*Liquidambar styraciflua*  
*Magnolia grandiflora*  
*Morus alba*  
*Musa aluminata*  
*Oxydendrum arboreum*  
*Picea abies*

*Picea glauca*  
*Picea glauca conica*  
*Picea pungens*

*Pinus aristata*  
*Pinus canariensis*  
*Pinus contorta*  
*Pinus eldarica*  
*Pinus leucodermis*  
*Pinus mugo*

*Pinus nigra*  
*Pinus radiata*  
*Pinus strobus*  
*Pinus strobus*  
*Pinus sylvestris*

*Pinus thunbergiana*  
*Platanus occidentalis*  
*Platanus racemosa*  
*Podocarpus* spp.  
*Populus deltoides*  
*Prosopis chilensis*

**Recommended Treatment Method:  
C = Container Grown  
F = Field Grown**

**Common Name**

gracilis-slender hinoki cypress	F
sawara-false cypress	F
squarrosa-moss cypress	F
cat palm	F
palm	C, F
palm	C, F
parlor palm	C, F
cloud nine dogwood	C, F
dogwood, flowering	C, F
green hawthorn	F
cryptomeria, Japanese	C, F
carrot wood	F
emerald island leyland cypress	C, F
Arizona cypress	C, F
Arizona cypress	F
Italian cypress	C, F
Tasmanian tree fern	C, F
Russian olive	C, F
gilt edge silverberry	C, F
red gum eucalyptus	F
eucalyptus, mealy	F
silver dollar eucalyptus	F
coolibah tree	C, F
eucalyptus, red ironbark	F
figus	C, F
mini ficus	C, F
shamel ash	C, F
ginkgo (maidenhair tree)	F
honey locust	F
shademaster honey locust	F
toyon	F
Florida anise-tree	C, F
redcedar, eastern	C, F
sweetgum, American	F
magnolia, southern	C, F
white mulberry	F
banana	C, F
sourwood	C, F
pendula-weeping Norway spruce	C, F
repens-spreading Norway spruce	C, F
spruce, Norway	C, F
conica-dwarf Alberta spruce	C, F
dwarf Alberta spruce	F
dwarf globe blue spruce	C, F
glauca-Colorado blue spruce	C, F
hoopsii-hoop's blue spruce	C, F
koster-koster blue spruce	F
bristlecone pine	F
canary island pine	F
shore pine, beach pine	F
eldarica pine	C, F
Bosnian pine	C, F
pumilio-shrubby swiss mountain pine	C, F
Austrian black pine	C, F
monterey pine	F
eastern white pine	C, F
white pine	C, F
columnar Scotch pine	C, F
Scotch pine	C, F
Japanese black pine	C, F
American sycamore	F
Califorina sycamore	F
podocarpus	F
cottonwood	F
Chilean mesquite	C, F

**Trees (Cont.)**

**Recommended Treatment Method:**  
**C = Container Grown**  
**F = Field Grown**

Scientific Name	Common Name	
<i>Prunus yedoensis</i>	yoshino flowering cherry	F
<i>Quercus ilicifolia</i>	bear oak	F
<i>Quercus palustris</i>	pin oak	F
<i>Quercus phellos</i>	willow oak	C, F
<i>Quercus rubra</i>	red oak	C, F
<i>Quercus virginiana</i>	live oak	C, F
<i>Salix babylonica</i>	babylon weeping willow	F
	corkscrew willow	F
<i>Sequoiadendron giganteum</i>	giant sequoia	F
<i>Swietenia mahogani</i>	mahogany	F
<i>Tabebuia caraiba</i>	yellow tab	F
<i>Tsuga canadensis</i>	eastern hemlock	C, F
<i>Ulmus parvifolia</i>	Chinese elm	F
<i>Washingtonia robusta</i>	Mexican fan palm	F

**Shrubs**

**Recommended Treatment Method**  
**C = Container Grown**  
**F = Field Grown**

Scientific Name	Common Name	
<i>Abelia grandiflora</i>	Edward Goucher abelia	C, F
	glossy abelia	C, F
<i>Acacia abyssinica</i>	abyssinica acacia	C, F
<i>Acacia redolens</i>	acacia, prostrate	C, F
<i>Acacia stenophylla</i>	shoestring acacia	C, F
<i>Acalypha wilkesiana</i>	copper leaf	C, F
<i>Acer ginnala</i>	amur maple	C, F
<i>Acer palmatum</i>	coral bark Japanese maple	C, F
	dwarf Japanese maple	C, F
<i>Agapanthus africanus</i>	queen Anne lily of the Nile	C, F
<i>Agave americana</i>	century plant	F
<i>Anisodonte hypomandarum</i>	cape mallow	C, F
<i>Aptenia cordifolia</i>	red apple aptenia	C, F
<i>Ardisia japonica</i>	chirimen marlberry	C, F
<i>Astilbe arendsii</i>	false spiraea	C, F
<i>Astilbe chinensis</i>	astilbe/false spirea	C, F
<i>Athyrium nipponicum</i>	Japanese painted fern	C, F
<i>Baccharis pilularis</i>	coyotebush	F
<i>Berberis gladwynensis</i>	William Penn barberry	C, F
<i>Berberis mentorensis</i>	mentor barberry	C, F
<i>Berberis thunbergii</i>	aurea-golden Japanese barberry	F
	crimson pygmy barberry	C, F
	rose glow barberry	C, F
	atropurea-redleaf Japanese barberry	F
	cherry bomb barberry	C, F
<i>Bougainvillea</i> spp.	barbara karst	C, F
	California gold	C, F
	pink pixie	C, F
	Scarlet O'Hara	C, F
	temple fire	C, F
	Texas dawn	C, F
<i>Buxus</i> 'Green velvet'	green velvet boxwood	C, F
<i>Buxus microphylla japonica</i>	boxwood, Japanese	C, F
<i>Buxus microphylla Koreana</i>	Korean boxwood	F
<i>Buxus sempervirens</i>	boxwood, common	C, F
<i>Callistemon citrinus</i>	bottlebrush, lemon	F
<i>Callistemon viminalis</i>	weeping bottlebrush	C, F
<i>Calluna vulgaris</i>	spring torch Scotch heather	C, F
<i>Camellia japonica</i>	camellia	C, F
<i>Caryopteris x clandonen</i>	dark knight bluebeard	C, F
<i>Cassia artemisioides</i>	cassia, feathery	C, F
<i>Ceanothus</i> spp.	wild lilac	F
<i>Cephalotaxus drupacae</i>	plum yew	C, F
<i>Cerastium tomentosum</i>	snow-in-summer	C, F
<i>Chamaecyparis obtusa</i>	kosteri cypress	C, F
	nana-dwarf hinoki cypress	C, F
	torulosa cypress	C, F

**Shrubs (Cont.)**

**Recommended Treatment Method**  
**C = Container Grown**  
**F = Field Grown**

Scientific Name	Common Name	
<i>Chamaecyparis pisifera</i>	baileyi-dogwood	F
	flaviramea-dogwood	F
	squarrosa minima cypress	C, F
<i>Chamaecyparis pisifera</i> spp.	filifera-thread cypress	C, F
<i>Chrysalidocarpus lutescens</i>	areca palm	F
<i>Clethra alnifolia</i>	summersweet	C, F
<i>Cleyera japonica</i>	cleyera, Japanese	C, F
<i>Coleonema pulchrum</i>	pink breath of heaven	C, F
<i>Convolvulus cneorum</i>	bush morning glory	C, F
<i>Cornus alba</i>	sibirica-Siberian dogwood	C, F
<i>Cornus stolonifera</i>	baileyi-red-osier dogwood	F
	flaviramea-yellowtwig dogwood	F
	royal purple smoke tree	C, F
<i>Cotinus coggygia</i>	coral beauty smoke tree	C, F
<i>Cotinus dammeri</i>	eichholz smoke tree	C, F
	praecox-early cotoneaster	C, F
<i>Cotoneaster adpressus</i>	cotoneaster, cranberry	C, F
<i>Cotoneaster apiculatus</i>	cotoneaster, Pyrenees	C, F
<i>Cotoneaster congestus</i>	cotoneaster, bearberry	C, F
<i>Cotoneaster dammeri</i>	Himalayan cotoneaster	C, F
<i>Cotoneaster himalayan</i>	cotoneaster, rock	C, F
<i>Cotoneaster horizontalis</i>	cotoneaster	C, F
<i>Cotoneaster opiculata</i>	sago palm	C, F
<i>Cycas revoluta</i>	hollandia-warminster broom	C, F
<i>Cytisus praecox</i>	lena-Scotch broom	C, F
<i>Cytisus scoparius</i>	holandia-Scotch broom	F
<i>Cytisus</i> spp.	fragrant daphne	C, F
<i>Daphne odora</i>	nakiana-dwarf deutzia	C, F
<i>Deutzia crenata</i>	slender gracilis	C, F
<i>Deutzia gracilis</i>	hopseed bush	F
<i>Dodonea viscosa</i>	fruitland silver berry	C, F
<i>Elaeagnus pungens</i>	purple bell heather	C, F
<i>Erica cinerea</i>	cornish heather	C, F
<i>Erica vagans</i>	Mediterranean pink heather	C, F
<i>Erica x darleyensa</i>	dwarf brush cherry	C, F
<i>Eugenia myrtifolia</i>	gold spot euonymus	C, F
<i>Euonymus x 'Aureo variegatus'</i>	chollipo euonymus	C, F
<i>Euonymus x 'Chollipo'</i>	canadale gold euonymus	C, F
<i>Euonymus fortunei</i>	emerald'n gold euonymus	F
	sunspot euonymus	C, F
<i>Euonymus japonica</i>	silver king euonymus	F
	variegated evergreen euonymus	C, F
<i>Euonymus kiatschovica</i>	spreading euonymus	C, F
<i>Euonymus vegetus</i>	bigleaf wintercreeper	C, F
<i>Euryops pectinatus</i>	dwarf euryops	C, F
<i>Fatsyhedera japonica</i>		C, F
<i>Fatsia japonica</i>	Japanese aralia	C, F
<i>Felicia amelloides</i>	blue marguerite	C, F
<i>Forsythia intermedia</i>	forsythia, border	C, F
<i>Forsythia x 'Spring glory'</i>	spring glory forsythia	C, F
<i>Gardenia jasminoides</i>	august beauty gardenia	C, F
	gardenia	C, F
	radican gardenia	C, F
<i>Gaultheria shallon</i>	salal/lemon leaf	C, F
<i>Gelsemium sempervirens</i>	Carolina jessamine	C, F
<i>Genista pilosa</i>	woadwaxen	C, F
<i>Hibiscus rosa-sinensis</i>	ross estey-hibiscus	C, F
<i>Hibiscus syriacus</i>	rose of Sharon, red bird	C, F
	rose of Sharon, red heart	F
	rose of Sharon, woodbridge	C, F
	rose of Sharon, aphrodite	
	rose of Sharon, Helene	
<i>Ilex aquifolium</i>	Balkans holly	F
	gold coast holly	F
<i>Ilex aquipernyi</i>	san jose holly	C, F
<i>Ilex attenuata</i>	savannah holly	C, F

**Shrubs (Cont.)**

**Recommended Treatment Method**  
**C = Container Grown**  
**F = Field Grown**

<b>Scientific Name</b>	<b>Common Name</b>	
<i>Ilex cornuta</i>	burford holly	C, F
	dwarf burford holly	C, F
	needle point holly	C, F
<i>Ilex crenata</i>	compacta-dwarf Japanese holly	C, F
<i>Ilex crenata</i>	convexa holly	C, F
	dwarf Chinese holly	C, F
	green luster holly	C, F
	helleri-heller's Japanese holly	C, F
	hetzii's Japanese holly	C, F
	stokesii Japanese holly	C, F
<i>Ilex glabra</i>	compacta-compact inkberry holly	C, F
	nordica-inkberry holly	C, F
<i>Ilex meserveae</i>	blue boy holly	C, F
	blue girl holly	C, F
	China boy holly	
	China girl holly	
	ebony magic holly	F
<i>Ilex vomitoria</i>	nana-dwarf yaupon holly	C, F
	pendula-weeping yaupon holly	C, F
	yaupon holly	C, F
<i>Illicium annisatum</i>	mystery gardenia	C, F
<i>Itea ilicifolia</i>	henry garnet holly leaf sweetspire	C, F
<i>Ixora collinea</i>	ixora	C, F
<i>Juniperus chinensis</i>	hollywood juniper	C, F
	media-old gold juniper	C, F
	pfitzer juniper	C, F
	pfitzerana glauca-blue juniper	C, F
	pfitzerana-pfitzer juniper	C, F
	sea green juniper	F
	torulosa-hollywood juniper	C, F
<i>Juniperus conferta</i>	emerald sea shore juniper	C, F
	shore juniper	C, F
<i>Juniperus horizontalis</i>	andorra juniper	C, F
	bar harbor juniper	C, F
	blue chip juniper	C, F
	blue rug juniper	C, F
	creeping juniper	C, F
	dwarf andorra juniper	C, F
	huntington blue juniper	C, F
	plumosa-andorra juniper	C, F
	wiltonii-blue carpet juniper	C, F
<i>Juniperus procumbens</i>	nana-dwarf Japaneses garden juniper	C, F
<i>Juniperus prostrata</i>	prostrata juniper	C, F
<i>Juniperus Sabina</i>	broadmoor juniper	C, F
	foemina-hicks juniper	C, F
	savin juniper	C, F
	tamariscifolia-tam juniper	C, F
<i>Juniperus scopulorum</i>	emerald green juniper	F
<i>Juniperus squamata</i>	blue juniper	C, F
	blue star juniper	C, F
	parsonii juniper	C, F
<i>Kalmia latifolia</i>	laurel, mountain	C, F
<i>Lagerstroemia indica</i>	crepe myrtle	C, F
<i>Lantana</i> spp.	lantana	C, F
<i>Lavandula angustifolia</i>	English lavender	C, F
<i>Lavandula latifolia</i>	English spike lavender	C, F
<i>Lavandula officianalis</i>	English lavender	C, F
<i>Leptospermum scoparium</i>	New Zealand tea tree	C, F
<i>Leucothoe axillaris</i>	leucothoe, coast	C, F
<i>Leucothoe fontanesiana</i>	leucothoe, drooping	C, F
<i>Ligustrum japonicum</i>	privet, Japanese	C, F

**Shrubs (Cont.)**

**Recommended Treatment Method**  
**C = Container Grown**  
**F = Field Grown**

<b>Scientific Name</b>	<b>Common Name</b>	
	wax ligustrum	C, F
	yellow tip ligustrum	C, F
<i>Ligustrum lucidum</i>	privet, glossy	C, F
<i>Ligustrum ovalifolium</i>	California privet	F
<i>Ligustrum texanum</i>	howardi privet	C, F
	wax leaf privet	C, F
<i>Ligustrum vicaryi</i>	privet, golden	F
	vicary golden privet	F
<i>Ligustrum vulgare</i>	lodense privet	C, F
<i>Livistona chinensis</i>	Chinese fountain palm	F
<i>Lonicera fragrantissima</i>	winter honeysuckle	C, F
<i>Lonicera periclymenum</i>	flowering woodbine	C, F
	serotina woodbine	C, F
<i>Lonicera sempervirens</i>	trumpet honeysuckle	C, F
<i>Loropetalum chinense</i>	fringe flower	C, F
<i>Mahonia aquifolium compacta</i>	dwarf Oregon grape	C, F
<i>Mahonia bealei</i>	leather leaf mahonia	C, F
<i>Mahonia repens</i>	creeping mahonia	C, F
<i>Myrica cerifera</i>	wax myrtle	C, F
<i>Nandina domestica</i>	compacta-dwarf heavenly bamboo	C, F
	harbour dwarf-heavenly bamboo	C, F
	heavenly bamboo (nandina)	C, F
	nana compacta-heavenly bamboo	C, F
	nana purpurea-heavenly bamboo	C, F
	woods dwarf-heavenly bamboo	C, F
<i>Nerium oleander</i>	hardy red oleander	C, F
	oleander	C, F
	ruby lace oleander	C, F
<i>Osmanthus fortunei</i>	fortunes osmanthus	C, F
<i>Pachysandra terminalis</i>	Japanese spurge	C, F
<i>Phoenix roeloenii</i>	pigmy date palm	C, F
<i>Photinia fraseri</i>	Fraser's photinia	C, F
<i>Pieris japonica</i>	lily-of-the-valley	C, F
	mountain fire lily-of-the-valley	C, F
	snowdrift lily-of-the-valley	C, F
	temple bells lily-of-the-valley	C, F
	valley rose lily-of-the-valley	C, F
	valley valentine lily-of-the-valley	C, F
<i>Pieris japonica x forestii</i>	forest flame lily-of-the-valley	C, F
<i>Pinus mugo</i>	mugo-mugho pine	C, F
<i>Pittosporum tobira</i>	green pittosporum	C, F
	wheeler's dwarf pittosporum	C, F
<i>Plumbago ariculata</i>	blue cape plumbago	F
<i>Plumbago capensis</i>	plumbago	C, F
<i>Podocarpus macrophyllus</i>	yewpine	C, F
<i>Polygala dalmaisiana</i>	sweet pea shrub	C, F
<i>Polystichum polyblepharum</i>	tassel fern	C, F
<i>Potentilla fragiformis</i>	cinquefoil	F
<i>Potentilla fruticosa</i>	cinquefoil	C, F
	gold drop pontentilla	F
	goldfinger potentilla	C, F
	red ace potentilla	C, F
	sunset potentilla	C, F
	tangerine potentilla	C, F
<i>Potentilla verna</i>	spring cinquefoil	C, F
<i>Prunus gladiolosa</i>	dwarf pink flowering almond	C, F
<i>Pyracantha fortuneana</i>	lolendei monrovia pyracantha	C, F

**Shrubs (Cont.)**

**Recommended Treatment Method**  
**C = Container Grown**  
**F = Field Grown**

Scientific Name	Common Name	
	monon pyracantha	F
	red elf hybrid pyracantha	F
	rutgers hybrid pyracantha	C, F
	Santa Cruz pyracantha	C, F
	victory pyracantha	F
<i>Raphiolepis indica</i>	charisma-monruce raphiolepis	C, F
	enchantress-moness raphiolepis	F
	raphiolepis (India hawthorn)	C, F
	springtime-monme raphiolepis	F
<i>Raphiolepis ovata</i>	roundleaf raphiolepis	C, F
<i>Rhododendron calendulaceum</i>	cannon's double azalea	C, F
	flame azalea	F
	golden flare azalea	C, F
	klondike azalea	C, F
<i>Rhododendron campylocarpum</i>	butterfly rhododendron	F
<i>Rhododendron carolinianum x daurium</i>	PJM rhododendron	C, F
<i>Rhododendron catawbiense</i>	catawba album rhododendron	C, F
	catawba rhododendron	C, F
	lord Roberts rhododendron	C, F
	rocket rhododendron	C, F
<i>Rhododendron caucasicum x ponticum</i>	Cunningham white rhododendron	C, F
<i>Rhododendron exbury</i>	cannon's double azalea	C, F
	golden flare azalea	C, F
	klondike azalea	C, F
<i>Rhododendron forrestii repens</i>	gomer waterer rhododendron	C, F
<i>Rhododendron forrestii x griersonianum</i>	Elizabeth rhododendron	C, F
<i>Rhododendron griffithianum</i>	jean marie rhododendron	C, F
<i>Rhododendron hybrid spp.</i>	America rhododendron	C, F
	English roseum rhododendron	F
	nova zembla rhododendron	C, F
	scintillation rhododendron	C, F
<i>Rhododendron impeditum</i>	rhododendron	C, F
<i>Rhododendron indica</i>	formosa azalea	C, F
<i>Rhododendron indica</i>	waucabusa azalea	C, F
<i>Rhododendron kaempferi</i>	blue danube azalea	C, F
<i>Rhododendron kerume</i>	coral bells azalea	C, F
	hino crimson azalea	C, F
	hino pink azalea	C, F
	mildred azalea	C, F
	snow azalea	C, F
<i>Rhododendron maximum</i>	rhodie max (rosebay)	C, F
<i>Rhododendron mucronulatum</i>	rhododendron	F
<i>Rhododendron obtusum</i>	hino-crimson azalea	C, F
<i>Rhododendron ponticum</i>	chioniodes rhododendron	C, F
<i>Rhododendron ponticum</i>	daphinoides rhododendron	C, F
<i>Rhododendron x 'purple gem'</i>	purple gem rhododendron	C, F
<i>Rhododendron racemosum</i>	dwarf scarlet wonder rhododendron	C, F
	tribly rhododendron	C, F
	unique rhododendron	C, F
	vulcan rhododendron	C, F
<i>Rhododendron sassthigiatim x carolinianum</i>	ramapo rhododendron	C, F
<i>Rhododendron satuski</i>	gumpo pink azalea	C, F
	higasa azalea	F
	reijn azalea	C, F
<i>Rhododendron spp. hybrids</i>	carror azalea	C, F

**Shrubs (Cont.)**

**Recommended Treatment Method**  
**C = Container Grown**  
**F = Field Grown**

Scientific Name	Common Name	
	fashion azalea	C, F
	Gerard Christina azalea	F
	Girard Roberta azalea	C, F
	golden flare exbury azalea	F
	helmut vogel azalea	F
	hershey red azalea	F
	hot shot azalea	C, F
	hume azalea	F
	inga azalea	F
	irene koster azalea	C, F
	president clay azalea	C, F
	tradition azalea	C, F
	sumac, African	C, F
<i>Rhus lancea</i>	ramanas rose	C, F
<i>Rosa rugosa</i>	rosemary	F
<i>Rosmarinus officinalis</i>	dusty-miller/silver ragweed	C, F
<i>Senecio cineraria</i>	Japanese skimmia	C, F
<i>Skimmia japonica</i>	reeve's skimmia	C, F
<i>Skimmia revesiana</i>	Paraguay nightshade	C, F
<i>Solanum rantonetii</i>	Anthony waterer spiraea	C, F
<i>Spiraea bumalda</i>	first snow spiraea	
<i>Spiraea x cinerea 'Grefsheim'</i>	dolchia spiraea	C, F
<i>Spiraea japonica</i>	Japanese alpine spiraea	C, F
	shirobana spiraea	C, F
	bridal wreath	C, F
	Chinese lilac	C, F
<i>Spiraea vanhouttei</i>	lilac, common	F
<i>Syringa rothomagensis</i>	yew, Japanese	F
<i>Syringa vulgaris</i>	cape honeysuckle	C, F
<i>Taxus cuspidata</i>	ternstroemia, Japanese	C, F
<i>Tecomaria capensis</i>	emerald arborvitae	C, F
<i>Ternstroemia gymnanthera</i>	globosa-globe arborvitae	C, F
<i>Thuja occidentalis</i>	little giant-dwarf arborvitae	C, F
	nigra-dark American arborvitae	C, F
	pyramidalis arborvitae	C, F
	reingold arborvitae	C, F
	techy arborvitae	F
<i>Thuja occidentalis</i>	woodwardii arborvitae	C, F
<i>Thuja orientalis</i>	aureus nana-dwarf golden arborvitae	C, F
	minima glauca-dwarf arborvitae	C, F
<i>Veitchia merrilli</i>	Christmas palm	F
<i>Viburnum bodnantense</i>	pink dawn viburnum	C, F
<i>Viburnum carlesii</i>	Koreanspice viburnum	C, F
<i>Viburnum davidii</i>	David viburnum	C, F
<i>Viburnum japonicum</i>	viburnum	F
<i>Viburnum judd (v. X juddii)</i>	viburnum	C, F
<i>Viburnum lantana</i>	wayfaring tree	F
<i>Viburnum opulus sterile</i>	common snowball viburnum	F
<i>Viburnum plicatum tomentosum</i>	doublefile viburnum	C, F
<i>Viburnum setigerum</i>	tea viburnum	F
<i>Viburnum tinus compactum</i>	spring bouquet viburnum	F
<i>Viburnum trilobum</i>	cranberry bush	C, F
<i>Viburnum trilobum compactum</i>	dwarf cranberry bush	C, F
<i>Viburnum x pragense</i>	viburnum	C, F
<i>Weigela florida</i>	bristol ruby weigela	C, F
	java red weigela	C, F
<i>Xylosma congestum</i>	minuet weigela	C, F
<i>Yucca filamentosa</i>	xylosma	F
	yucca	C, F

**Groundcovers/  
Perennials**

**Recommended Treatment Method:**  
C = Container Grown  
F = Field Grown

Scientific Name	Common Name	
<i>Achillea millefolium</i>	common yarrow	C, F
<i>Agapanthus africanus</i>	lily of the Nile	C, F
<i>Agapanthus "Peter Pan"</i>		C, F
<i>Alstroemeria aurea</i>	Peruvian lily	C, F
<i>Ammophila breviligulata</i>	beechgrass	C, F
<i>Antirrhinum majus</i>	snapdragon	C, F
<i>Arctotheca calendula</i>	cape weed	F
<i>Argyranthemum frutescens</i>	Paris daisy	C, F
<i>Artemisia schmidtiana</i>	angels' hair	C, F
<i>Asparagus retrofractus</i>	fern	C, F
<i>Asteriscus maritimus</i>	gold coin daisy	C, F
<i>Astilbe Deutschland</i>	Deutschland astilbe	C, F
<i>Asparagus retrofractus</i>		C, F
<i>Asparagus variegata</i>	tree fern	C, F
<i>Aster novae-angliae</i>	New England aster	C, F
<i>Aster novi-belgii</i>	New York aster	C, F
<i>Begonia cordifolia</i>	heartleaf begonia	C, F
<i>Begonia semperflorens</i>	white ambassador begonia	C, F
<i>Bidens ferulifolia</i>	peter's gold bidens	C, F
<i>Brachycome x 'New amethyst'</i>	swan river daisy new amethyst	C, F
<i>Callistepeus chinensis</i>	China aster	C, F
<i>Carex spp.</i>	sedge	C, F
<i>Carpobrotus edulis</i>	ice plant, largeleaf	F
<i>Catharanthus roseus</i>	Madagascar periwinkle	C, F
<i>Cerastium tomentosum</i>	snow in the summer	C, F
<i>Ceratostigma plumbaginoides</i>	dwarf plumbago	C, F
<i>Chrysanthemum morifolium</i>	florist's chrysanthemum	C, F
<i>Chrysanthemum sp.</i>	chrysanthemum species	C, F
<i>Clematis integrifolia caerulea</i>	blue bell clematis	C, F
<i>Clivia miniata</i>	kafir lily	C, F
<i>Coreopsis verticillata</i>	coreopsis, threadleaf	C, F
<i>Cortaderia selloana</i>	pampas grass	C, F
<i>Cuphea hyssopifolia</i>	false or Mexican heather	C, F
<i>Cyperus albostrigatus</i>	dwarf umbrella grass	C, F
<i>Dahlia x 'Royal dahlietta pink'</i>	dwarf dahlia wendy pink	C, F
<i>Delosperma alba</i>	white iceplant	F
<i>Descampsia caespitosa</i>	descampsia	C, F
<i>Dianthus gratianopolitanus</i>	crimson treasure cheddar pink	C, F
<i>Dietes vegeta</i>	triflight lily	C, F
<i>Drosantheum floribundum</i>	fortnight rosea iceplant	F
<i>Drosantheumum hispidum</i>	iceplant	C, F
<i>Ensete ventricosum</i>	red abyssinian banana	C, F
<i>Equisetum scirpoides</i>	dwarf horsetail	C, F
<i>Erianthus ravennae</i>	hardy pampasgrass	C, F
<i>Erysimum "Bowles mauve"</i>	wallflower	C, F
<i>Euryops pectinatus</i>	dwarf euryops	C, F
<i>Eustoma grandiflorum</i>	pink lisianthus	C, F
<i>Festuca ovina glauca</i>	blue fescue	C, F
<i>Fuchsia x 'Santa Claus'</i>	santa claus fuchsia	C, F
<i>Gaillardia aristata</i>	blanket flower	C, F
<i>Gaillardia grandiflora</i>	goblin blanket flower	C, F
<i>Gaura lindheimeri</i>	gaura	C, F
<i>Gazania rigens leucolaena</i>	gazania, trailing	C, F
<i>Gazania spp.</i>	gazania	C, F
<i>Geranium incanum</i>	cranesbill	C, F
<i>Geranium subcaulescens</i>	blackeyed magenta cranesbill	C, F
<i>Hakonechloa macroaureola</i>	golden hakonechloa	C, F
<i>Hedera canariensis</i>	ivy, Algerian	F
<i>Hedera helix</i>	ivy, English	C, F
<i>Helichrysum petiolatum</i>	white licorice plant	C, F
<i>Hemerocallis spp.</i>	daylily	C, F
<i>Hesperaloe parviflora</i>	red yucca	C, F
<i>Heuchera americana</i>	palace purple	C, F
<i>Heuchera micrantha</i>	coral bells	C, F

**Groundcovers/  
Perennials (Cont.)**

**Recommended Treatment Method:**  
C = Container Grown  
F = Field Grown

Scientific Name	Common Name	
<i>Hippeastrum hybrid</i>	amaryllis	C, F
<i>Hosta 'Francee'</i>	francee plantain lily	C, F
<i>Hosta lancifolia</i>	albo-marginata hosta	C, F
<i>Hosta 'Patriot'</i>	patriot plantain lily	C, F
<i>Hymenoxys acaulis</i>	angelita daisy	C, F
<i>Hypericum spp.</i>	St. Johnswort	C, F
<i>Impatiens wallerana</i>	busy lizzie	C, F
<i>Iris pumila</i>	yellow dwarf bearded iris	C, F
<i>Iris siberica</i>	blue siberian iris	C, F
<i>Jasminum nitidum</i>	angelwing jasmine	C, F
<i>Lampranthus spectabilis</i>	trailing iceplant	F
<i>Leptospermum scoparium</i>	broom teatree/manuka	C, F
<i>Liatris spicata</i>	gay feather	C, F
<i>Limonium perezii</i>	statice	C, F
<i>Liriope gigantea</i>	white lily turf	C, F
<i>Liriope muscari</i>	lilac beauty lily turf	C, F
	majestic lily turf	C, F
	Monroe white lily turf	C, F
	silvery sunproof lily turf	C, F
	variegated liriope lily turf	C, F
	big blue lily turf	C, F
	green/creeping lily turf	C, F
<i>Liriope spicata</i>	lobelia	C, F
<i>Lobelia erinus</i>	lobelia	C, F
<i>Lobularia maritima</i>	sweet alyssum	C, F
<i>Lonicera japonica</i>	honeysuckle, Japanese	F
<i>Lysimachia punctata</i>	dotted loosestrife	C, F
<i>Mathiola incana</i>	stock	C, F
<i>Miscanthus sinensis</i>	eulalia grass	C, F
<i>Monarda didyma</i>	bee balm	C, F
<i>Moraea iridiodes</i>	African iris	C, F
<i>Oenothera speciosa</i>	siskiyou evening primrose	C, F
<i>Ophiopogon japonicus</i>	dwarf mondo grass	C, F
	mondo grass	C, F
	freeway daisy	C, F
<i>Osteospermum fruticosum</i>	Japanese spurge	C, F
<i>Pachysandra terminalis</i>	Virginia creeper	C, F
<i>Parthenocissus quinquefolia</i>	zonal geranium	C, F
<i>Pelargonium x hortorum</i>	ivy geranium	C, F
<i>Pelargonium peltatum</i>	fountain grass	C, F
<i>Pennisetum alopecuroides</i>	chrimson fountaingrass	C, F
<i>Pennisetum setaceum</i>	star cluster	C, F
<i>Pentas lanceolata</i>	apple blossom penstemon	C, F
<i>Penstemon x 'Apple blossom'</i>	hartwig penstemon	C, F
<i>Penstemon gentianoides</i>	Russian sage	C, F
<i>Perovskia atriplicifolia</i>	garden petunias	C, F
<i>Petunia-hybrids</i>	ribbon grass	C, F
<i>Phalaris arundinacea picta</i>	Mexican hat	C, F
<i>Ratibida columnifera</i>	blackeyed susan	C, F
<i>Rudbeckia fulgida</i>	blackeyed susan	C, F
<i>Rudbeckia hirta</i>	dwarf katie ruellia	C, F
<i>Ruellia brittoniana</i>	Graham's sage	C, F
<i>Salvia grahamii</i>	Mexican bush sage	C, F
<i>Salvia leucantha</i>	autumn joy stonecrop	C, F
<i>Sedum x 'Autumn joy'</i>	Vera Jameson stonecrop	C, F
<i>Sedum x 'Vera jameson'</i>	little hero marigold	C, F
<i>Targetes patula 'Little hero'</i>	asian jasmine	C, F
<i>Trachelospermum asiaticum</i>	society garlic	C, F
<i>Tulbaghia violacea</i>	St. Paul verbena	C, F
<i>Verbena peruviana</i>	periwinkle, bigleaf	C, F
<i>Vinca major</i>	periwinkle, dwarf	F
<i>Vinca minor</i>	periwinkle	F
<i>Vinca spp.</i>	dwarf zinnia	C, F
<i>Zinnia elegans</i>		

## Non-Bearing Fruit and Nut Trees Non-bearing Vineyards<sup>1</sup>

### Recommended Treatment Method:

C = Container Grown  
F = Field Grown

#### Common Name

almond	F
apple	F
apricot	F
avocado	F
blackberry	F
blueberry	F
boysenberry	F
cherry, sour	F
cherry, sweet	F
currant	F
dewberry	F
elderberry	F
fig	F
filbert	F
gooseberry	F
grape, American	F
grape, European	F
grapefruit	F
kiwi	F
lemon	F
loganberry	F
macadamia nut	F
nectarine	F
olive	F
orange	F
peach	F
pear	F
pecan	F
pistachio	F
plum	F
pomegranate	F
prune	F
raspberry	F
walnut, black	F
walnut, English	F

<sup>1</sup>Non-bearing fruit and nut trees and non-bearing vineyards are defined as plants which will not bear fruit for at least one year after treatment.

## Ornamental Bulbs

Do not use Snapshot 2.5 TG in bulb production fields. For use in landscape settings only.

Snapshot 2.5 TG may be applied for control of susceptible annual weeds in ornamental bulbs, e.g., bulbous iris, daffodil (narcissus), hyacinth and tulip. Apply Snapshot 2.5 TG to the soil surface 2 to 4 weeks after planting, but prior to the emergence of annual weeds. Snapshot 2.5 TG may also be applied following bulb emergence but prior to flowering and after flowering. For fall planted bulbs, apply Snapshot 2.5 TG again in late winter or early spring to weed-free soil surfaces.

### Special Use Precautions:

Do not apply to tulip plants that have emerged to a height greater than 3/4 inch.

Do not apply to gladiolus prior to emergence or if corms are less than one inch in diameter.

Do not apply to bulbs while they are flowering.

## Shadehouse Areas

Snapshot 2.5 TG may be applied in open shadehouse-type structures where the natural flow of air is unimpeded. Do not apply in enclosed greenhouses or in enclosed shadehouse-type structures. Do not apply within three weeks prior to enclosing greenhouse or poly-type structures.

## Non-Cropland

Snapshot 2.5 TG is recommended as a preemergence treatment for control of certain broadleaf weeds and annual grasses on non-cropland areas such as industrial sites, utility substations, highway guardrails, sign posts, delineators, etc. Apply Snapshot 2.5 TG any time prior to germination of target weeds. Areas to be treated should be free of established weeds or existing weeds should be controlled with postemergence herbicides.

Refer to the General Information section of this label for General Use Precautions and information on Application, Application Rates, and Weeds Controlled.

## Terms and Conditions of Use

If terms of the following Warranty Disclaimer, Inherent Risks of Use and Limitation of Remedies are not acceptable, return unopened package at once to the seller for a full refund of purchase price paid. To the extent consistent with applicable law, use by the buyer or any other user constitutes acceptance of the terms under Warranty Disclaimer, Inherent Risks of Use and Limitation of Remedies.

## Warranty Disclaimer

Corteva Agriscience warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated on the label when used in strict accordance with the directions, subject to the inherent risks set forth below. To the extent consistent with applicable law, Corteva Agriscience MAKES NO OTHER EXPRESS OR IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY OTHER EXPRESS OR IMPLIED WARRANTY.

## Inherent Risks of Use

It is impossible to eliminate all risks associated with use of this product. Plant injury, lack of performance, or other unintended consequences may result because of such factors as use of the product contrary to label instructions (including conditions noted on the label, such as unfavorable temperatures, soil conditions, etc.), abnormal conditions (such as excessive rainfall, drought, tornadoes, hurricanes), presence of other materials, the manner of application, or other factors, all of which are beyond the control of Corteva Agriscience or the seller. Corteva Agriscience will not be responsible for losses or damages resulting from the use of this product in any manner not specifically directed by Corteva Agriscience. To the extent consistent with applicable law, all such risks associated with non-directed use shall be assumed by buyer and/or user.

## Limitation of Remedies

To the extent consistent with applicable law, the exclusive remedy for losses or damages resulting from this product (including claims based on contract, negligence, tort, strict liability, or other legal theories), shall be limited to, at Corteva Agriscience's election, one of the following:

1. Refund of purchase price paid by buyer or user for product bought, or
2. Replacement of product used.

To the extent consistent with applicable law, Corteva Agriscience shall not be liable for losses or damages resulting from handling or use of this product unless Corteva Agriscience is promptly notified of such loss or damage in writing. To the extent consistent with applicable law, in no case shall Corteva Agriscience be liable for consequential, incidental or special damages or losses.

The terms of the Warranty Disclaimer, Inherent Risks of Use and this Limitation of Remedies cannot be varied by any written or verbal statements or agreements. No employee or sales agent of Corteva Agriscience or the seller is authorized to vary or exceed the terms of the Warranty Disclaimer or this Limitation of Remedies in any manner.

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**Produced for**  
**Corteva Agriscience LLC**  
**9330 Zionsville Road**  
**Indianapolis, IN 46268**

Label Code: CD02-082-022

Replaces Label: CD02-082-021

EPA accepted 08/21/2023

## Revisions:

**Final printed labeling** based on EPA accepted label dated August 11, 2023 with the following revisions requested by Caleb Carr of EPA in e-mail dated May 25, 2023 and June 7, 2023 and June 28, 2023 as follows:

1. Added to Environmental Hazards: "Do not allow pesticide to enter run off...to prevent run off to water bodies or drainage systems.
2. Under Use Restrictions added, "Do not apply Snapshot 2.5 TG to turf grass grown for seed.
3. Added "Best Management Practices" header and added under this section "Scouting after herbicide application ...spreading resistant weed seed.

4. Added to Resistant management section, "...avoid moving plant material between sites."
5. Updated the Warranty language to match Corteva standards.
6. Added under Directions for Use: "This product must be soil-incorporated within 24 hours of application either by mechanical incorporation or at least 0.5 acre inch of water (rainfall, irrigation). If a second incorporation is needed it should be delayed 3 to 5 days after the first incorporation and be completed prior to planting."
7. Updated the Mode of Action from 21 to 29 throughout the label.

Following are changes by amendment per Trifluralin Interim Decision November 2019 Case Number 0179 and Related to change of company name, address, and contact information for company 62719 accepted by EPA January 5, 2021, and Non-notification dated October 5, 2023: the following additional changes have been made:

1. Added Non-Target Organism Advisory Statement.
2. Added "First Aid" to the items found inside the booklet on the booklet cover.
3. Language updated regarding the company name change include:
  - Trademark statement: Updated to "™@Trademarks of Corteva Agriscience and its affiliated companies.
  - Produced For: Updated company name to "Corteva Agriscience LLC
  - Terms and Conditions for Use: Updated
  - Warranty Disclaimer: Updated
  - Inherent Risks of Use: Updated
  - Limitation of Remedies: Updated
4. Throughout label: Updated references to "Dow AgroSciences" to either "company" or "Corteva Agriscience"
5. Removal of the reference to the dowagro.com website.

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Corteva Agriscience™ encourages you and expects you to read and understand the entire SDS as there is important information throughout the document. This SDS provides users with information relating to the protection of human health and safety at the workplace, protection of the environment and supports emergency response. Product users and applicators should primarily refer to the product label attached to or accompanying the product container. This Safety Data Sheet adheres to the standards and regulatory requirements of the United States and may not meet the regulatory requirements in other countries.

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### SECTION 1. IDENTIFICATION

Product name : SNAPSHOT™ 2.5 TG

#### Manufacturer or supplier's details

#### COMPANY IDENTIFICATION

**Manufacturer/importer** : CORTEVA AGRISCIENCE LLC  
9330 ZIONSVILLE RD  
INDIANAPOLIS, IN, 46268-1053  
UNITED STATES

**Customer Information Number** : 800-992-5994

**E-mail address** : customerinformation@corteva.com

**Emergency telephone** : INFOTRAC (CONTRACT 84224).  
800-992-5994 or 317-337-6009

#### Recommended use of the chemical and restrictions on use

Recommended use : End use herbicide product

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### SECTION 2. HAZARDS IDENTIFICATION

#### GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)

Acute toxicity (Inhalation) : Category 3

Carcinogenicity : Category 1A

Specific target organ toxicity : Category 1 (Lungs)  
- repeated exposure (Inhalation)

#### GHS label elements

Hazard pictograms :



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Signal Word : Danger

Hazard Statements : H331 Toxic if inhaled.  
H350 May cause cancer.  
H372 Causes damage to organs (Lungs) through prolonged or repeated exposure if inhaled.

Precautionary Statements : **Prevention:**  
P201 Obtain special instructions before use.  
P202 Do not handle until all safety precautions have been read and understood.  
P260 Do not breathe dust/ fume/ gas/ mist/ vapors/ spray.  
P264 Wash skin thoroughly after handling.  
P270 Do not eat, drink or smoke when using this product.  
P271 Use only outdoors or in a well-ventilated area.  
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

**Response:**  
P304 + P340 + P311 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor.  
P308 + P313 IF exposed or concerned: Get medical advice/ attention.

**Storage:**  
P403 + P233 Store in a well-ventilated place. Keep container tightly closed.  
P405 Store locked up.

**Disposal:**  
P501 Dispose of contents/ container to an approved waste disposal plant.

### Other hazards

None known.

## SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

### Components

Chemical name	CAS-No.	Concentration (% w/w)
isoxaben (ISO)	82558-50-7	0.5
trifluralin (ISO) (containing <0.5 ppm NPDA)	1582-09-8	2
Quartz	14808-60-7	>= 3 - < 10
Balance	Not Assigned	> 80

Actual concentration is withheld as a trade secret

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**SECTION 4. FIRST AID MEASURES**

- If inhaled : Move person to fresh air. If person is not breathing, call an emergency responder or ambulance, then give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask etc). Call a poison control center or doctor for treatment advice.  
If breathing is difficult, oxygen should be administered by qualified personnel.
- In case of skin contact : Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.
- In case of eye contact : Hold eyes 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 eyes. Call a poison control center or doctor for treatment advice.  
May cause injury due to mechanical action.
- If swallowed : Call a poison control center or doctor immediately 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.  
Never give anything by mouth to an unconscious person.
- Most important symptoms and effects, both acute and delayed : None known.
- Protection of first-aiders : First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection).  
If potential for exposure exists refer to Section 8 for specific personal protective equipment.
- Notes to physician : Maintain adequate ventilation and oxygenation of the patient.  
No specific antidote.  
Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.  
Have the Safety Data Sheet, and if available, the product container or label with you when calling a poison control center or doctor, or going for treatment.

**SECTION 5. FIRE-FIGHTING MEASURES**

- Suitable extinguishing media : Water spray  
Alcohol-resistant foam
- Unsuitable extinguishing media : None known.
- Specific hazards during fire fighting : Exposure to combustion products may be a hazard to health.  
Do not allow run-off from firefighting to enter drains or water courses.
- Hazardous combustion products : During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating.

Combustion products may include and are not limited to:  
Nitrogen oxides (NOx)

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Hydrogen fluoride  
Carbon oxides

Specific extinguishing methods : Remove undamaged containers from fire area if it is safe to do so.  
Evacuate area.  
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.  
Use water spray to cool unopened containers.  
Collect contaminated fire extinguishing water separately. This must not be discharged into drains.  
Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

Special protective equipment for fire-fighters : In the event of fire, wear self-contained breathing apparatus.  
Use personal protective equipment.

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### SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures : Ensure adequate ventilation.  
Avoid dust formation.  
Avoid breathing dust.  
Use personal protective equipment.  
Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

Environmental precautions : If the product contaminates rivers and lakes or drains inform respective authorities.  
Discharge into the environment must be avoided.  
Prevent further leakage or spillage if safe to do so.  
Retain and dispose of contaminated wash water.  
Local authorities should be advised if significant spillages cannot be contained.  
Prevent from entering into soil, ditches, sewers, underwater.  
See Section 12, Ecological Information.

Methods and materials for containment and cleaning up : Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in.  
Pick up and arrange disposal without creating dust.  
Recovered material should be stored in a vented container.  
The vent must prevent the ingress of water as further reaction with spilled materials can take place which could lead to over-pressurization of the container.  
Keep in suitable, closed containers for disposal.  
Sweep up or vacuum up spillage and collect in suitable container for disposal.  
See Section 13, Disposal Considerations, for additional information.

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### SECTION 7. HANDLING AND STORAGE

Local/Total ventilation : Use with local exhaust ventilation.  
Advice on safe handling : Provide sufficient air exchange and/or exhaust in work rooms.

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- Avoid formation of respirable particles.  
Do not breathe vapors/dust.  
Do not smoke.  
Handle in accordance with good industrial hygiene and safety practice.  
Avoid exposure - obtain special instructions before use.  
Smoking, eating and drinking should be prohibited in the application area.  
Do not get on skin or clothing.  
Avoid inhalation of vapor or mist.  
Do not swallow.  
Avoid contact with skin and eyes.  
Avoid contact with eyes.  
Keep container tightly closed.  
Take care to prevent spills, waste and minimize release to the environment.  
Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.
- Conditions for safe storage : Store in a closed container.  
Prevent unauthorized access.  
Containers which are opened must be carefully resealed and kept upright to prevent leakage.  
Keep in properly labeled containers.  
Store in accordance with the particular national regulations.
- Materials to avoid : Strong oxidizing agents  
Organic peroxides  
Explosives  
Gases
- Packaging material : Unsuitable material: None known.

## SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

## Ingredients with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Quartz	14808-60-7	TWA (Respirable dust)	0.05 mg/m <sup>3</sup>	OSHA Z-1
		TWA (respirable)	10 mg/m <sup>3</sup> / %SiO <sub>2</sub> +2	OSHA Z-3
		TWA (respirable)	250 mppcf / %SiO <sub>2</sub> +5	OSHA Z-3
		TWA (Respirable particulate matter)	0.025 mg/m <sup>3</sup> (Silica)	ACGIH
		PEL (respirable)	0.05 mg/m <sup>3</sup>	OSHA CARC

- Engineering measures : Use engineering controls to maintain airborne level below exposure limit requirements or guidelines.  
If there are no applicable exposure limit requirements or guidelines, use only with adequate ventilation.

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Local exhaust ventilation may be necessary for some operations.

### Personal protective equipment

Respiratory protection : Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, use an approved respirator. Selection of air-purifying or positive-pressure supplied-air will depend on the specific operation and the potential airborne concentration of the material. For emergency conditions, use an approved positive-pressure self-contained breathing apparatus.

### Hand protection

Remarks : Use gloves chemically resistant to this material when prolonged or frequently repeated contact could occur. Examples of preferred glove barrier materials include: Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyvinyl chloride ("PVC" or "vinyl"). NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

Eye protection : Use safety glasses (with side shields). If there is a potential for exposure to particles which could cause eye discomfort, wear chemical goggles.

Skin and body protection : Wear clean, body-covering clothing.

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## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : Granules.

Color : Yellow

Odor : Aromatic

Odor Threshold : No data available

pH : 7.5  
(50% dispersion)

Melting point/range : No data available

Freezing point : Not applicable

Boiling point/boiling range : Not applicable

Flash point : Method: closed cup  
Not applicable

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Evaporation rate : Not applicable

Flammability (solid, gas) : No

Upper explosion limit / Upper flammability limit : Not applicable

Lower explosion limit / Lower flammability limit : Not applicable

Vapor pressure : Not applicable

Relative vapor density : Not applicable

Density : Not applicable

Bulk density : 0.70 g/cm<sup>3</sup> (74.1 °F / 23.4 °C)  
Method: Loose Volumetric

Solubility(ies)  
Water solubility : No data available

Autoignition temperature : > 999 °F / > 537 °C

Viscosity  
Viscosity, dynamic : Not applicable

Explosive properties : No

Oxidizing properties : No significant increase (>5C) in temperature.

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### SECTION 10. STABILITY AND REACTIVITY

Reactivity : Not classified as a reactivity hazard.

Chemical stability : No decomposition if stored and applied as directed.  
Stable under normal conditions.

Possibility of hazardous reactions : Stable under recommended storage conditions.  
No hazards to be specially mentioned.  
None known.

Conditions to avoid : None known.

Incompatible materials : Strong acids  
Strong bases

Hazardous decomposition products : Decomposition products depend upon temperature, air supply and the presence of other materials.  
Decomposition products can include and are not limited to:  
Nitrogen oxides (NO<sub>x</sub>)  
Hydrogen fluoride  
Carbon oxides

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**SECTION 11. TOXICOLOGICAL INFORMATION****Acute toxicity****Product:**

Acute oral toxicity : LD50 (Rat): > 2,500 mg/kg  
Symptoms: No deaths occurred at this concentration.  
Assessment: The substance or mixture has no acute oral toxicity

Acute inhalation toxicity : LC50 (Rat, male): > 4.6 mg/l  
Exposure time: 4 h  
Test atmosphere: Dust  
Assessment: The component/mixture is toxic after short term inhalation.

LC50 (Rat, female): > 0.5 - < 4.6 mg/l  
Exposure time: 4 h  
Test atmosphere: Dust

Acute dermal toxicity : LD50 (Rabbit, male and female): > 5,000 mg/kg

**Components:****isoxaben (ISO):**

Acute oral toxicity : LD50 (Rat, male and female): > 5,000 mg/kg

Acute inhalation toxicity : Remarks: Prolonged excessive exposure to dust may cause adverse effects.  
Based on the available data, narcotic effects were not observed.  
Based on the available data, respiratory irritation was not observed.

LC50 (Rat, male and female): > 2.93 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist  
Assessment: The substance or mixture has no acute inhalation toxicity

Symptoms: No deaths occurred at this concentration.  
Remarks: Maximum attainable concentration.

Acute dermal toxicity : LD50 (Rabbit, male and female): > 2,000 mg/kg  
Symptoms: No deaths occurred at this concentration.  
Assessment: The substance or mixture has no acute dermal toxicity

**trifluralin (ISO) (containing <0.5 ppm NPDA):**

Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg

Acute inhalation toxicity : Remarks: Vapors are unlikely due to physical properties.  
No adverse effects are anticipated from single exposure to

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dust.  
Based on the available data, respiratory irritation was not observed.

LC50 (Rat): > 4.8 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist  
Assessment: The substance or mixture has no acute inhalation toxicity

Acute dermal toxicity : LD50 (Rabbit): > 5,000 mg/kg

### Skin corrosion/irritation

#### Product:

Species : Rabbit  
Result : No skin irritation

#### Components:

##### trifluralin (ISO) (containing <0.5 ppm NPDA):

Result : No skin irritation

#### Quartz:

Result : No skin irritation

### Serious eye damage/eye irritation

#### Product:

Species : Rabbit  
Result : No eye irritation

#### Components:

##### trifluralin (ISO) (containing <0.5 ppm NPDA):

Result : No eye irritation

#### Quartz:

Result : No eye irritation

### Respiratory or skin sensitization

#### Product:

Species : Guinea pig  
Assessment : Does not cause skin sensitization.

#### Components:

##### isoxaben (ISO):

Remarks : Did not cause allergic skin reactions when tested in guinea

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pigs.

Remarks : For respiratory sensitization:  
No relevant data found.

**trifluralin (ISO) (containing <0.5 ppm NPDA):**

Assessment : May cause sensitization by skin contact.  
Remarks : Skin contact may cause an allergic skin reaction.

Remarks : For respiratory sensitization:  
No relevant data found.

**Germ cell mutagenicity****Components:****isoxaben (ISO):**

Germ cell mutagenicity - Assessment : In vitro genetic toxicity studies were negative., Animal genetic toxicity studies were predominantly negative.

**trifluralin (ISO) (containing <0.5 ppm NPDA):**

Germ cell mutagenicity - Assessment : In vivo tests did not show mutagenic effects  
  
In vitro genetic toxicity studies were predominantly negative.,  
Animal genetic toxicity studies were predominantly negative.

**Quartz:**

Germ cell mutagenicity - Assessment : In vitro genetic toxicity studies were negative in some cases and positive in other cases.

**Carcinogenicity****Components:****isoxaben (ISO):**

Carcinogenicity - Assessment : An increase in nonmalignant liver tumors was observed with isoxaben in one of two species tested.

**trifluralin (ISO) (containing <0.5 ppm NPDA):**

Carcinogenicity - Assessment : Animal testing did not show any carcinogenic effects.  
  
A low incidence of urinary tract tumors was seen in only 1 of 5 chronic studies in rats with trifluralin. Trifluralin is not anticipated to be a carcinogenic risk to man.

**Quartz:**

Carcinogenicity - Assessment : Human carcinogen.  
  
Has caused cancer in humans., Has caused cancer in laboratory animals.

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<b>IARC</b>	Group 1: Carcinogenic to humans Quartz (Silica dust, crystalline)	14808-60-7
<b>OSHA</b>	OSHA specifically regulated carcinogen Quartz (crystalline silica)	14808-60-7
<b>NTP</b>	Known to be human carcinogen Quartz (Silica, Crystalline (Respirable Size))	14808-60-7

### Reproductive toxicity

#### Components:

##### **isoxaben (ISO):**

Reproductive toxicity - Assessment : In animal studies, has been shown to interfere with reproduction in females., Effects have been seen only at doses that produced significant toxicity to the parent animals.  
Has caused birth defects in laboratory animals only at doses toxic to the mother.

##### **trifluralin (ISO) (containing <0.5 ppm NPDA):**

Reproductive toxicity - Assessment : Animal testing did not show any effects on fertility.  
  
In animal studies, did not interfere with reproduction.  
Has been toxic to the fetus in laboratory animals at doses toxic to the mother., Did not cause birth defects in laboratory animals.

##### **Quartz:**

Reproductive toxicity - Assessment : For similar material(s);, Did not cause birth defects or any other fetal effects in laboratory animals.

### STOT-single exposure

#### Product:

Assessment : Evaluation of available data suggests that this material is not an STOT-SE toxicant.

#### Components:

##### **isoxaben (ISO):**

Assessment : Evaluation of available data suggests that this material is not an STOT-SE toxicant.

##### **trifluralin (ISO) (containing <0.5 ppm NPDA):**

Assessment : Evaluation of available data suggests that this material is not an STOT-SE toxicant.

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### **Quartz:**

Assessment : Evaluation of available data suggests that this material is not an STOT-SE toxicant.

### **STOT-repeated exposure**

#### **Components:**

### **Quartz:**

Routes of exposure : Inhalation  
Target Organs : Lungs  
Assessment : Causes damage to organs through prolonged or repeated exposure.

### **Repeated dose toxicity**

#### **Components:**

### **isoxaben (ISO):**

Remarks : In animals, effects have been reported on the following organs:  
Liver.  
Kidney.

### **trifluralin (ISO) (containing <0.5 ppm NPDA):**

Remarks : In animals, effects have been reported on the following organs:  
Kidney.  
Blood.  
Liver.  
Thyroid.

### **Quartz:**

Remarks : In humans, effects have been reported on the following organs:  
Kidney.  
Repeated excessive exposure to crystalline silica may cause silicosis, a progressive and disabling disease of the lungs.

### **Aspiration toxicity**

#### **Product:**

Based on physical properties, not likely to be an aspiration hazard.

#### **Components:**

### **isoxaben (ISO):**

Based on physical properties, not likely to be an aspiration hazard.

### **trifluralin (ISO) (containing <0.5 ppm NPDA):**

Based on physical properties, not likely to be an aspiration hazard.

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**Quartz:**

Based on physical properties, not likely to be an aspiration hazard.

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**SECTION 12. ECOLOGICAL INFORMATION**
**Ecotoxicity****Product:**

- |   |   |  |
|---|---|--|
| Toxicity to fish                                    | : | LC50 (Oncorhynchus mykiss (rainbow trout)): 230 mg/l<br>Exposure time: 96 h<br>Test Type: semi-static test   |
| Toxicity to daphnia and other aquatic invertebrates | : | EC50 (Daphnia pulex (Water flea)): > 1,000 mg/l<br>Exposure time: 48 h   |
| Toxicity to algae/aquatic plants                    | : | ErC50 (Pseudokirchneriella subcapitata (green algae)): > 1,000 mg/l<br>Exposure time: 96 h   |
| Toxicity to soil dwelling organisms                 | : | LC50 (Eisenia fetida (earthworms)): > 10,000 mg/kg<br>Exposure time: 14 d<br>End point: survival   |
| Toxicity to terrestrial organisms                   | : | Remarks: Material is practically non-toxic to birds on an acute basis (LD50 > 2000 mg/kg).<br><br>oral LD50 (Colinus virginianus (Bobwhite quail)): > 2000 mg/kg bodyweight. |

**Components:****isoxaben (ISO):**

- |   |   |   |
|---|---|---|
| Toxicity to fish                                    | : | Remarks: Material is very highly toxic to aquatic organisms on an acute basis (LC50/EC50 <0.1 mg/L in the most sensitive species).<br><br>LC50 (Oncorhynchus mykiss (rainbow trout)): 1.2 mg/l<br>Exposure time: 96 h<br>Test Type: static test<br>Method: OECD Test Guideline 203 or Equivalent<br>Remarks: The LC50 value is above the water solubility.<br><br>LC50 (Cyprinodon variegatus (sheepshead minnow)): > 0.87 mg/l<br>Exposure time: 96 h<br>Test Type: static test<br>Method: OECD Test Guideline 203 or Equivalent<br>Remarks: The LC50 value is above the water solubility. |
| Toxicity to daphnia and other aquatic invertebrates | : | EC50 (Daphnia magna (Water flea)): > 1.3 mg/l<br>Exposure time: 48 h  |

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Test Type: static test  
Method: OECD Test Guideline 202 or Equivalent

Toxicity to algae/aquatic plants : EbC50 (Lemna minor (duckweed)): 0.011 mg/l  
End point: Biomass  
Exposure time: 7 d  
Test Type: static test  
Method: OECD Test Guideline 201 or Equivalent

ErC50 (Pseudokirchneriella subcapitata (green algae)): > 1.2 mg/l  
End point: Growth rate inhibition  
Exposure time: 72 h  
Test Type: static test

ErC50 (Skeletonema costatum (marine diatom)): > 0.49 mg/l  
Exposure time: 72 h  
Test Type: static test

M-Factor (Acute aquatic toxicity) : 10

Toxicity to fish (Chronic toxicity) : NOEC (Pimephales promelas (fathead minnow)): 0.4 mg/l  
End point: growth  
Exposure time: 33 d  
Test Type: semi-static test

LOEC (Pimephales promelas (fathead minnow)): > 0.40 mg/l  
End point: growth  
Exposure time: 33 d  
Test Type: semi-static test

MATC (Maximum Acceptable Toxicant Level) (Pimephales promelas (fathead minnow)): > 0.40 mg/l  
End point: growth  
Exposure time: 33 d  
Test Type: semi-static test

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 0.69 mg/l  
End point: growth  
Exposure time: 21 d  
Test Type: static test  
Method: OECD Test Guideline 211 or Equivalent

LOEC (Daphnia magna (Water flea)): 1.01 mg/l  
End point: growth  
Exposure time: 21 d  
Test Type: static test  
Method: OECD Test Guideline 211 or Equivalent

MATC (Maximum Acceptable Toxicant Level) (Daphnia magna (Water flea)): 0.85 mg/l  
End point: growth  
Exposure time: 21 d  
Test Type: static test  
Method: OECD Test Guideline 211 or Equivalent

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NOEC (saltwater mysid *Mysidopsis bahia*): 0.841 mg/l  
Exposure time: 28 d  
Test Type: flow-through test

LOEC (saltwater mysid *Mysidopsis bahia*): > 0.841 mg/l  
Exposure time: 28 d  
Test Type: flow-through test

NOEC (Midge (*Chironomus riparius*)): 32 mg/l  
End point: mortality  
Exposure time: 28 d  
Test Type: static test  
Method: OECD Test Guideline 211 or Equivalent

LOEC (Midge (*Chironomus riparius*)): 64 mg/l  
End point: mortality  
Exposure time: 28 d  
Test Type: static test  
Method: OECD Test Guideline 211 or Equivalent

MATC (Maximum Acceptable Toxicant Level) (Midge (*Chironomus riparius*)): 48 mg/l  
End point: mortality  
Exposure time: 28 d  
Test Type: static test  
Method: OECD Test Guideline 211 or Equivalent

M-Factor (Chronic aquatic toxicity) : 10

Toxicity to microorganisms : EC50 (activated sludge): > 100 mg/l  
End point: Respiration rates.  
Exposure time: 3 h  
Test Type: Respiration inhibition

Toxicity to soil dwelling organisms : LC50 (*Eisenia fetida* (earthworms)): > 1,000 mg/kg  
Exposure time: 14 d

Toxicity to terrestrial organisms : Remarks: Material is practically non-toxic to birds on an acute basis (LD50 > 2000 mg/kg)., Material is moderately toxic to birds on a dietary basis (LC50 between 501 and 1000 ppm).

oral LD50 (*Colinus virginianus* (Bobwhite quail)): > 2000 mg/kg bodyweight.  
Exposure time: 14 d

LC50 (*Colinus virginianus* (Bobwhite quail)): > 937 mg/kg diet.  
Exposure time: 8 d

oral LD50 (*Apis mellifera* (bees)): > 100 micrograms/bee

contact LD50 (*Apis mellifera* (bees)): > 100 micrograms/bee  
Exposure time: 48 h

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**Ecotoxicology Assessment**

Acute aquatic toxicity : Very toxic to aquatic life.

Chronic aquatic toxicity : Very toxic to aquatic life with long lasting effects.

**trifluralin (ISO) (containing <0.5 ppm NPDA):**

Toxicity to fish : Remarks: Material is very highly toxic to aquatic organisms on an acute basis (LC50/EC50 <0.1 mg/L in the most sensitive species).

LC50 (Oncorhynchus mykiss (rainbow trout)): 0.088 mg/l  
Exposure time: 96 h  
Test Type: flow-through test

LC50 (Lepomis macrochirus (Bluegill sunfish)): 0.089 mg/l  
Exposure time: 96 h  
Test Type: flow-through test

Toxicity to daphnia and other aquatic invertebrates : EC50 (water flea Daphnia magna): 0.245 mg/l  
Exposure time: 48 h  
Test Type: static test

EC50 (mussel Mytilus edulis): 0.096 mg/l  
Exposure time: 48 h  
Test Type: static test

Toxicity to algae/aquatic plants : ErC50 (Pseudokirchneriella subcapitata (green algae)): 0.0532 mg/l  
Exposure time: 72 h

EC50 (Lemna gibba): 0.043 mg/l  
Exposure time: 7 d  
Test Type: Growth inhibition

EbC50 (diatom Navicula sp.): 0.015 mg/l  
End point: Biomass  
Exposure time: 5 d

M-Factor (Acute aquatic toxicity) : 10

Toxicity to fish (Chronic toxicity) : NOEC (Oncorhynchus mykiss (rainbow trout)): 0.00114 mg/l  
End point: growth  
Exposure time: 48 d  
Test Type: static test

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 0.0507 mg/l  
End point: growth  
Exposure time: 21 d  
Test Type: semi-static test

M-Factor (Chronic aquatic toxicity) : 10

Toxicity to microorganisms : EC50 (activated sludge): > 100 mg/l  
Exposure time: 3 h

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Toxicity to soil dwelling organisms : LC50 (*Eisenia fetida* (earthworms)): > 1,000 mg/kg  
Exposure time: 14 d

Toxicity to terrestrial organisms : Remarks: Material is practically non-toxic to birds on an acute basis (LD50 > 2000 mg/kg)., Material is practically non-toxic to birds on a dietary basis (LC50 > 5000 ppm).

oral LD50 (*Colinus virginianus* (Bobwhite quail)): > 2250 mg/kg bodyweight.

dietary LC50 (*Colinus virginianus* (Bobwhite quail)): > 5000 mg/kg diet.  
Exposure time: 5 d

oral LD50 (*Apis mellifera* (bees)): > 100 micrograms/bee

contact LD50 (*Apis mellifera* (bees)): > 100 micrograms/bee

**Quartz:**

Toxicity to fish : Remarks: Based on information for a similar material: Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).

LC50 (*Danio rerio* (zebra fish)): 508 mg/l  
Exposure time: 96 h  
Remarks: Based on information for a similar material:

Toxicity to daphnia and other aquatic invertebrates : EC50 (*Daphnia magna* (Water flea)): 731 mg/l  
Exposure time: 48 h  
Remarks: For similar material(s):

**Persistence and degradability****Components:****isoxaben (ISO):**

Biodegradability : Result: Not biodegradable.  
Remarks: Material is expected to biodegrade very slowly (in the environment). Fails to pass OECD/EEC tests for ready biodegradability.  
Biodegradation rate may increase in soil and/or water with acclimation.

Chemical Oxygen Demand (COD) : 1.77 mg/g

ThOD : 1.98 kg/kg

Stability in water : Test Type: Hydrolysis  
Degradation half life (half-life): > 5 d pH: 7.0

Photodegradation : Test Type: Half-life (direct photolysis)  
Method: Measured

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Test Type: Half-life (direct photolysis)

Test Type: Half-life (indirect photolysis)

Sensitizer: OH radicals

Concentration: 1,500,000 1/cm<sup>3</sup>

Rate constant: 2.045E-10 cm<sup>3</sup>/s

Method: Estimated.

**trifluralin (ISO) (containing <0.5 ppm NPDA):**

Biodegradability : Remarks: Material is expected to biodegrade very slowly (in the environment). Fails to pass OECD/EEC tests for ready biodegradability.

Concentration: 10 mg/l

Result: Not readily biodegradable.

Biodegradation: 5 %

Exposure time: 28 d

Method: OECD Test Guideline 301B or Equivalent

Remarks: 10-day Window: Fail

Chemical Oxygen Demand (COD) : 1.37 kg/kg

Stability in water : Test Type: Hydrolysis  
Degradation half life (half-life): > 1 yr pH: 3 - 9  
Method: Measured

Test Type: Photolysis

Degradation half life (half-life): 0.19 - 3.08 h

Method: Measured

Photodegradation : Test Type: Half-life (indirect photolysis)  
Sensitizer: OH radicals  
Concentration: 1,500,000 1/cm<sup>3</sup>  
Rate constant: 2.4004E-11 cm<sup>3</sup>/s  
Method: Estimated.

**Quartz:**

Biodegradability : Remarks: Biodegradation is not applicable.

**Bioaccumulative potential****Components:****isoxaben (ISO):**

Partition coefficient: n-octanol/water : log Pow: 2.64  
Method: Measured  
Remarks: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

**trifluralin (ISO) (containing <0.5 ppm NPDA):**

Bioaccumulation : Species: Pimephales promelas (fathead minnow)

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Bioconcentration factor (BCF): 1,060 - 6,000  
Concentration: 0.0018 mg/l  
Method: Estimated.

Partition coefficient: n-octanol/water : log Pow: 5.27  
Method: Method Not Specified.  
Remarks: Bioconcentration potential is high (BCF > 3000 or Log Pow between 5 and 7).

### Quartz:

Partition coefficient: n-octanol/water : Remarks: Partitioning from water to n-octanol is not applicable.

### Balance:

Partition coefficient: n-octanol/water : Remarks: No relevant data found.

### Mobility in soil

#### Components:

#### isoxaben (ISO):

Distribution among environmental compartments : Koc: 700 - 1290  
Remarks: Potential for mobility in soil is low (Koc between 500 and 2000).

Stability in soil : Test Type: aerobic degradation  
Dissipation time: 0.358 - 0.883 yr  
Test Type: Photolysis  
Dissipation time: 248 d

### Quartz:

Distribution among environmental compartments : Remarks: No relevant data found.

### Balance:

Distribution among environmental compartments : Remarks: No relevant data found.

### Other adverse effects

#### Components:

#### isoxaben (ISO):

Results of PBT and vPvB assessment : This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

Ozone-Depletion Potential : Remarks: This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

#### trifluralin (ISO) (containing <0.5 ppm NPDA):

Results of PBT and vPvB assessment : This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

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Ozone-Depletion Potential : Remarks: This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

### **Quartz:**

Results of PBT and vPvB assessment : This substance has not been assessed for persistence, bioaccumulation and toxicity (PBT).

Ozone-Depletion Potential : Remarks: This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

### **Balance:**

Results of PBT and vPvB assessment : This substance has not been assessed for persistence, bioaccumulation and toxicity (PBT).

Ozone-Depletion Potential : Remarks: This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

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## SECTION 13. DISPOSAL CONSIDERATIONS

### **Disposal methods**

Waste from residues : If wastes and/or containers cannot be disposed of according to the product label directions, disposal of this material must be in accordance with your local or area regulatory authorities. This information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations.  
If the material as supplied becomes a waste, follow all applicable regional, national and local laws.

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## SECTION 14. TRANSPORT INFORMATION

### **International Regulations**

#### **UNRTDG**

Not regulated as a dangerous good

#### **IATA-DGR**

Not regulated as a dangerous good

#### **IMDG-Code**

Not regulated as a dangerous good

#### **Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code**

Not applicable for product as supplied.

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**Domestic regulation****49 CFR**

UN/ID/NA number	:	UN 3077
Proper shipping name	:	Environmentally hazardous substance, solid, n.o.s. (Trifluralin)
Class	:	9
Packing group	:	III
Labels	:	CLASS 9
ERG Code	:	171
Marine pollutant	:	no

**Further information**

Marine Pollutants assigned UN number 3077 and 3082 in single or combination packaging containing a net quantity per single or inner packaging of 5L or less for liquids or having a net mass per single or inner packaging of 5 KG or less for solids may be transported as non-dangerous goods as provided in section 2.10.2.7 of IMDG code, IATA Special provision A197, and ADR/RID special provision 375.

**Special precautions for user**

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

**SECTION 15. REGULATORY INFORMATION**

<b>SARA 311/312 Hazards</b>	:	Acute toxicity (any route of exposure) Carcinogenicity Specific target organ toxicity (single or repeated exposure)
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<b>SARA 313</b>	:	The following components are subject to reporting levels established by SARA Title III, Section 313:
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trifluralin (ISO)	1582-09-8	>= 1 - < 5 %
(containing <0.5 ppm NPDA)		

**US State Regulations****Pennsylvania Right To Know**

Quartz	14808-60-7
trifluralin (ISO) (containing <0.5 ppm NPDA)	1582-09-8

**California Prop. 65**

WARNING: This product can expose you to chemicals including Quartz, Kaolin, Quartz, which is/are known to the State of California to cause cancer, and toluene, which is/are known to the State of California to cause birth defects or other reproductive harm. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

**The ingredients of this product are reported in the following inventories:**

TSCA	:	Product contains substance(s) not listed on TSCA inventory.
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### TSCA list

No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

### Federal Insecticide, Fungicide and Rodenticide Act

EPA Registration Number : 62719-175

This chemical is a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets, and for workplace labels of non-pesticide chemicals. Following is the hazard information as required on the pesticide label:

### CAUTION

Causes moderate eye irritation  
Harmful if swallowed or inhaled  
Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals.

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## SECTION 16. OTHER INFORMATION

### Information Source and References

This SDS is prepared by Product Regulatory Services and Hazard Communications Groups from information supplied by internal references within our company.

### Full text of other abbreviations

ACGIH : USA. ACGIH Threshold Limit Values (TLV)  
OSHA CARC : OSHA Specifically Regulated Chemicals/Carcinogens  
OSHA Z-1 : USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants  
OSHA Z-3 : USA. Occupational Exposure Limits (OSHA) - Table Z-3 Mineral Dusts  
ACGIH / TWA : 8-hour, time-weighted average  
OSHA CARC / PEL : Permissible exposure limit (PEL)  
OSHA Z-1 / TWA : 8-hour time weighted average  
OSHA Z-3 / TWA : 8-hour time weighted average

AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil

# SAFETY DATA SHEET



## SNAPSHOT™ 2.5 TG

Version	Revision Date:	SDS Number:	Date of last issue: -
1.0	01/13/2022	800080003390	Date of first issue: 01/13/2022

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Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

Revision Date : 01/13/2022

Product code: FN-3278

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

US / EN

Conforms to Hazard Communication Standard 29 CFR 1910.1200

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### Section 1 - IDENTIFICATION

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<b>Product Identifier:</b>	<b>Spectracide® Wasp &amp; Hornet Killer<sub>3</sub></b>
<b>Other Means of Identification:</b>	
Product Code	HG-15715; HG-35715; HG-45715; HG-45865HD; HG-55715HD; HG57625; HG-27221; HG-67221; HG-97221; HG-65715; HG-65717; HG-65811; HG-65865; HG-65865W; HG-75715; HG-75865HD; HG-85715; HG-85865; HG-95715; HG-95715W; HG-95865; HG-96560; HG-96756; HG-96852
Formula Number	21-1497
EPA Reg. Number	9688-190-8845
<b>Recommended Use:</b>	Insecticide - Wasp & Hornet, aerosol
<b>Recommended Restrictions:</b>	Use in accordance with label directions
<b>Manufacturer/Importer/Supplier/Distributor Information:</b>	
Company Name	Spectrum Group, Division of United Industries
Address	PO Box 142642, St. Louis, MO 63114-0642
Telephone Number	1-800-917-5438
<b>Emergency Telephone Number:</b>	
CHEMTREC	(800)424-9300
Medical	(866)823-2749

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### Section 2 - HAZARD(S) IDENTIFICATION


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#### Classification of Substance or Mixture:

Physical Hazard(s)	Flammable Aerosol - Category 2 Gases Under Pressure - Low Pressure Liquefied Gas
Health Hazard(s)	Skin irritant - Category 2

#### Label Elements:

Hazard Pictogram(s)	
Signal Word	Warning
Hazard Statements:	Flammable aerosol Contains gas under pressure; may explode if heated Causes skin irritation
Precautionary Statements:	Keep away from heat, sparks, open flames, and hot surfaces. - No smoking. Protect from sunlight. Do not expose to temperatures exceeding 50°C/122°F. Store in a well-ventilated place. Wash hands thoroughly after handling. Wear protective gloves. If on skin: Wash with plenty of water. If skin irritation occurs: Get medical advice. Take off contaminated clothing and wash it before reuse.

**Hazard(s) not Otherwise Classified (HNOC):** No additional information available

**Supplemental Information:** None

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**Section 3 - COMPOSITION/INFORMATION ON INGREDIENTS**

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Chemical Name	Synonyms	CAS Number	%
Hydrotreated light petroleum distillates	n/a	64742-47-8	5.000
Propane	n/a	74-98-6	3.400
Isopropyl Alcohol	n/a	67-63-0	2.040
Isobutane	n/a	75-28-5	0.080
Prallethrin	n/a	23031-36-9	0.025
Cyhalothrin, lambda-	n/a	91465-08-6	0.010

In accordance with paragraph (d) of 1910.1200, the exact percentage (concentration) has been withheld as a trade secret. Other components are below reportable levels.

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**Section 4 - FIRST-AID MEASURES**

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**Inhalation:** If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical advice/attention if you feel unwell.

**Skin Contact:** In case of contact, wash skin with plenty of water for 15 minutes. If skin irritation or redness develops, seek medical attention.

**Eye Contact:** In case of contact, flush eyes with plenty of water. Remove contact lenses, if worn. If irritation persists, get medical attention.

**Ingestion:** If swallowed, do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical advice/attention.

**Most Important Symptoms/Effects, Acute and Delayed:** Symptoms of exposure may include, skin irritation, irritation of eyes and nose, cough and/or shortness of breath.

**Indication of Immediate Medical Attention & Special Treatment Needed:** Seek medical attention if irritation persists.

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**Section 5 - FIRE-FIGHTING MEASURES**

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**Suitable Extinguishing Media:** Dry chemical or CO<sub>2</sub>.

**Unsuitable Extinguishing Media:** None: Use extinguishing agent suitable for type of surrounding fire.

**Specific Hazards Arising from the Chemical:** Products of combustion may include, and are not limited to: oxides of carbon.

**Special Protective Equipment and Precautions for Firefighters:** Keep upwind of fire. Vapors may cause dizziness or asphyxiation without warning. Vapors from liquefied gas are initially heavier than air and spread along ground. Contact with gas or liquefied gas may cause burns, severe injury and/or frostbite. Fire may produce irritating, corrosive and/or toxic gases. Wear positive pressure self-contained breathing apparatus (SCBA). Wear chemical protective clothing that is specifically recommended by the manufacturer. It may provide little or no thermal protection. Structural firefighters' protective clothing will only provide limited protection.

**In Case of Large Fire:** Water spray, fog or regular foam. Move containers from fire area if you can do it without risk. Damaged cylinders should be handled only by specialists.

**Potential Hazards:** Some may burn but none ignite readily. Containers may explode when heated. Ruptured cylinders may rocket.

### Section 6 - ACCIDENTAL RELEASE MEASURES

**Personal Precautions, Protective Equipment and Emergency Procedures:** Use personal protection recommended in Section 8. Isolate the hazard area and deny entry to unnecessary and unprotected personnel.

**Methods and Materials for Containment and Cleaning Up:** Do not touch or walk through spilled material. Stop leak if you can do it without risk. Do not direct water at spill or source of leak. Use water spray to reduce vapors or divert vapor cloud drift. Avoid allowing water runoff to contact spilled material. If possible, turn leaking containers so that gas escapes rather than liquid. Prevent entry into waterways, sewers, basements or confined areas. Allow substance to evaporate. Ventilate the area.

**Environmental Precautions:** Report spills as required by local and national regulations. Prevent entry into storm sewers and waterways.

### Section 7 - HANDLING AND STORAGE

**Precautions for Safe Handling:** Avoid breathing mist. Avoid contact with skin and eyes. Wear protective gloves. Do not swallow. Handle and open container with care. When using do not eat, drink or smoke. Wash hands thoroughly after handling.

**Conditions for Safe Storage, Including any Incompatibilities:** Keep out of reach of children. Keep container tightly closed. Keep away from heat, sparks, open flames, and hot surfaces. Protect from sunlight. Do not expose to temperatures exceeding 50°C/122°F. Store in a well-ventilated place. (See section 10).

**NFPA 30B Classification:** Level 1 Aerosol

### Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

Control Parameters:

Chemical Name	Exposure Limits					
	OSHA PEL		ACGIH TLV		Supplier OEL	
	ppm	mg/m <sup>3</sup>	ppm	mg/m <sup>3</sup>	ppm	mg/m <sup>3</sup>

Hydrotreated light petroleum distillates	-	-	-	TWA 5; STEL 10; TWA 200 (as total hydrocarbon vapor), 8hr	-	-
Propane	TWA 1000	TWA 1800	TWA 1000	-	NIOSH REL TWA 1000	NIOSH REL TWA 1800
Isobutane	-	-	STEL 1000	-	NIOSH REL TWA 800	NIOSH REL TWA 1900
Isopropyl Alcohol	TWA 400	TWA 980	STEL 400; TWA 200	-	-	-

**Appropriate Engineering Controls:** Wear appropriate respirator or use adequate ventilation where situations arise that the exposure limits are exceeded.

**Individual Protective Measures, Such as Personal Protective Equipment:**

Eye/face protection: None required for normal use. Avoid eye contact.  
 Skin and body protection: Wash hands thoroughly after handling. Wear protective gloves.  
 Respiratory protection: None required under normal use conditions.  
 General hygiene considerations: Do not eat, drink or smoke where material is handled, processed or stored. Wash hands after handling.

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**Section 9 - PHYSICAL AND CHEMICAL PROPERTIES**

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**Appearance (physical state, color, etc.):** Clear to slightly hazy yellow liquid

**Odor:** Solvent and Pyrethroid

**Odor Threshold:** No data available

**pH:** 7.38

**Melting / Freezing Point:** No data available

**Initial boiling point and range:** No data available

**Flashpoint:** No data available

**Evaporation Rate:** No data available

**Flammability (solid, gas):** No data available

**Upper/lower flammability or explosive limits:** No data available

**Vapor pressure:** No data available

**Vapor density:** No data available

**Relative density:** 0.806

**Solubility(ies):** Soluble in water

**Partition coefficient (n-octanol/water):** No data available

**Auto-ignition temperature:** No data available

**Decomposition temperature:** No data available

**Viscosity:** No data available

**Heat of Combustion:** 4.2 kJ/g

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**Section 10 - STABILITY AND REACTIVITY**

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**Reactivity:** No dangerous reaction known under conditions of normal use.  
**Chemical stability:** Stable under normal storage conditions.  
**Possibility of hazardous reactions:** No dangerous reaction known under conditions of normal use.  
**Conditions to avoid:** Heat. Incompatible materials.  
**Incompatible materials:** None known.  
**Hazardous decomposition products:** May include, and are not limited to oxides of carbon.

**Section 11 - TOXICOLOGICAL INFORMATION**

**Information on the likely routes of exposure:** Inhalation, Ingestion and/or skin or eye contact

**Symptoms related to the physical, chemical and toxicological characteristics:**

**Inhalation:** May cause respiratory tract irritation.  
**Ingestion:** May be harmful if swallowed. May cause stomach distress, nausea or vomiting.  
**Skin contact:** Causes skin irritation. Symptoms may include redness, drying, defatting and cracking of the skin.  
**Eye contact:** May cause eye irritation. Symptoms may include discomfort or pain, excess blinking and tear production, with possible redness and swelling.

**Acute Toxicity Values:**

<b>Calculated overall Chemical Acute Toxicity Values (ATE)</b>		
LD50 (Oral)	LD50 (Dermal)	LC50 (inhalation)
>2000 mg/kg	>2000 mg/kg	>5mg/l

**Eye Contact:** Based on available data, the classification criteria are not met.  
**Skin Contact:** This product is a skin irritant.  
**Sensitization:** Based on available data, the classification criteria are not met.

**Chronic Effects-Carcinogenicity:**

<b>Ingredient</b>	<b>Chemical Listed as a Carcinogen or Potential Carcinogen (NTP, IARC, OSHA)</b>
None of the ingredients present in this product at or above 0.1% are listed as potential carcinogens on the NTP, IARC or OSHA lists.	

**Reproductive Toxicity:** Based on available data, the classification criteria are not met.  
**Germ Cell Mutagenicity:** Based on available data, the classification criteria are not met.  
**STOT-single exposure:** Based on available data, the classification criteria are not met.  
**STOT-repeated exposure:** Based on available data, the classification criteria are not met.  
**Aspiration hazard:** Based on available data, the classification criteria are not met.

**Comment:** All information was generated using the GHS classification criteria for mixtures

and test data where available.

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### Section 12 - ECOLOGICAL INFORMATION

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<b>Ecotoxicity:</b>	This product is not expected to be harmful to aquatic organisms.
<b>Persistence and degradability:</b>	No data available
<b>Bioaccumulative potential:</b>	No data available
<b>Mobility in soil:</b>	No data available
<b>Other adverse effects:</b>	No data available

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### Section 13 - DISPOSAL CONSIDERATIONS

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Dispose of in accordance with all local, state,/provincial and federal regulations. For more information see product label.

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### Section 14 - TRANSPORTATION INFORMATION

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<b>DOT:</b>	UN Number:	UN1950
	Proper Shipping Name:	Aerosols
	Hazard Class:	2.1
	Packing Group:	None
	Limited Quantity:	≤1L
<b>IATA:</b>	UN Number:	UN1950
	Proper Shipping Name:	Aerosols
	Hazard Class:	2.1
	Packing Group:	None
<b>IMDG:</b>	UN Number:	UN1950
	Proper Shipping Name:	Aerosols
	Hazard Class:	2.1
	Packing Group:	None
	Limited Quantity:	≤1L
	Marine Pollutant:	Yes (Lambda-Cyhalothrin)

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### Section 15 - REGULATORY INFORMATION

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#### US EPA Label Information:

**EPA Pesticide Registration Number** 9688-190-8845

#### **Federal Insecticide, Fungicide, Rodenticide Act Regulations**

This chemical is a pesticide product registered by the Environmental Protection Agency and is subjected to certain labeling requirements under the federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets, and for workplace labels of non-pesticide chemicals. Following is the hazard information as required on the pesticide label:

#### **EPA Pesticide Label**

**CAUTION:** KEEP OUT OF REACH OF CHILDREN.

Hazards to Humans and Domestic Animals

**CAUTION:** Avoid contact with skin, eyes or clothing. Wash thoroughly with soap and water after handling.

**FIRST AID: If Swallowed:** Immediately call a Poison Control Center or doctor. Do not induce vomiting unless told to do so by a Poison Control Center or doctor. Do not give any liquid to the person. Do not give anything by mouth to an unconscious person. **If on Skin or Clothing:** Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a Poison Control Center or doctor for treatment advice. Have the product container with you when calling a Poison Control Center or doctor, or going for treatment. **Note to Physician:** Contains petroleum distillates — vomiting may cause aspiration pneumonia.

**ENVIRONMENTAL HAZARDS:** This pesticide is toxic to fish. Do not apply directly to water.

**PHYSICAL HAZARDS:** Contents under pressure. Do not use or store near heat or open flame. Do not puncture or incinerate container. Exposure to temperatures above 130°F may cause bursting.

**STORAGE AND DISPOSAL: Storage:** Store in cool, dry area away from heat or open flame.

**Disposal:** Do Not Puncture or Incinerate! **If empty:** Place in trash or offer for recycling if available. **If partly filled:** Call your local solid waste agency for disposal instructions.

**EPA TSCA Inventory:** All of the components of this product are either on the Toxic Substances Control Act (TSCA) Inventory List or exempt.

**SARA Hazard Category (311/312):** See OSHA hazards listed in section 2.

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**Disclaimer:** Information contained herein was obtained from sources considered technically accurate and reliable. While every effort has been made to ensure full disclosure of product hazards, in some cases data is not available and is so stated. Since conditions of actual product use are beyond control of the supplier, it is assumed that users of this material have been fully trained according to the requirements of all applicable legislation and regulatory instruments. No warranty, expressed or implied, is made and supplier will not be liable for any losses, injuries or consequential damages which may result from the use of or reliance on any information contained in this document.

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#### Section 16 - OTHER INFORMATION

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Issue date: September 5, 2018  
Revision date: June 22, 2022  
Version number: 1.4

SHAKE WELL BEFORE USING • AGITE BIEN ANTES DE USAR

**Spectracide® Foaming Wasp & Hornet Killer Is Designed To Kill Wasps, Hornets & Yellow Jackets. This Product Also Kills Carpenter Ants, Harvester Ants, Mud Daubers, Scorpions, Spiders (Including Black Widow & Brown Recluse) & Tent Caterpillars Water-Based • Non-Staining\* • No Oily Residue**

**STOP. READ ENTIRE LABEL BEFORE USE.**

**DIRECTIONS FOR USE**

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. **Never use indoors.**

**USE RESTRICTIONS**

- **THIS PRODUCT IS FOR OUTDOOR USE ONLY.**
- This product is not intended for indoor residential use.
- Do not apply directly into sewers or drains, or to any area like a gutter where drainage to storm sewers, storm drains, water bodies or aquatic habitat can occur. Do not allow the product to enter any drain during or after application.
- Do not allow adults, children or pets to enter the treated area or contact treated surfaces until sprays have dried.
- Do not apply this product in a way that will contact adults, children or pets, either directly or through drift. Keep people and pets out of the area during application. Exit area immediately and remain outside the treated area until sprays have dried.
- Do not use this product on or electrical equipment due to possibility of shock hazard.
- Do not apply directly to or near water, storm drains, gutters, sewers or drainage ditches. Do not apply when windy. Do not water the treated area(s) to the point of runoff, or apply when raining or when rain is expected that day.
- All outdoor applications, if permitted elsewhere on this label, must be limited to spot or crack-and-crevice treatments only, except for the following permitted uses:
  1. Treatment to soil or vegetation around structures
  2. Applications to lawns, turf and other vegetation

Outdoor use is limited to spot treatments only. Broadcast applications are prohibited.

**APPLICATION INFORMATION**

**WASPS, HORNETS, MUD DAUBERS AND YELLOW JACKETS:**

1. Apply at sunset when insects are least active. To avoid contact with pesticide, apply with wind at your back. Shake can well before each use.
2. Stand up to 20 ft away from nest. Aim at nest and push button to begin spraying. Slowly walk toward the nest while continuing to spray until nest is soaked. Do not stand directly underneath nest.
3. Focus spray on the nest. Do not target individual wasps, hornets, mud daubers or yellow jackets.
5. Wait at least 24 hours before removing the nest.

Use of this product on evergreen and holly is not recommended as damage may result.

\*This product is non-staining to most home siding depending on age and cleanliness. Before using in areas where the spray may contact home siding, test in an inconspicuous area and recheck in a few hours.

**OTHER PESTS**

**Tent Caterpillars:** Apply in the late afternoon or evening when caterpillars have returned to their tents. Scat them out on all sides. **Spiders and Scorpions:** Stand at a safe distance and use the power of the jet spray to reach tent and cover the spider or scorpion. **Ants (excluding Fire Ants and Pharaoh Ants):** Spray trails, nest and point of entry. Spray on ants where possible.

**STORAGE AND DISPOSAL**

Do not contaminate water, food or feed by storage or disposal. **Pesticide Storage:** Store in a cool, dry (preferably locked) place that is away from heat or open flame, and in an area that is inaccessible to children and pets. **Pesticide Disposal and Container Handling:** Do not Puncture or Incinerate! If empty: Place in trash or other for recycling if available. If partly filled: Call your local solid waste agency for disposal instructions.

**PRECAUTIONARY STATEMENTS**

**Hazards to Humans and Domestic Animals**

**CAUTION.** Wash hands thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals.

**User Safety Recommendations**

Users should wash hands before eating, drinking, chewing gum, using tobacco or using the toilet. Users should remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.

**Environmental Hazards**

This product is extremely toxic to fish and aquatic invertebrates. Do not apply directly to water or to areas where surface water is present, or to intertidal areas below the mean water mark. Do not apply when weather conditions favor drift from treated areas. Drift and runoff from treated areas may be hazardous to aquatic organisms in neighboring areas. Do not contaminate water when disposing of equipment washwaters.

This pesticide is highly toxic to bees exposed to direct treatment on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops or weeds while bees are foraging the treatment area.

**Physical and Chemical Hazards**

**Contents under pressure.** Do not use or store near heat or open flame. Do not puncture or incinerate container. Exposure to temperatures above 130°F may cause bursting.

**NOTICE:** To the extent consistent with applicable law, buyer assumes all responsibility for safety and use not in accordance with directions.

**Questions or Comments?**  
Call 1-800-917-5438 or visit our website at [www.spectracide.com](http://www.spectracide.com)

**ALTO. LEA TODA LA ETIQUETA ANTES DE USAR.**

**MODO DE EMPLEO**

Se considera una violación a la ley federal usar este producto de una manera que no sea la indicada en la etiqueta. **Nunca lo use en espacios interiores.**

**RESTRICCIONES DE USO**

- **ESTE PRODUCTO ES SOLO PARA USAR EN ESPACIOS EXTERIORES.**
- Este producto no es para uso residencial en espacios interiores.
- No lo aplique directamente a alcantarillas o drenajes, así como a cualquier zona similar a una cuneta en la que pueda producirse el drenaje a alcantarillas, drenajes pluviales, masas de agua o hábitats acuáticos. No permita que el producto entre en ningún drenaje durante o después de su aplicación.
- No permita que los adultos, los niños ni las mascotas entren en la zona tratada o tengan contacto con las zonas tratadas hasta que los rocíos se hayan secado.
- No aplique este producto de modo que entre en contacto con adultos, niños o mascotas, ya sea directamente o por arrastre. Mantenga a las personas y mascotas fuera de la zona durante la aplicación. Salga de la zona inmediatamente y quédese fuera de la zona tratada hasta que los rocíos se hayan secado.
- No use este producto en, ni sobre, equipos eléctricos debido a la posibilidad de choque eléctrico.
- No lo aplique directamente: ni cerca de, agua, drenajes pluviales, cunetas, alcantarillas ni zanjas de drenaje. No lo aplique cuando haya viento. No riegue la(s) zona(s) tratada(s) hasta el punto de escurrimiento ni aplique cuando esté lloviendo o se espera que llueva ese día.
- Todas las aplicaciones en espacios exteriores, si se permite en otra parte de esta etiqueta, deben limitarse a tratamientos localizados o para tratar grietas y agaldras exclusivamente, salvo los siguientes usos permitidos:
  1. Tratamiento del suelo o vegetación alrededor de estructuras
  2. Aplicaciones a céspedes y otra vegetación

El uso en espacios exteriores se limita a tratamientos localizados solamente. Se prohíbe la aplicación al viento.

**INFORMACIÓN SOBRE LA APLICACIÓN**

**AVISPAS, AVISPONES, AVISPAS ALFARERAS Y AVISPAS CON PINTAS AMARILLAS:**

1. Aplique al anochecer cuando la actividad de los insectos es mínima. Para evitar tener contacto con el pesticida, aplíquelo de espaldas al viento.
2. Agite bien la lata antes de cada uso.
3. Manténgase alejado alrededor de 20 pies del nido. Agunte al nido y oprima el botón para comenzar a rociar. Camine lentamente hacia el nido mientras continúa rociando hasta que el nido esté bien mojado. No se pare directamente debajo del nido.
4. Dirija el rocío al nido. No lo dirija a las avispas, avispones, avispas alfareras o avispos con pintas amarillas individuales.
5. Espere por lo menos 24 horas antes de retirar el nido.

No se recomienda usar este producto en acechos y perennes porque puede ocasionar daños.

\*Este producto en general no mancha la mayoría de los revestimientos del hogar, dependiendo de la antigüedad y limpieza de los mismos. Antes de utilizarlo en zonas donde el rocío pueda entrar en contacto con los revestimientos del hogar, pruébelo en un lugar que no sea muy visible y verifique su efecto unas horas más tarde.

**OTROS INSECTOS NOCIOSOS**

**Gusanos tenderos:** Aplíquelo al atardecer o al anochecer cuando los gusanos han regresado a su morada. Empape las moradas por todos los lados. **Arañas y alacranes:** Párese a una distancia segura y use la potencia del chorro de rocío para alcanzar y cubrir la araña o el alacran. **Hormigas (excluyendo las hormigas bravas y las hormigas traenaras):** Rocíe los caminos, nidos y lugares de entrada. Rocíe a las hormigas cuando sea posible.

**ALMACENAMIENTO Y ELIMINACIÓN**

No contamine el agua ni los alimentos para personas o animales por medio del almacenamiento o la eliminación. **Almacenamiento del pesticida:** Guárdelo en un lugar fresco y seco (preferiblemente cerrado con llave), lejos del calor y del fuego y en un área que no sea accesible a los niños ni a las mascotas. **Eliminación del pesticida y mantenimiento del envase:** No lo perforo ni incineré. Si está vacío: Tírela en la basura o ofrídalo para reciclar, si existe esa opción. Si está parcialmente vacío: Llame a su servicio de eliminación de desechos más cercano para obtener instrucciones de eliminación.

**DECLARACIONES PREVENTIVAS**

**Riesgos para los seres humanos y los animales domésticos**

**PRECAUCIÓN.** Lávese muy bien las manos con agua y jabón después de manipularlo y antes de comer, beber, masticar chicle, usar tabaco o usar el baño. El contacto prolongado o reiterado con la piel puede causar reacciones alérgicas en algunas personas.

**Recomendaciones de seguridad para el usuario**

Los usuarios se deben lavar las manos antes de comer, beber, masticar chicle, usar tabaco o usar el baño. Los usuarios deberán quitarse la ropa inmediatamente si el pesticida pasa a través de la misma. Luego debe lavarse muy bien y ponerse ropa limpia.

**Riesgos para el medio ambiente**

Este producto es extremadamente tóxico para los peces y los invertebrados acuáticos. No lo aplique directamente al agua o a zonas donde haya aguas superficiales o áreas intemerales por debajo del nivel promedio de la marea. No lo aplique cuando las condiciones climáticas favorezcan el arrastre desde las zonas tratadas. El arrastre y el escurrimiento desde las zonas tratadas pueden resultar peligrosos para los organismos acuáticos de las zonas vecinas. No contamine el agua cuando elimine las aguas de lavado del equipo.

Este pesticida es sumamente tóxico para las abejas aqueadas al tratamiento directo en las malezas o los cultivos en flor. No aplique este producto ni permita que pase a los cultivos o malezas en flor en caso que haya abejas buscando alimento por la zona de tratamiento.

**Riesgos físicos y químicos**

**Contenido bajo presión.** No lo use ni guarde cerca de una fuente de calor ni del fuego. No perforo ni incineré el envase. La exposición a una temperatura superior a 130°F puede causar explosiones.

**NOTA:** Hasta el grado que sea compatible con la legislación pertinente, el comprador asume toda la responsabilidad para seguridad y uso que no estén de acuerdo con las instrucciones.

¿Preguntas o comentarios? Llame al 1-800-917-5438.

**Kills The Nest**  
**MONEY BACK GUARANTEE!**

**Spectracide®**

**FOAMING WASP & HORNET KILLER**

Espuma insecticida para avispas y avispones

**Blanketing Foam Kills By Contact**



**Up To 20 ft Jet Spray**

Distributed by Spectrum Group  
Division of United Industries Corporation  
PO Box 142642, St. Louis, MO 63114-0642  
EPA Reg. No. 9688-325-8845  
EPA Est. Nos. 9688-MO-1 (U), 3657-WI-2 (U)  
58996-MO-1 (E)  
Circled letter is first letter of lot number.  
17-19897 © 2024 UIC. All Rights Reserved.

DOT 2P

**\*MONEY BACK GUARANTEE**

If you are not satisfied with this product for any reason, send your written request for a refund to the address at left, together with the original dated store receipt showing the price you paid. Please allow 6-8 weeks for processing.

FPO UPC  
0 71121 97404 4

For Outdoor Use Only  
Solo para usar en espacios exteriores

Active Ingredients:

Prallethrin	0.02%
Cypermethrin	0.04%
Other Ingredients	99.94%
Total	100.00%

\*For terms of guarantee, see back.

KEEP OUT OF REACH OF CHILDREN  
**CAUTION** See back for additional  
precautionary statements.

**MANTÉNGASE FUERA DEL ALCANCE DE LOS NIÑOS**

**PRECAUCIÓN** Consulte la parte posterior para conocer las  
declaraciones preventivas adicionales.

**Net Wt 14 oz (396 g)**

## 1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

**Product identifier**

**Product Name** SpeedZone® Broadleaf Herbicide for Turf

**Other means of identification**

**Product Code** PBI FP 6541046

**EPA Pesticide Registration Number** 2217-833

**Product Size** 30 U. S. Gal.

**Recommended use of the chemical and restrictions on use**

**Recommended Use** Herbicide.

**Uses advised against** No information available.

**Details of the supplier of the safety data sheet**

**Supplier**  
PBI Gordon Corporation  
1217 West 12th Street  
Kansas City, MO 64101

**Manufacturer**  
PBI Gordon Corporation  
1217 West 12th Street  
Kansas City, MO 64101

**Company Name**  
PBI Gordon Corporation  
1217 West 12th Street  
Kansas City, MO 64101

**Emergency telephone number**

**Emergency Telephone** Chemtrec 1-800-424-9300

## 2. HAZARDS IDENTIFICATION

**Classification**

**OSHA Regulatory Status**

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)


Acute Oral Toxicity	Category 4
Acute dermal toxicity	Category 3
Acute Inhalation Toxicity - Gases	Category 3
Acute Inhalation Toxicity - Dusts and Mists	Category 4
Serious eye damage/eye irritation	Category 1
Skin Sensitization	Category 1
Germ cell mutagenicity	Category 1B
Aspiration Toxicity	Category 1

**Label elements**

**Emergency Overview**

**Danger**

**Hazard statements**  
Causes serious eye damage. May cause an allergic skin reaction. May cause genetic defects. May be fatal if swallowed and enters airways.



**Appearance** Liquid **Physical State @20°C** Liquid **Odor** Esters

**Precautionary Statements - Prevention**

- Obtain special instructions before use
- Do not handle until all safety precautions have been read and understood
- Use personal protective equipment as required
- Wash face, hands and any exposed skin thoroughly after handling
- Do not eat, drink or smoke when using this product
- Avoid breathing dust/fume/gas/mist/vapors/spray
- Use only outdoors or in a well-ventilated area
- Contaminated work clothing should not be allowed out of the workplace
- Wear protective gloves

**Precautionary Statements - Response**

- IF exposed or concerned: Get medical advice/attention
- IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
- IF ON SKIN: Wash with plenty of soap and water
- Call a POISON CENTER or doctor/physician if you feel unwell
- Remove/Take off immediately all contaminated clothing
- Wash contaminated clothing before reuse
- If skin irritation or rash occurs: Get medical advice/attention
- IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
- Call a POISON CENTER or doctor/physician
- Rinse mouth
- IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
- Do NOT induce vomiting

**Precautionary Statements - Storage**

- Store locked up
- Store in a well-ventilated place. Keep container tightly closed

**Precautionary Statements - Disposal**

- Dispose of contents/container to an approved waste disposal plant

**Hazards not otherwise classified (HNOC)**

Have the product label with you when calling a poison control center or doctor or going in for treatment. You may also contact 1-877-800-5556 for emergency medical treatment advice.

**Other Information**

**3. COMPOSITION/INFORMATION ON INGREDIENTS**

Chemical Name	CAS. Number	Weight %
2,4-D, 2-ethylhexyl ester	1928-43-4	28.57
Trade Secret	Proprietary	20-30*
R(+)-2(2 Methyl-4-chlorophenoxy)propionic acid (MCPP)	16484-77-8	5.88
3,6-Dichloro-o-anisic acid (Dicamba)	1918-00-9	1.71
Carfentrazone-ethyl	128639-02-1	0.62
Trade Secret	Proprietary	0-10*

\* The exact percentage (concentration) of composition has been withheld as a trade secret

**4. FIRST AID MEASURES**

**First aid measures**

**General advice** If symptoms persist, call a physician. Do not breathe dust/fume/gas/mist/vapors/spray. Do

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	not get in eyes, on skin, or on clothing.
<b>Eye contact</b>	Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Keep eye wide open while rinsing. If symptoms persist, call a physician.
<b>Skin Contact</b>	Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. If skin irritation persists, call a physician.
<b>Inhalation</b>	Remove to fresh air. If breathing is irregular or stopped, administer artificial respiration. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation. Move to fresh air in case of accidental inhalation of vapors or decomposition products. If symptoms persist, call a physician.
<b>Ingestion</b>	Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Call a physician immediately. Vomiting may cause aspiration pneumonia.
<b>Self-protection of the first aider</b>	Use personal protective equipment as required.

**Most important symptoms and effects, both acute and delayed**

**Symptoms** No information available.

**Indication of any immediate medical attention and special treatment needed**

**Note to physicians** May cause sensitization of susceptible persons. Treat symptomatically. Contains petroleum distillate - vomiting may cause aspiration pneumonia.

**5. FIRE-FIGHTING MEASURES**

**Suitable extinguishing media**

Foam. Carbon dioxide (CO<sub>2</sub>). Dry chemical.

**Specific hazards arising from the chemical**

In the event of fire and/or explosion do not breathe fumes. May cause sensitization by inhalation and skin contact. Thermal decomposition can lead to release of irritating and toxic gases and vapors.

**Explosion data**

**Sensitivity to Mechanical Impact** None.

**Sensitivity to Static Discharge** None.

**Protective equipment and precautions for firefighters**

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

**6. ACCIDENTAL RELEASE MEASURES**

**Personal precautions, protective equipment and emergency procedures**

**Personal precautions** Avoid contact with skin, eyes or clothing. Use personal protective equipment as required. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

**Environmental precautions**

**Environmental precautions** Prevent entry into waterways, sewers, basements or confined areas. Do not flush into surface water or sanitary sewer system. Prevent further leakage or spillage if safe to do so. Prevent product from entering drains. See Section 12 for additional ecological information.

**Methods and material for containment and cleaning up**

**Methods for containment** Prevent further leakage or spillage if safe to do so.

**Methods for cleaning up** Cover liquid spill with sand, earth or other non-combustible absorbent material. Use personal protective equipment as required. Dam up. Take up mechanically, placing in appropriate containers for disposal. Clean contaminated surface thoroughly. Soak up with inert absorbent material. Pick up and transfer to properly labeled containers.

**7. HANDLING AND STORAGE**

**Precautions for safe handling**

**Advice on safe handling** Avoid contact with skin, eyes or clothing. Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Use personal protective equipment as required. Do not breathe dust/fume/gas/mist/vapors/spray. Use with local exhaust ventilation.

**Conditions for safe storage, including any incompatibilities**

**Storage Conditions** Keep container tightly closed in a dry and well-ventilated place. Keep out of the reach of children. Keep in properly labeled containers. Keep from freezing.

**Incompatible materials** None known.

**8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

**Control parameters**

**Exposure Guidelines**

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
2,4-D, 2-ethylhexyl ester 1928-43-4	TWA: 10 mg/m <sup>3</sup> inhalable fraction S*	TWA: 10 mg/m <sup>3</sup>	IDLH: 100 mg/m <sup>3</sup> , TWA: 10 mg/m <sup>3</sup>

*NIOSH IDLH Immediately Dangerous to Life or Health*

**Other Information** Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962 (11th Cir., 1992).

**Appropriate engineering controls**

**Engineering Controls** Ensure adequate ventilation, especially in confined areas.

**Individual protection measures, such as personal protective equipment**

**Eye/face protection** Tight sealing safety goggles. Face protection shield.

**Skin and body protection** Wear long-sleeved shirt, long pants, socks and shoes. Chemical resistant gloves.

**Respiratory protection** If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

**General Hygiene Considerations** When using do not eat, drink or smoke. Wash contaminated clothing before reuse. Regular cleaning of equipment, work area and clothing is recommended.

**9. PHYSICAL AND CHEMICAL PROPERTIES**

**Information on basic physical and chemical properties**

<b>Physical State @20°C</b>	Liquid	<b>Odor</b>	Esters
<b>Appearance</b>	Liquid	<b>Odor threshold</b>	No information available
<b>Color</b>	Amber		

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
pH	Not Applicable	
Melting point/freezing point	<35 °F	
Boiling point / boiling range	> 93 °C / 200 °F	
Flash point	> 94 °C / > 201 °F	Pensky-Martens Closed Cup (PMCC)
Evaporation rate	< 1	
Flammability (solid, gas)	No information available	
Flammability Limit in Air		
Upper flammability limit:	No information available	
Lower flammability limit:	No information available	
Vapor pressure	No information available	
Vapor density	No information available	
Specific Gravity	0.9665	
Water solubility	Emulsifiable	
Solubility in other solvents	No information available	
Partition coefficient	No information available	
Autoignition temperature	No information available	
Decomposition temperature	No information available	
Oxidizing properties	No information available	

**Other Information**

Density VALUE 8.05 pounds/gallon

**10. STABILITY AND REACTIVITY**

**Reactivity**

No data available

**Chemical stability**

Stable.

**Possibility of Hazardous Reactions**

None under normal processing.

**Hazardous polymerization**

Will not occur.

**Conditions to avoid**

Keep from freezing.

**Incompatible materials**

None known.

**Hazardous Decomposition Products**

May emit toxic fumes under fire conditions. Hydrogen chloride. Nitrogen oxides (NOx). Carbon monoxide.

**11. TOXICOLOGICAL INFORMATION**

**Information on likely routes of exposure**

**Product Information**

<b>Inhalation</b>	Irritant, moderate respiratory.
<b>Eye contact</b>	Moderately irritating to the eyes.
<b>Skin Contact</b>	Moderate skin irritation.
<b>Ingestion</b>	Ingestion of large amounts can cause abdominal discomfort, nausea, and vomiting.

Chemical Name	LD50 Oral VALUE (mg/kg)	LD50 Dermal VALUE	LC50 Inhalation (DUST) VALUE
2,4-D, 2-ethylhexyl ester 1928-43-4	= 300 mg/kg ( Rat )	-	-
Trade Secret	> 5000 mg/kg ( Rat )	> 2000 mg/kg ( Rabbit )	> 5.2 mg/L ( Rat ) 4 h
R(+)-2(2-Methyl-4-chlorophenoxy)propionic acid (MCPP) 16484-77-8	= 1050 mg/kg ( Rat )	> 4 g/kg ( Rat )	-
3,6-Dichloro-o-anisic acid (Dicamba) 1918-00-9	= 1039 mg/kg ( Rat )	> 1 g/kg ( Rat ) > 2 g/kg ( Rabbit )	-
Trade Secret	= 8400 mg/kg ( Rat )	> 2000 mg/kg ( Rabbit )	= 3400 ppm ( Rat ) 4 h

**Information on toxicological effects**

**Symptoms** No information available.

**Delayed and immediate effects as well as chronic effects from short and long-term exposure**

**Sensitization** May cause sensitization by skin contact.  
**Germ cell mutagenicity** No information available.  
**Carcinogenicity** The International Agency for Research on Cancer (IARC) lists chlorophenoxy herbicides in its Group 2B (limited evidence for Carcinogenicity in humans.) The US EPA has given the chlorophenoxy Herbicides 2,4-D, 2,4-DP, MCPP, and MCPA a Class D classification (not classifiable as to human carcinogenicity.) More current 2,4-D lifetime feeding studies in rats and mice did not show carcinogenic effects and a recent World Health Organization (WHO) review of 2,4-D toxicology has concluded that 2,4-D is not a carcinogen. The table below indicates whether each agency has listed any ingredient as a carcinogen.

Chemical Name	ACGIH	IARC	NTP	OSHA
2,4-D, 2-ethylhexyl ester 1928-43-4		Group 2B		X
R(+)-2(2-Methyl-4-chlorophenoxy)propionic acid (MCPP) 16484-77-8		Group 2B		X

IARC (International Agency for Research on Cancer)  
 Group 2B - Possibly Carcinogenic to Humans  
 OSHA (Occupational Safety and Health Administration of the US Department of Labor)  
 X - Present

**Reproductive toxicity** No information available.  
**STOT - single exposure** No information available.  
**STOT - repeated exposure** No information available.  
**Chronic toxicity** Repeated contact may cause allergic reactions in very susceptible persons. Avoid repeated exposure.  
**Aspiration hazard** Vomiting may cause aspiration pneumonia.

**Numerical measures of toxicity - Product Information**

**Unknown Toxicity** 32 % of the mixture consists of ingredient(s) of unknown toxicity  
**LD50 Oral VALUE (mg/kg)** > 2000 mg/kg Rat-male Rat-female  
**LD50 Dermal VALUE** > 1000 mg/kg  
**LC50 Inhalation (DUST) VALUE** > 2.06 mg/L Rat-male Rat-female

The following values are calculated based on chapter 3.1 of the GHS document  
**ATEmix (inhalation-gas)** 1864 mg/L

**12. ECOLOGICAL INFORMATION**

**Ecotoxicity**

Very toxic to aquatic life with long lasting effects This pesticide is toxic to fish and aquatic invertebrates and may adversely affect non-target plants. DO NOT apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark Drift and runoff may be hazardous to aquatic organisms in water adjacent to treated areas. DO NOT contaminate waters when disposing of equipment wash waters or rinsate

33% of the mixture consists of component(s) of unknown hazards to the aquatic environment

Chemical Name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
2,4-D, 2-ethylhexyl ester 1928-43-4	30: 120 h Pseudokirchneriella subcapitata mg/L EC50 30: 120 h Pseudokirchneriella subcapitata mg/L EC50 static	6 - 8.7: 96 h Oncorhynchus mykiss mg/L LC50 flow-through 7.8: 96 h Oncorhynchus mykiss mg/L LC50 static 11.5: 96 h Lepomis macrochirus mg/L LC50 static		
Trade Secret		2.2: 96 h Lepomis macrochirus mg/L LC50 static 2.4: 96 h Oncorhynchus mykiss mg/L LC50 static 45: 96 h Pimephales promelas mg/L LC50 flow-through		4720: 96 h Den-dronereides heteropoda mg/L LC50
Trade Secret		9.22: 96 h Oncorhynchus mykiss mg/L LC50		6.14: 48 h Daphnia magna mg/L EC50

**Persistence and degradability**

No information available.

**Bioaccumulation**

No information available.

**Other adverse effects**

No information available

**13. DISPOSAL CONSIDERATIONS**

**Waste treatment methods**

**Disposal of wastes** Disposal should be in accordance with applicable regional, national and local laws and regulations.

**Contaminated packaging** Do not reuse container, unless specified by the manufacturer.

**US EPA Waste Number** No information available

**14. TRANSPORT INFORMATION**

**DOT**

**Proper Shipping Name** For package sizes less than 43.48 gallons: product is non-regulated.

**Description** For package sizes 43.48 gallons or greater: UN3082, Environmentally Hazardous Substances, Liquid, N.O.S., 9, PGIII, RQ (2,4-D)  
The following guidelines apply for domestic ground transport. If shipping by air or ocean, please contact our Transportation Dept.

PESTICIDES, NOI, INCLUDING DEFOLIANTS, FUNGICIDES, HERBICIDES, OR INSECTICIDES NMFC 155050-6

If shipped in bulk containers (greater than 119 gallons), this product is a Marine Pollutant.

When shipped as a Hazardous Material, label required is Class 9 (Miscellaneous).

Placards required on bulk shipments only.

**15. REGULATORY INFORMATION**

**U.S. EPA Label Information**

**EPA Pesticide Registration Number** 2217-833

**Federal Insecticide, Fungicide, Rodenticide Act Regulations**

This chemical is a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets, and for workplace labels of non-pesticide chemicals. Following is the hazard information as required on the pesticide label:

**EPA Pesticide Label**

CAUTION

KEEP OUT OF REACH OF CHILDREN

Hazards to Human and Domestic Animals

CAUTION: Causes moderate eye irritation. Harmful if absorbed through the skin. Avoid contact with skin, eyes, or clothing. Harmful if swallowed. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals.

Environmental Hazards

This pesticide is toxic to fish and aquatic invertebrates and may adversely affect non-target plants. Do not apply directly to water, to areas where surface water is present, or to intertidal areas below the mean high water mark. Drift and runoff may be hazardous to aquatic organisms in water adjacent to treated areas. Do not contaminate water when disposing of equipment wash waters or rinsate. This chemical has properties and characteristics associated with chemicals detected in groundwater.

The use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in groundwater contamination. Application around a cistern or well may result in contamination of drinking water or groundwater.

**International Inventories**

<b>TSCA</b>	Not Listed
<b>DSL/NDSL</b>	Not Listed
<b>EINECS/ELINCS</b>	Not Listed
<b>ENCS</b>	Not Listed
<b>IECSC</b>	Not Listed
<b>KECL</b>	Not Listed
<b>PICCS</b>	Not Listed
<b>AICS</b>	Not Listed

**Legend:**

**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory

**DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List

**EINECS/ELINCS** - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances

**ENCS** - Japan Existing and New Chemical Substances

**IECSC** - China Inventory of Existing Chemical Substances

**KECL** - Korean Existing and Evaluated Chemical Substances

**PICCS** - Philippines Inventory of Chemicals and Chemical Substances

**AICS** - Australian Inventory of Chemical Substances

Chemical Name	TSCA	DSL	NDSL	EINECS	ELINCS	ENCS	IECSC	KECL	PICCS	AICS
2,4-D, 2-ethylhexyl ester				X						
Trade Secret	X	X		X			X	X	X	X
R(+)/2(2 Methyl-4-chlorophenoxy)propionic acid (MCPP)				X						
3,6-Dichloro-o-anisic acid (Dicamba)				X		X		X	X	X
Carfentrazone-ethyl							X			
Trade Secret	X	X		X			X	X	X	X

**US Federal Regulations**

**SARA 313**

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical

or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

Chemical Name	SARA 313 - Threshold Values %
2,4-D, 2-ethylhexyl ester - 1928-43-4	0.1
3,6-Dichloro-o-anisic acid (Dicamba) - 1918-00-9	1.0

**SARA 311/312 Hazard Categories**

<b>Acute health hazard</b>	Yes
<b>Chronic Health Hazard</b>	No
<b>Fire hazard</b>	No
<b>Sudden release of pressure hazard</b>	No
<b>Reactive Hazard</b>	No

**CWA (Clean Water Act)**

This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

Chemical Name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
2,4-D, 2-ethylhexyl ester 1928-43-4	100 lb			
3,6-Dichloro-o-anisic acid (Dicamba) 1918-00-9	1000 lb			X

**CERCLA**

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Chemical Name	Hazardous Substances RQs	CERCLA/SARA RQ	Reportable Quantity (RQ)
2,4-D, 2-ethylhexyl ester 1928-43-4	100 lb		RQ 100 lb final RQ RQ 45.4 kg final RQ
3,6-Dichloro-o-anisic acid (Dicamba) 1918-00-9	1000 lb		RQ 1000 lb final RQ RQ 454 kg final RQ

**US State Regulations**

**U.S. State Right-to-Know Regulations**

Chemical Name	New Jersey	Massachusetts	Pennsylvania
2,4-D, 2-ethylhexyl ester 1928-43-4	X		
3,6-Dichloro-o-anisic acid (Dicamba) 1918-00-9	X	X	X

**International Regulations**

**Mexico - Grade** Moderate risk, Grade 2

**16. OTHER INFORMATION**

<b>NFPA</b>	Health hazards 2	Flammability 1	Instability 0	Physical and Chemical Properties -
<b>HMIS</b>	Health hazards 2	Flammability 1	Physical hazards 0	Personal protection X

**Disclaimer**

The information provided in this Material Safety Data Sheet is correct to the best of PBI Gordon Corporation's knowledge, information and belief at the date of this publication. The information given is designed only as guidance for safe

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handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any other process, unless specified in the text. PBI GORDON CORPORATION MAKES NO WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR COURSE OF PERFORMANCE OR USAGE OF TRADE. Given the variety of factors that can affect the use and application of this product, some of which are uniquely within the user's knowledge and control, it is essential that the user evaluate the product to determine whether it is fit for a particular purpose and suitable for user's method of use or application. Each user is also responsible for evaluating the conditions of use and designing the appropriate protective mechanisms to prevent employee exposures, property damage, or release to the environment. PBI Gordon Corporation assumes no responsibility for injury to the recipient or third persons, or for any damage to any property resulting from misuse of the product.

**End of Safety Data Sheet**

CLICK HERE TO JUMP TO USE DIRECTIONS



# Speed Zone<sup>®</sup>

BROADLEAF HERBICIDE FOR TURF

**ACTIVE INGREDIENTS:**

Carfentrazone-ethyl .....	0.62%
2,4-D, 2-ethylhexyl ester .....	28.57%
Mecoprop-p acid .....	5.88%
Dicamba acid .....	1.71%

<b>INERT INGREDIENTS:</b> .....	63.22%
<b>TOTAL 100.00%</b>	

**THIS PRODUCT CONTAINS:**

0.05 lb. Ethyl  $\alpha$ ,2-dichloro-5-[4(difluoromethyl)-4,5-dihydro-3-methyl-5-oxo-1H-1,2,4-triazol-1-yl]-4-fluorobenzenepropanoate per gallon or 0.62%.  
 1.53 lbs. 2,4-dichlorophenoxyacetic acid equivalent per gallon or 18.95%.  
 0.48 lb. (+)-R-2-(2-methyl-4-chlorophenoxy)propionic acid equivalent per gallon or 5.88%.  
 0.14 lb. 3,6-dichloro-o-anisic acid equivalent per gallon or 1.71%.  
 Contains petroleum distillates, xylene or xylene range aromatic solvent.  
 Isomer Specific by AOAC Methods.

## KEEP OUT OF REACH OF CHILDREN CAUTION

Si Usted no entiende la etiqueta, busque a alguien para que se la explique a Usted en detalle. (If you do not understand the label, find someone to explain it to you in detail.)

See below for First Aid and additional Precautionary Statement.



**READ THE ENTIRE LABEL FIRST.  
OBSERVE ALL PRECAUTIONS AND  
FOLLOW DIRECTIONS CAREFULLY.**

### PRECAUTIONARY STATEMENTS

**Hazards to Humans and Domestic Animals**

**CAUTION:** Causes moderate eye irritation. Harmful if absorbed through the skin. Avoid contact with skin, eyes, or clothing. Harmful if swallowed. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals.

**PERSONAL PROTECTIVE EQUIPMENT:**

Some materials that are chemical resistant to this product are listed below. If you want more options, follow the instructions for category E on a EPA chemical resistance category selection chart.

**NON-WPS USES:**

Applicators and other handlers who handle this pesticide for any use NOT covered by the Worker Protection Standard (40 CFR Part 170) – in general, only agricultural-plant uses are covered by the WPS – must wear the following:

- When mixing, loading or applying this product, wear long-sleeved shirt, long pants, socks, shoes, and chemical-resistant gloves.

**Personal Hygiene Statement For Non-WPS Uses:** After using this product, rinse gloves before removing, remove clothing and launder separately before reuse, and promptly and thoroughly wash hands and exposed skin with soap and water. Remove saturated clothing as soon as possible and shower.

**Engineering Control Statements For Non-WPS Uses:**

*Containers over 1 gallon and less than 5 gallons:* Persons engaged in open pouring of this product must also wear coveralls or a chemical resistant apron.

*Containers of 5 gallons or more:* Do not open-pour from this container. A mechanical system (such as probe and pump or spigot) must be used for transferring the contents of this container. If the contents of a non-refillable pesticide container are emptied, the probe must be rinsed before removal.

**WPS USES:**

Applicators and other handlers who handle this pesticide for any uses covered by the Worker Protection Standard (40 CFR Part 170) – in general agricultural-plant uses are covered – must wear the following:

- long-sleeved shirt and long pants.
- chemical resistant gloves such as barrier laminate, nitrile rubber, neoprene rubber or Viton gloves.
- shoes plus socks.

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry. After each day of use, clothing or PPE must not be reused until it has been cleaned.

**Engineering Control Statements For WPS Uses:**

*Containers over 1 gallon and less than 5 gallons:* Mixers and loaders who do not use a mechanical system (probe and pump) to transfer the contents of this container must wear coveralls or a chemical-resistant apron in addition to the other required PPE.

*Containers of 5 or more gallons:* Do not open-pour product from this container. A mechanical system (such as a probe and pump or spigot) must be used for transferring the contents of this container. If the contents of a non-refillable pesticide container are emptied, the probe must be rinsed before removal. If the mechanical system is used in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240(d)(4)], the handler PPE requirements may be reduced or modified as specified in the WPS.

When handlers use closed systems or enclosed cabs in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240 (d)(4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

**User Safety Recommendations:**

*Users should:*

- Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.
- Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

### FIRST AID

<b>If swallowed:</b>	<ul style="list-style-type: none"> <li>• Call a poison control center or doctor immediately for treatment advice.</li> <li>• Do not induce vomiting unless told to by a poison control center or doctor.</li> <li>• Do not give any liquid to the person.</li> <li>• Do not give anything by mouth to an unconscious person.</li> </ul>
<b>If in eyes:</b>	<ul style="list-style-type: none"> <li>• 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.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
<b>If on skin:</b>	<ul style="list-style-type: none"> <li>• Take off contaminated clothing.</li> <li>• Rinse skin immediately with plenty of water for 15-20 minutes.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
<b>If inhaled:</b>	<ul style="list-style-type: none"> <li>• Move person to fresh air.</li> <li>• If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
<p>Have the product container or label with you when calling a poison control center or doctor or going for treatment. You may also contact 1-877-800-5556 for emergency medical treatment information.</p>	
<p><b>NOTE TO PHYSICIAN:</b> Contains petroleum distillates – vomiting may cause aspiration pneumonia.</p>	

## ENVIRONMENTAL HAZARDS:

Carfentrazone is very toxic to algae and moderately toxic to fish. This product is toxic to aquatic invertebrates. Drift or runoff may adversely affect aquatic invertebrates and nontarget plants. Do not apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwater. When cleaning equipment, do not pour the washwater on the ground; spray or drain over a large area away from wells and other water sources.

Most cases of groundwater contamination involving phenoxy herbicides such as 2,4-D and MCPP-p have been associated with mixing, loading and disposal sites. Caution should be exercised when handling 2,4-D and MCPP-p pesticides at such sites to prevent contamination of groundwater supplies. Use of closed systems for mixing or transferring this pesticide will reduce the probability of spills. Placement of the mixing/loading equipment on an impervious pad to contain spills will help prevent groundwater contamination.

## DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application.

For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

### AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170.

This standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 48 hours.

For early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, wear:

- coveralls over long-sleeved shirt and long pants.
- chemical resistant gloves such as barrier laminate, nitrile rubber, neoprene rubber or Viton gloves.
- shoes plus socks.

### Non-Agricultural Use Requirements

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses.

**Reentry Statement:** Do not allow people (other than applicator) or pets on treatment area during application. Do not enter treatment areas until spray has dried.

## PRODUCT DESCRIPTION:

SpeedZone® Broadleaf Herbicide for Turf (SpeedZone) contains four active ingredients including carfentrazone-ethyl that broaden the spectrum of weed control. Carfentrazone-ethyl is in the aryl triazolone family and inhibits protoporphyrinogen oxidase (Protox), a pivotal enzyme in chlorophyll production.

SpeedZone offers these advantages:

- Excellent postemergent activity with proven performance for broadleaf weed control in turfgrass.
- Superior cool weather performance.
- High selectivity (turfgrass safety) in established cool-season turfgrass and warm-season turfgrass.
- Good toxicological, environmental, and ecological properties compared to the standards.

- Carfentrazone-ethyl combinations provide rapid and effective weed control for common and troublesome weed species in turfgrass, e.g. spurge, pennywort (dollarweed), dandelion, and white clover.
- Fast acting with evidence of injury within hours. The speed of action (rate of phytotoxicity) and the early injury symptoms are unique features of carfentrazone-ethyl combinations. Generally, the injury symptoms can be noticed within hours of the application and plant death can occur within 7-14 days.

## SPRAY PREPARATION AND TANK MIXTURES:

SpeedZone is an emulsifiable concentrate intended for dilution with water. In certain applications, liquid fertilizer may replace part of the water as a diluent.

### Water as diluent:

Add one-half the required amount of water to the spray tank, then add SpeedZone slowly with agitation, and complete filling the tank with water. To prevent separation of the emulsion, mix thoroughly and continue agitation while spraying.

This product forms an emulsion and can separate upon extended or prolonged standing. Re-agitate to assure uniformity of the spray mixture.

Do not use tank additives that alter the pH of the spray solution below pH 5 or above pH 8. Buffer the spray solution to alter the pH range as appropriate.

### Liquid fertilizers as diluents:

Use suitable sources and rates of fertilizer based upon local recommendations. Refer to the mixing directions on the labels of the liquid fertilizers (eg. UAN or urea solutions). Always perform a jar compatibility test before large scale mixing.

## GROUND EQUIPMENT:

Power sprayers fitted with a boom or spray wand/gun may be used for broadcast applications and spot treatments. For best spray distribution and coverage, select a spray volume and delivery system that will ensure accurate and uniform coverage. Boom sprayers equipped with appropriate flat fan nozzles, tips, and screens are suitable for broadcast applications. Do not use flood nozzles, Raindrop®, or nozzle tips larger than 8008. Spray droplets larger than 400 microns may reduce coverage and subsequent loss in weed control.

Spray volumes of 3-175 gallons per acre with spray pressures adjusted to 20-40 psi are appropriate. Use higher spray volumes for dense weed populations.

Hand operated sprayers including backpack sprayers, compression sprayers, and knapsack sprayers are appropriate for small turfgrass areas when power equipment is unavailable, uneconomical, or impractical.

This product may cause injury to susceptible/nontarget plants at the use site by contacting the foliage, stems, or roots. To prevent injury to susceptible crops and other desirable broadleaf plants including but not limited to cotton, legumes, tobacco, tomatoes, garden/vegetable crops, and ornamentals (flowers, trees, and shrubs) avoid contact with the spray solution, spray droplets, and spray mist (fine droplets). Applications are recommended only when there is no potential hazard from spray drift during dormant and active growth periods. Do not apply when conditions are conducive to spray drift from the use site to untreated areas.

After using this product, clean sprayer with soap or detergent and water, or an approved spray tank cleaner and rinse thoroughly before applying other pesticides.

## WHERE TO USE:

SpeedZone provides selective broadleaf control in warm-season and cool-season turfgrass in five (5) use sites.

- *Institutional sites* are defined as turf areas around properties or facilities providing a service to public or private organizations including, but not limited to hospitals, nursing homes, schools, museums, libraries, sport facilities, golf courses (fairways, aprons, and roughs), and office buildings.
- *Ornamental sites* include turfgrass established around residences, parks, streets, retail outlets, cemeteries, industrial and institutional buildings, recreation areas, fairgrounds, and areas adjacent to athletic fields.
- *Residential/domestic sites* are defined as areas associated with the household or home life including, but not limited to apartment complexes, condominiums, and patient care areas of nursing homes, mental institutions, hospitals, or convalescent homes.
- *Agricultural site:* Commercial sod production.

- **Noncropland Sites:** Highway rights-of-way (principal, interstate, county, private, and unpaved roads): Roadsides, roadside ditches, road shoulders, road embankments, dividers, and medians. Municipal, state, and federal lands: Airports and military installations.

**Prohibitions of Sites:**

- Do not apply to any body of water such as lakes, streams, rivers, ponds, reservoirs, or estuaries (salt water bays). Do not apply to any shorelines (noncropland sites adjacent to the edges of a body of water) for lakes, streams, rivers, ponds, reservoirs, or estuaries (salt water bays).
- Do not apply to wetlands (swamps, bogs, potholes, or marshes).
- Do not apply to agricultural irrigation water or on agricultural irrigation ditchbanks and canals.
- Do not apply to agricultural drainage water or on agricultural ditchbanks.

**Turfgrass tolerance:**

- The turfgrass tolerance to SpeedZone may vary and temporary turfgrass yellowing may occur on certain varieties (F1) hybrids of hybrid bermudagrass. Environmental conditions and certain spray tank additives (e.g. adjuvants, wetting agents, surfactants), liquid fertilizers, and tank mixtures containing other emulsifiable concentrates may reduce the selectivity on the turfgrass.

These cool-season and warm-season turfgrass species may be treated:

**Cool-Season Turf**

Kentucky bluegrass, Annual bluegrass, Annual ryegrass, Perennial ryegrass, Tall fescue, Red or fine leaf fescues, Creeping and Colonial bentgrass (excluding golf greens) and mixtures of cool-season species in noncropland areas established for roadside vegetation management or for low maintenance. (Kentucky bluegrass, tall fescue, smooth brome grass, and orchardgrass).

**Warm-Season Turf**

Common bermudagrass, Hybrid bermudagrass and Zoysiagrass.

**Prohibitions:**

- Do not apply this product to bentgrass greens, carpetgrass, dichondra, legumes, and lawns where desirable clovers are present.

**APPLICATION SCHEDULES:**

Early postemergent applications of SpeedZone are recommended for annual, biennial, and perennial weeds. Apply SpeedZone to broadleaf weeds that are young and actively growing for the best results. SpeedZone combines a contact herbicide with systemic herbicides and provides little or no residual activity at recommended use rates.

SpeedZone may be applied as a single broadcast application or as split/sequential broadcast applications in the spring, summer, or fall. Spring and fall treatments under adequate soil moisture conditions are preferred to the summer treatments. Generally, summer broadcast applications to older, drought stressed weeds are less effective.

Sequential broadcast applications or follow-up applications as spot treatments at a 2-6 week interval are recommended for more mature weeds, for dense infestations, and for adverse environmental conditions.

Spot treatments during the summer may be appropriate for sparse infestations, or as a follow-up treatment anytime broadleaf weeds are susceptible. Apply on a spray-to-wet basis for the best results.

Extremes in environmental conditions e.g. temperature and moisture, soil conditions, and cultural practices may affect the activity of SpeedZone. Under warm moist conditions, herbicide symptoms may be accelerated. While under very dry conditions, the expression of herbicide symptoms is delayed, and weeds hardened off by drought are less susceptible to SpeedZone.

**For newly seeded areas:**

The application of SpeedZone to grass seedlings is recommended after the second mowing.

**For newly sodded, sprigged, or plugged areas:**

The application of SpeedZone to newly sodded, sprigged, or plugged grasses should be delayed until 3 to 4 weeks after the sodding, sprigging, or plugging operations.

**For dormant turf:**

Applications to dormant bermudagrass and dormant zoysiagrass are suggested.

**Prohibitions for application schedules:**

- Do not broadcast apply when air temperatures exceed 90°F; some injury may be expected with spot treatments when air temperatures exceed 90°F.

**HOW MUCH TO USE: USE RATES AND SPRAY VOLUMES FOR TURFGRASS:**

Generally, the lower application rates within the specified range will provide satisfactory control of sensitive weed species. The higher application rates within the specified range will be required for dense infestations of perennial weeds, for adverse/extreme environmental conditions, or for weeds beyond the appropriate growth stages.

The maximum application rate to turf is 1.0 pound 2,4-D acid equivalent per acre per application per site. The maximum number of broadcast applications per treatment site is 2 per year.

The maximum seasonal rate of carfentrazone-ethyl contained in this product with two (2) broadcast applications to turfgrass is 0.062 pounds of carfentrazone-ethyl per acre per season. The retreatment interval for sequential broadcast applications of this product on turfgrass is two (2) to six (6) weeks depending upon the growth stages of the target weeds.

Use rates and spray volumes of SpeedZone as a broadcast treatment for use on turfgrass are presented in Table 1.

**TABLE 1. RATE RECOMMENDATIONS FOR SOD FARMS, ORNAMENTAL LAWNS AND TURFGRASS.**

Species	Amount of Product, Pints/Acre	Spray Volume, Gallons/Acre	Amount of Product, fl. oz./1,000 sq. ft.	Spray Volume, Gallons per 1,000 sq. ft.
<b>COOL-SEASON TURF</b>				
Kentucky bluegrass, Annual bluegrass, Annual ryegrass, Perennial ryegrass, Tall fescue, Red or fine leaf fescues, Creeping and Colonial bentgrass (excluding golf greens).	3.0 - 5.0	3 - 175	1.1 - 1.8	0.1 - 4.0
Mixtures of cool-season species established for aesthetic purposes.	3.0 - 5.0	3 - 175	1.1 - 1.8	0.1 - 4.0
Mixtures of cool-season species in noncropland areas established for roadside vegetation management or for low maintenance. (Kentucky bluegrass, tall fescue, smooth brome grass & orchardgrass.)	3.0 - 5.0	3 - 175	1.1 - 1.8	0.1 - 4.0
<b>WARM-SEASON TURF</b>				
Common bermudagrass, Hybrid bermudagrass and Zoysiagrass.	2 - 4	3 - 175	0.75 - 1.5	0.1 - 4.0
<b>NOTE:</b> Maximum control of weeds will be obtained with early to mid-spring or mid to late fall applications. Higher rates, listed above, should be used in warmer temperatures (above 70°F).				

**SPOT TREATMENTS WITH HAND OPERATED SPRAYERS (INCLUDING BACKPACK SPRAYERS, COMPRESSION SPRAYERS, AND KNAPSACK SPRAYERS):**

- For cool-season turfgrass, mix 1.1-1.8 fl. oz. of SpeedZone per one (1.0) gallon of water for treatment of approximately 1,000 sq. ft of turfgrass. Apply any time the emerged broadleaf weeds are susceptible. Spray the target weeds thoroughly and wet the entire leaf surface of the undesirable plants.
- For warm-season turfgrass, mix 0.75-1.5 fl. oz. of SpeedZone per one (1.0) gallon of water for treatment of approximately 1,000 sq. ft of turfgrass. Apply any time the emerged broadleaf weeds are susceptible. Spray the target weeds thoroughly and wet the entire leaf surface of the undesirable plants.

SpeedZone may be tank mixed with other herbicides EPA-registered for use on turfgrass to broaden the weed control spectrum compared to the products alone. These tank mixtures must be used according to the most restrictive label limitations and precautions. No label dosage rate should be exceeded. Follow the labeling of each companion product for precautionary statements, directions for use, dosage rates, and application schedules. Tank mixture recommendations are for use only in states where the companion products and application site are registered.

**CULTURAL TIPS FOR IMPROVED CONTROL:**

**Irrigation:**

- Do not apply this product through any type of irrigation system.
- Do not apply this product immediately before rainfall or irrigation.
- Rainfast period: Rainfall or irrigation occurring within 3-4 hours after application of this product may reduce the effectiveness.

**Mowing:**

- Delay mowing 1 to 2 days before and after the application of this product.

**Reseeding interval:**

- Treated areas may be reseeded 2 weeks after application.

**BROADLEAF WEEDS CONTROLLED:**

SpeedZone will control or suppress the following broadleaf weeds and will control or suppress other broadleaf weeds that are susceptible to 2,4-D.

**BROADLEAF WEEDS**

Annual fleabane	Field oxeye-daisy	Poison ivy
Aster, white heath & white prairie	(*creeping oxeye)	Poison oak
Bedstraw	Field pennycress	Prostrate knotweed
Beggarticks	Filaree, whitestem & redstem	(*knotweed)
Beggarweed, creeping	Florida pusley	Puncturevine
Bindweed	Ground ivy	Purple cudweed
Birdsfoot trefoil	Groundsel	Purslane
Black medic	Hairy bittercress	Ragweed
Broadleaf plantain	Hawkweed	Redweed
Buckhorn plantain	Healall	Red sorrel
Bull thistle	Henbit	(*sheep sorrel)
Burclover	Horsenettle	Roundleaf greenbriar
Burdock, common	Horseweed	Shepherdspurse
Buttercup, creeping	Innocence	Spotted spurge
Carolina geranium	(Blue-eyed Mary)	Spurge
Carpetweed	Jimsonweed	Star-of-Bethlehem
Chickweed, common	Kochia	Sunflower
Chicory	Lambsquarters	Thistle
Cinquefoil	Lawn burweed	Velvetleaf (*buttonweed)
Clover	Lespedeza, common	Venice mallow
Cocklebur	Mallow, common	<i>Veronica</i>
Common mullein	Matchweed	(*corn speedwell)
Compassplant	Mouseear chickweed	Virginia buttonweed
Curly dock	Mustard	Virginia creeper
Dandelion	Nettle	Western salsify
Dayflower	Old world diamond flower	White clover (*Dutch clover, honeysuckle clover, white trefoil, & purplewort)
Deadnettle	<i>Oxalis</i>	Wild carrot
Dock	(*yellow woodsorrel & creeping woodsorrel)	Wild garlic
Dogfennel	Parsley-piert	Wild geranium
Dovefoot geranium	Pennsylvania	Wild lettuce
English daisy	smartweed	Wild mustard
False dandelion	Pennywort (*dollarweed)	Wild onion
(*spotted catsear & common catsear)	Pepperweed	Wild strawberry
Field bindweed	Pigweed	Wild violet
(*morningglory & creeping jenny)	Pineappleweed	Yarrow
Field madder	Plantain	Yellow rocket

\*Synonyms

**PARTICULAR PURPOSE, WHICH ARE EXPRESSLY DISCLAIMED.**

This limited warranty does not extend to the use of the product inconsistent with label instructions, warnings or cautions, or to use of the product under abnormal conditions such as drought, excessive rainfall, tornadoes, hurricanes, etc. These factors are beyond the control of the manufacturer or the seller. Any damages arising from a breach of the manufacturer's warranty shall be limited to direct damages, and shall not include indirect or consequential damages such as loss of profits or values, except as otherwise provided by law.

The terms of this Limited Warranty and Disclaimer cannot be varied by any written or verbal statements or agreements. No employee or agent of the seller is authorized to vary or exceed the terms of this Limited Warranty and Disclaimer in any manner.

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654 AP010606  
EPA REG. NO. 2217-833

Manufactured By  
  
**pbi/gordon**  
**corporation**  
 An Employee-Owned Company  
 1217 West 12th Street  
 Kansas City, Missouri 64101  
[www.pbigordon.com](http://www.pbigordon.com)

**STORAGE & DISPOSAL**

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

**STORAGE:** Store in original container in a locked storage area inaccessible to children or pets. Keep from freezing.

**PESTICIDE DISPOSAL:** Pesticide wastes are acutely hazardous. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal law and may contaminate groundwater. If these wastes cannot be disposed of by use according to label instructions, contact your state Pesticide or Environmental Control Agency or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

**CONTAINER DISPOSAL:** *For Metal Containers* - Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities.

*For Plastic Containers* - Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or incineration, or if allowed by state and local authorities by burning. If burned stay out of smoke.

**LIMITED WARRANTY AND DISCLAIMER**

The manufacturer warrants only that the chemical composition of this product conforms to the ingredient statement given on the label, and that the product is reasonably suited for the labeled use when applied according to the Directions for Use.

**THE MANUFACTURER NEITHER MAKES NOR INTENDS ANY OTHER EXPRESS OR IMPLIED WARRANTIES, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A**



# SAFETY DATA SHEET

## Quali-Pro Strobe Pro G

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Revision Date: July 18, 2017

### SECTION 1: IDENTIFICATION

**Product Name:** Quali-Pro Strobe Pro G  
**EPA Registration No.:** 53883-440  
**Recommended Use:** Fungicide; See product label for a complete list of uses and use sites.  
**Restrictions on Use:** See product label for any restrictions on the use of this product.  
**Chemical Family:** N/A – Multiple active ingredients  
**Chemical Name of Active Ingredient(s):** Azoxystrobin  
**Propiconazole**  
**Manufactured for:** Control Solutions, Inc.  
5903 Genoa-Red Bluff  
Pasadena, TX 77507

**FOR FIRE, SPILL, AND/OR LEAK EMERGENCIES CONTACT: CHEMTREC 1-800-424-9300**

**FOR MEDICAL EMERGENCIES AND HEALTH AND SAFETY INQUIRIES CONTACT: Safety Call 1-866-897-8050**

### SECTION 2: HAZARD(S) IDENTIFICATION

**EMERGENCY OVERVIEW:** Greenish brown granules with a faint odor. May cause mild but temporary eye irritation if dust enters eye.

#### OSHA HCS CLASSIFICATION (29 CFR 1910.1200)

This product does not meet the regulatory definition of a hazardous chemical under 29 CFR 1910.1200. However, good industrial hygiene practices should be used in the manufacture and handling of the product.

**Signal Word:** CAUTION FIFRA Label Signal Word

**Hazard Statement(s):** None required

#### Precautionary Statement(s):

**Prevention:** No statements required.

**Response:** No statements required.

**Storage:** No statements required.

**Disposal:** No statements required.

### SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS Number	Weight %
Propiconazole	60207-90-1	0.75%
Azoxystrobin	131860-33-8	0.31%

\*Ingredients not listed or listed with a weight % range are considered a trade secret and are withheld under 29 CFR 1910.1200(i).

SECTION 4: FIRST AID MEASURES	
<b>IF IN EYES:</b>	Hold eye open and rinse slowly and gently with water for 15 to 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.
<b>IF ON SKIN:</b>	Take off contaminated clothing. Rinse skin immediately with plenty of water for 15 to 20 minutes. Call a poison control center or doctor for treatment advice.
<b>IF INHALED:</b>	Move person to fresh air. If person is not breathing, call 911 or an ambulance; then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or doctor for further treatment advice.
<b>IF INGESTED:</b>	Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give anything by mouth to an unconscious person.

**Most important symptoms/effects, acute and delayed:** Temporary mechanical eye irritation including redness, itching, and tearing due to dust particles.

SECTION 5: FIRE-FIGHTING MEASURES
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**Suitable Extinguishing Media:** Foam, dry chemical, carbon dioxide or water spray

**Unsuitable Extinguishing Media:** Water jet

**Hazardous Combustion Products:** Thermal decomposition may produce oxides of nitrogen and carbon.

**Special Protective Equipment & Precautions:** Evacuate area and fight fire upwind from a safe distance to avoid hazardous vapors and decomposition products. Foam and/or dry chemical are preferred to minimize environmental contamination. If water is used, dike and collect water to prevent run-off. Wear self-contained breathing apparatus and full fire-fighting turn-out gear (Bunker gear).

**Unusual Fire & Explosion Hazards:** None known

SECTION 6: ACCIDENTAL RELEASE MEASURES
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**Personal Precautions:** See Section 8 for personal protection equipment.

**Environmental Precautions:** Keep spilled material and any rinsate from contaminating soil or from entering sewage and drainage systems and bodies of water.

**Methods for Containment:** Isolate the spill area. Keep unnecessary and unprotected personnel from entering. Dike large spills using absorbent or impervious material such as clay or sand. Recover and contain as many spilled granules as possible for reuse.

**Methods for Clean-up:** Place contaminated material in appropriate container for disposal. After removal, flush contaminated area thoroughly with water. Pick up wash liquid with additional absorbent and place in a disposable container. Do not put spilled material back in the original container.

**Other Information:** None known

**SECTION 7: HANDLING AND STORAGE**

**Handling:** RECOMMENDATIONS ARE INTENDED FOR MANUFACTURING, PACKAGING AND COMMERCIAL BLENDING WORKERS. PESTICIDE APPLICATORS AND WORKERS must refer to the product label and Directions for Use attached to the product for Agricultural Use Requirements in accordance with the EPA Worker Protection Standard 40 CFR part 170. Handle and open container in a manner as to prevent spillage. Do not eat, drink or smoke while handling this product.

**Storage:** See pesticide label for full information on product storage. Do not contaminate water, food or feed by storage of this product. Store away from sources of heat, out of direct sunlight and away from incompatible materials. Pesticides should be stored in secured areas away from children and animals.

**Storage Temperature (Min/Max):** Not determined.

**Product Incompatibilities:** None known

**SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**

Users of a pesticide product must refer to the product label for personal protective equipment requirements.

**Exposure Guidelines:**

COMPONENT	OSHA PEL	ACGIH TLV	NIOSH REL
No components listed			

**Engineering Controls:** Provide general or local exhaust ventilation systems to maintain airborne concentrations below OSHA PELs or other specified exposure limits. Local exhaust ventilation is preferred.

**Respiratory Protection:** In areas of poor ventilation, use a NIOSH approved respirator with cartridges/canisters approved for general particulates.

**Eye Protection:** Chemical goggles or safety glasses and full-face shield.

**Protective Gloves:** Chemical-resistant gloves such as barrier laminate, butyl rubber, nitrile, neoprene rubber, polyvinyl chloride (PVC) or Viton.

**Other Protective Clothing:** Long-sleeved shirt, long pants and shoes plus socks.

**General Safety Measures:** Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet. Remove clothing immediately after handling this product. Wash outside of gloves before removing. Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them. Follow manufacturer's instructions for cleaning and maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

**SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES**

<b>Appearance:</b>	Greenish brown granules	<b>Upper/Lower Flammability Limits:</b>	Not determined
<b>Odor:</b>	Faint	<b>Vapor Pressure:</b>	Not determined
<b>Odor Threshold:</b>	Not determined	<b>Vapor Density:</b>	Not determined
<b>pH (1% aqueous suspension):</b>	6.0 – 6.5	<b>Relative Density (Pour Density):</b>	0.836 g/mL (typical)
<b>Melting /Freezing Point:</b>	Not determined	<b>Solubility:</b>	Not determined
<b>Boiling Point/Range:</b>	Not determined	<b>Partition Coefficient:</b>	Not determined
<b>Flash Point:</b>	Not applicable	<b>Auto-ignition Temperature:</b>	Not determined
<b>Evaporation Rate:</b>	Not determined	<b>Decomposition Temperature:</b>	Not determined
<b>Flammability:</b>	Not determined	<b>Viscosity:</b>	Not determined

**SECTION 10: STABILITY AND REACTIVITY**

<b>Reactivity:</b>	No hazardous chemical reactions known.
<b>Chemical Stability:</b>	Stable under normal storage and handling conditions.
<b>Possibility of Hazardous Reactions:</b>	No potential for hazardous reactions known.
<b>Conditions to Avoid:</b>	None known
<b>Incompatible Materials:</b>	None known
<b>Hazardous Decomposition Products:</b>	May decompose to oxides of nitrogen and carbon under fire conditions.

**SECTION 11: TOXICOLOGICAL INFORMATION**

<b>Likely Routes of Exposure:</b>	Eye contact, Skin contact, Inhalation, Ingestion
<b>Symptoms of Exposure:</b>	Temporary mechanical eye irritation including redness, itching, and tearing due to dust particles.
<b>Oral LD<sub>50</sub>:</b>	>5,000 mg/kg (rat)(Based upon similar composition)
<b>Dermal LD<sub>50</sub>:</b>	>5,000 mg/kg (rat) (Based upon similar composition)
<b>Inhalation LC<sub>50</sub>:</b>	Not available
<b>Eye Irritation/Damage:</b>	Mildly irritating (rabbit) (Based upon similar composition)
<b>Skin Corrosion/Irritation:</b>	Slightly irritating (rabbit) (Based upon similar composition)
<b>Skin Sensitization:</b>	Non-sensitizer (Based upon similar composition)

**Chronic/Subchronic Toxicity:** Azoxystrobin: In a rat 90-day feeding study, liver toxicity was observed at 2,000 ppm. This was manifested as gross distension of the bile duct, increased numbers of lining cells and inflammation of the duct. No toxicologically significant effects were seen in repeat dose dog studies. Data reviews do not indicate any potential for endocrine disruption.

**Mutagenicity:** No data available

**Reproductive Toxicity:** Azoxystrobin: Shows weak chromosomal damage in mammalian cells at cytotoxic levels. Negative in whole animal assays for chromosomal and DNA damage at high dosages ( $\geq 2,000$  mg/kg). In rabbits, no effect was observed up to the highest dose level (500 mg/kg/day). In rats, developmental effects were seen only at maternally toxic doses (100 mg/kg/day).

**Neurotoxicity:** Azoxystrobin: There is no evidence of neurotoxicity in any of the studies conducted with azoxystrobin.

Propiconazole: A clinical study in rats demonstrated piloerection, diarrhea and tip toe gait at the LOAEL of 100 mg/kg/day.

**Target Organs:** No data available  
**Aspiration Hazard:** No data available  
**Carcinogenicity:** No data available

Chemical Name	ACGIH	IARC	NTP	OSHA
No components listed				

**SECTION 12: ECOLOGICAL INFORMATION**

**Environmental Hazards Statement from FIFRA Regulated Pesticide Label:**

This pesticide is toxic to freshwater and estuarine/marine fish and aquatic invertebrates. Do not apply directly to water except as specified on this label. For terrestrial uses: Do not apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean high-water mark. Do not contaminate water when disposing of equipment washwater or rinsate. Drift and runoff may be hazardous to aquatic organisms in water adjacent to treated areas.

The active ingredient, azoxystrobin, in this product can be persistent for several months or longer. Azoxystrobin is known to leach through soil to ground water under certain conditions as a result of label use. This chemical may leach into ground water if used in areas where soils are permeable, particularly where the water table is shallow.

Notify state and/or federal authorities and Control Solutions, Inc. immediately if you observe any adverse environmental effects due to use of this product.

**ECOTOXICITY DATA:**

**Fish Toxicity:** Azoxystrobin: Rainbow Trout 96 hr LC<sub>50</sub> = 470 ppb  
 Propiconazole: Rainbow Trout 96 hr LC<sub>50</sub> = 850 µg/L  
**Aquatic Invertebrate Toxicity:** Azoxystrobin: Daphnia magna 48 hr EC<sub>50</sub> = 259 ppb  
 Propiconazole: Daphnia magna 48 hr LC<sub>50</sub> = 1300 µg/L  
**Aquatic Plant Toxicity:** Azoxystrobin: Green algae 5-day EC<sub>50</sub> = 106 ppb  
**Avian Toxicity:** Propiconazole: Bobwhite quail oral LD<sub>50</sub> = 2,825 mg/kg  
**Honeybee Toxicity:** No data available

**ENVIRONMENTAL EFFECTS:**

**Persistence and Degradability:** No data available  
**Bioaccumulation:** No data available  
**Mobility:** No data available  
**Other Adverse Effects:** No data available

**SECTION 13: DISPOSAL CONSIDERATIONS**

**Waste Disposal:** Refer to the pesticide label for full information on disposal. Pesticide wastes are toxic. Improper disposal of unused pesticide, spray mixture, or rinse water is a violation of Federal law. If these wastes cannot be used according to label instructions, contact your State Pesticide or Environmental Control Agency or the Hazardous Waste representative at the nearest EPA Regional Office for guidance in proper disposal methods.

**Container Disposal:** Refer to the pesticide label for full information on disposal. When possible, triple rinse the container and offer for recycling if available.

**RCRA Characteristics:** It is the responsibility of the individual disposing of this product to determine the RCRA classification and hazard status of the waste.

**SECTION 14: TRANSPORTATION INFORMATION**

**DOT (Ground):** Not regulated

**IMDG (Sea):** UN3077, Environmentally hazardous substance, solid, n.o.s (azoxystrobin, propiconazole), 9, PG III, Marine Pollutant

**IATA (Air):** UN3077, Environmentally hazardous substance, solid, n.o.s (azoxystrobin, propiconazole), 9, PG III

**SECTION 15: REGULATORY INFORMATION**

**Labeling Requirements Under FIFRA:** This chemical is a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets and for workplace labels of non-pesticide chemicals. Following is the hazard information as required on the pesticide label:

**CAUTION**

Causes moderate eye irritation. Harmful if swallowed. Harmful if absorbed through skin. Harmful if inhaled. Avoid contact with skin, eyes or clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet.

**TSCA Inventory:** This product is exempt from TSCA inventory listing requirements as it is solely for FIFRA regulated use.

**SARA Title III Information:**

**Section 302 – Extremely hazardous substances:** None

**Section 311/312 – Hazard Categories:** Immediate (Acute)

**Section 313 –** This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372:

Chemical Name	CAS Number	Weight %
Propiconazole	60207-90-1	0.75%

**CERCLA** – This product contains the following chemicals which have a reportable quantity (RQ) under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA):

Chemical Name	CAS Number	RQ	Quantity of Finished Product
None listed			

**CALIFORNIA PROPOSITION 65:**

Chemical Name	CAS Number	Prop 65 Category(ies)
None listed		

**U.S. STATE RIGHT-TO-KNOW REGULATIONS:**

Chemical Name	New Jersey	Massachusetts	Pennsylvania
None listed			

**SECTION 16: OTHER INFORMATION**

<b>NFPA</b>	<b>Health Hazards</b> 1	<b>Flammability</b> 1	<b>Instability</b> 0	<b>Special Hazards</b> – None
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**Disclaimer:** Control Solutions, Inc. believes the information presented herein is accurate and correct as of the document date. The presented information is based upon available data from reliable sources. Control Solutions, Inc. makes no warranty, express or implied, regarding the accuracy of the data or the results obtained from the use of this product. Nothing herein may be construed as recommending any practice or any product in violation of any law or regulations. The user is solely responsible for determining the suitability of any material or product for a specific purpose and for adopting any appropriate safety precautions. We disclaim all liability for injury or damage stemming from any improper use of the material or product described herein.

**Revision Date:** July 18, 2017  
**Document Superseded:** N/A – New document  
**Revision Note:**

# QUALI-PRO<sup>®</sup>

Azoxystrobin	GROUP	11	FUNGICIDE
Propiconazole	GROUP	3	FUNGICIDE



# STROBE PRO G

## Granular Fungicide

Broad spectrum fungicide for control of plant diseases.

For use to control diseases on turf on golf courses, lawns and landscape areas around residential, institutional, public, commercial and industrial buildings, parks, recreational areas and athletic fields.

Not for use on turf being grown for sale or other commercial use as sod, or for commercial seed production, or for research purposes.

ACTIVE INGREDIENTS:	% BY WT.
Azoxystrobin .....	0.31%
Propiconazole.....	0.75%
OTHER INGREDIENTS: .....	98.94%
TOTAL: .....	100.0%

Contains 0.0075 lb. propiconazole and 0.0031 lb. azoxystrobin per lb. of product.

## CONTENTS: 30 POUNDS



### KEEP OUT OF REACH OF CHILDREN CAUTION

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle.  
(If you do not understand the label, find someone to explain it to you in detail.)

EPA Reg. No.: 53883-440

EPA Est. No.: 67572-GA-1



ADAMA

Manufactured for:

## Control Solutions Inc.

5903 Genoa-Red Bluff, Pasadena, TX 77507  
A member of Adama  
Consumer and Professional Solutions

# QUALI-PRO®

Azoxystrobin	GROUP	11	FUNGICIDE
Propinconazole	GROUP	3	FUNGICIDE



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ADAMA

Manufactured for:

## Control Solutions Inc.

5903 Genoa-Red Bluff, Pasadena, TX 77507  
A member of Adama  
Consumer and Professional Solutions

<b>FIRST AID</b>	
<b>IF IN EYES:</b>	<ul style="list-style-type: none"> <li>• Hold eye open and rinse slowly and gently with water for 15-20 minutes.</li> <li>• Remove contact lenses, if present, after the first 5 minutes; then continue rinsing eye.</li> <li>• Call poison control center or doctor for treatment advice.</li> </ul>
<b>IF SWALLOWED:</b>	<ul style="list-style-type: none"> <li>• Call a poison control center or doctor immediately for treatment advice.</li> <li>• Have person sip a glass of water if able to swallow.</li> <li>• Do not induce vomiting unless told to do so by the poison control center or doctor.</li> <li>• Do not give anything by mouth to an unconscious person.</li> </ul>
<b>IF ON SKIN OR CLOTHING:</b>	<ul style="list-style-type: none"> <li>• Take off contaminated clothing.</li> <li>• Rinse skin immediately with plenty of water for 15-20 minutes.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
<b>IF INHALED:</b>	<ul style="list-style-type: none"> <li>• Move person to fresh air.</li> <li>• If person is not breathing, call 911 or an ambulance; then give artificial respiration, preferably by mouth-to-mouth if possible.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
<b>HOT LINE NUMBER</b>	
Have the product container or label with you when calling a poison control center or doctor or going for treatment. You may also contact SafetyCall® (866) 897-8050 for emergency medical treatment information.	

## PRECAUTIONARY STATEMENTS HAZARDS TO HUMANS AND DOMESTIC ANIMALS

CAUTION: Causes moderate eye irritation. Harmful if swallowed. Harmful if absorbed through skin. Harmful if inhaled. Avoid contact with skin, eyes or clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet.

### PERSONAL PROTECTIVE EQUIPMENT (PPE)

Some materials that are chemically resistant to this product are listed below.

#### Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Chemical-resistant gloves made of any waterproof material such as polyvinyl chloride, nitrile rubber or butyl rubber
- Shoes plus socks

**User Safety Requirements:** Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

**Engineering Controls:** When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides (40 CFR 170.240 (d)(4-6), the handler PPE requirements may be reduced or modified as specified in the WPS.

### USER SAFETY RECOMMENDATIONS

#### Users should:

- Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE/clothing immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

### ENVIRONMENTAL HAZARDS

This pesticide is toxic to freshwater and estuarine/marine fish and aquatic invertebrates. Do not apply directly to water except as specified on this label. For terrestrial uses: Do not apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean high-water mark. Do not contaminate water when disposing of equipment washwater or rinsate. Drift and runoff may be hazardous to aquatic organisms in water adjacent to treated areas.

**GROUND WATER ADVISORY:** The active ingredient, azoxystrobin, in this product can be persistent for several months or longer. Azoxystrobin is known to leach through soil to ground water under certain conditions as a result of label use. This chemical may leach into ground water if used in areas where soils are permeable, particularly where the water table is shallow.

Notify state and/or federal authorities and Control Solutions, Inc. immediately if you observe any adverse environmental effects due to use of this product.

## DIRECTIONS FOR USE

It is a violation of federal law to use this product in a manner inconsistent with its labeling.

READ ALL DIRECTIONS COMPLETELY BEFORE USE.

FAILURE TO FOLLOW THE USE DIRECTIONS AND PRECAUTIONS ON THIS LABEL MAY RESULT IN PLANT INJURY OR POOR DISEASE CONTROL.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

For use to control diseases on turf on golf courses, lawns and landscape areas around residential, institutional, public, commercial and industrial buildings, parks, recreational areas and athletic fields.

### PRODUCT INFORMATION

Strobe Pro G is a combination of two broad-spectrum, preventative fungicides with systemic properties specified for the control of many important plant diseases. All applications must be made according to the use directions that follow.

#### PRECAUTIONS

- Bermudagrass can be sensitive to Strobe Pro G.

#### RESTRICTIONS

- Do not apply more than 19.2 lb. product/1000 sq. ft./calendar year.
- Apply by ground application only.
- Do not graze or feed clippings from treated turf areas to animals.
- Do not apply when weather conditions favor product blowing from treated areas to nontarget aquatic habitat.
- Do not exceed 3 lb. product/1,000 sq.ft. every 30 days on any variety of bermudagrass. In Florida do not apply Strobe Pro G to bermudagrass golf course greens when temperatures exceed 90°F.
- Do not use on turf being grown for sale or other commercial use as sod, or for commercial seed production, or for research purposes.

#### ATTENTION

Strobe Pro G is extremely phytotoxic to certain apple varieties. Extreme care must be used to prevent injury to apple trees (and apple fruit). DO NOT spread Strobe Pro G where granules may reach apple trees.

#### RESISTANCE MANAGEMENT

For resistance management, please note that Strobe Pro G contains both a Group 11/Azoxystrobin and Group 3/Propiconazole fungicide. Any fungal population may contain individuals naturally resistant to Strobe Pro G and other Group 11 or Group 3 fungicide. A gradual or total loss of pest control may occur over time if these fungicide are used repeatedly in the same field. Appropriate resistance-management strategies should be followed.

To delay fungicide resistance, take one or more of the following steps:

- Rotate the use of Strobe Pro G or other Group 11 and Group 3 fungicide within a growing season sequence with different groups that control the same pathogens.<sup>3</sup>
- Use tank mixtures with fungicide from a different group that are equally effective on the target pest when such use is permitted. Use at least the minimum application rate as labeled by the manufacturer.
- Adopt an integrated disease management program for fungicide use that includes scouting, uses historical information related to pesticide use, and crop rotation, and which considers host plant resistance, impact of environmental conditions on disease development, disease thresholds, as well as cultural, biological and other chemical control practices.
- Where possible, make use of predictive diseases models to effectively time fungicide applications. Note that use predictive models alone is not sufficient to manage resistance.
- Monitor treated fungal populations for resistance development.
- Contact your local extension specialist or certified crop advisor for any additional pesticide resistance-management and/or IPM recommendations for specific crops and pathogens.
- For further information or to report suspected contact your local retailer or your local university extension specialist.

<sup>3</sup> If repeated application is necessary, this statement may be modified as follows: "Avoid application of more than 2 and consecutive applications of Strobe Pro G or other fungicides in the same group in a season."

If no resistance specifications on the number of applications is specified in the directions for use, follow the specifications in the table below.

<b>If planned total number of fungicide applications per crop is:</b>	1	2	3	4	5	6	7	8	9	10	11	12
<b>Solo QoI fungicide applications</b>	1	1	2	2	2	2	2	3	3	3	3	4
<b>QoI fungicide applications in mixture (formulated)</b>	1	2	2	2	2	3	3	4	4	5	5	6

In situations requiring multiple applications, develop year-long programs for Group 11 (QoI) fungicides. In crops where two sequential Group 11 fungicide applications are made, they must be alternated with two or more applications of a fungicide that is not in Group 11. If more than 12 applications are made, observe the following guidelines:

- When using a QoI fungicide as a solo product, the number of applications must be no more than 1/3 (33%) of the total number of fungicide applications per year.
- For QoI mixes in programs in which tank mixes or premixes of QoI with mixing partners of a different mode of action are utilized, the number of QoI containing applications must be no more than 1/2 (50%) of the total number of fungicide applications per year.
- In programs in which applications of QoI are made with both solo products and mixtures, the number of QoI containing applications must be no more than (50%) of the total number of fungicides applied per year.

If a Group 11 fungicide is applied to the seed or soil, do not make another application with a Group 11 fungicide for at least 3 weeks.

## **APPLICATION INSTRUCTIONS**

Apply Strobe Pro G at rates and timings as described in this label. Strobe Pro G may be applied with all types of spreader equipment commonly used for making ground applications excluding bellygrinder equipment. Proper adjustments and calibration of application equipment to give good coverage is essential for good disease control. The higher rates in the rate range and/or shorter application intervals may be required under conditions of heavy infection pressure, highly susceptible varieties, or when environmental conditions conducive to disease exist.

## **TURF**

Strobe Pro G is specified for control of certain pathogens causing foliar, stem, and root diseases, including leaf and stem blights, leaf spots, patch diseases, mildews, anthracnose, fairy rings, molds, and rusts of turfgrass plants. Strobe Pro G may be used to control certain diseases on turf in golf courses, lawns and landscape areas around residential, institutional, public, commercial and industrial buildings, parks, recreational areas and athletic fields.

**Retreatment Intervals:** Strobe Pro G must be applied prior to disease development. Repeat applications at specified intervals for as long as required.

## **RESTRICTIONS**

- Do not apply more than 19.2 lb. product/1000 sq. ft./calendar year.
- Apply by ground application only.
- Do not graze or feed clippings from treated turf areas to animals.
- Do not exceed 3 lb. product/1,000 sq.ft. every 30 days on any variety of bermudagrass. In Florida do not apply Strobe Pro G to bermudagrass golf course greens when temperatures exceed 90°F.

### **For use in the establishment of turfgrass from seed or in overseeding of dormant turfgrass:**

Strobe Pro G may be used for control of certain turfgrass diseases associated with turfgrass establishment from seed. Strobe Pro G may also be used during overseeding of dormant turfgrass.

Strobe Pro G may be safely applied before or after seeding or at seedling germination and emergence to ryegrass, bentgrass, bluegrass, and fescue turfgrass types. Optimum application timing is during seeding. See Application Directions section.

**Retreatment Interval:** Use the shorter specified application interval and/or use the higher specified rate when prolonged favorable disease conditions exist.

## DIRECTIONS FOR APPLICATION FOR TURF DISEASES

**Restriction: Do not use on turf being grown for sale or other commercial use as sod, or for commercial seed production, or for research purposes.**

Target Diseases	Use Rate (lbs. product per 1000 sq. ft.)	Application Interval (days)	Application Instructions
Anthracnose ( <i>Colletotrichum cereale</i> ) (formerly known as <i>C. graminicola</i> )	2 – 2.5	14	Use preventively. Begin applications when conditions are favorable for disease infection, prior to disease symptom development. Under high disease pressure, use higher rates of Strobe Pro G and shorter intervals. Alternate with a contact fungicide for example a Quali-Pro Chlorothalonil product.
	3.5 – 4	28	
Bentgrass Dead Spot ( <i>Ophiosphaerella agrostis</i> )	2 – 2.5	14	Begin applications prior to disease development.
	3.5 – 4	28	
Brown Patch ( <i>Rhizoctonia solani</i> ) and other Rhizoctonia ( <i>R. spp.</i> ) diseases such as Large Patch, Zoysia Patch, Leaf & Sheath Spot ( <i>R. zeae</i> )	2 – 2.5	14	Apply when conditions are favorable for disease development.  For Large Patch of all warm season turfgrasses, make 1 or 2 applications in the fall prior to infection or when conditions are favorable for infection.  For Zoysia Patch, make 1 or 2 applications approximately one month prior to zoysiagrass dormancy. Reapply 14 to 28 days later.
	3.5 – 4	28	For Leaf and Sheath Spot ( <i>R. zeae</i> ), apply when conditions are favorable for infection such as sequential or periods of temperatures at or above 90°F. Curative control may necessitate several applications.
Cool Weather Brown Patch Yellow Patch ( <i>Rhizoctonia cerealis</i> )	2 – 2.5	14	Make one or two applications in fall or when conditions are favorable for disease development.
	3.5 – 4	28	
Dichondra Rust ( <i>Puccinia dichondrae</i> )	2 – 2.5	14	Apply when conditions are favorable for disease development.
	3.5 – 4	28	
Dollar Spot ( <i>Sclerotinia homoeocarpa</i> )	2 – 2.5	14	Apply preventively when conditions are favorable for disease development. For non-residential turf with active Dollar Spot, use the higher rate and apply a Quali-Pro Chlorothalonil product.
	3.5 – 4	28	
Fairy Ring ( <i>Lycoperdon spp.</i> , <i>Agrocybe pediades</i> , and <i>Bovistia plumbea</i> )	2 – 2.5	14	Apply as soon as possible after Fairy Ring symptoms develop. Irrigate with at least 0.5 inch of water within 24 hours after application if rainfall is not expected. Severely damaged or thin turf may require reseeding. Fairy Ring symptoms may take 2 to 3 weeks to disappear following application. Reapplication after 14-28 days may be required in some cases.
	3.5 – 4	28	

Target Diseases	Use Rate (lbs. product per 1000 sq. ft.)	Application Interval (days)	Application Instructions
Gray Leaf Spot ( <i>Pyricularia grisea</i> )	2 – 2.5	14	Use Strobe Pro G in a preventive disease control program. Begin applications before disease is present and alternate with other fungicide chemistries that control Gray Leaf Spot.
	3.5 – 4	28	
Gray Snow Mold Typhula blight ( <i>Typhula incarnata</i> )	5	Single application	Make a single application of 5 lb. or two applications of 4 lb. spaced 28 days apart in late fall just before snow cover. Alternating with another snow mold fungicide, such as a Quali-Pro Chlorothalonil product or Quali-Pro Propiconazole 14.3% may enhance control under severe disease pressure.
	3.5 – 4	28	
Leaf Rust Stem Rust Stripe Rust ( <i>Puccinia</i> spp.)	2 – 2.5	14	Begin applications when conditions are favorable for disease infection, prior to disease symptom development.
	3.5 – 4	28	
Leaf Spot ( <i>Bipolaris sorokiniana</i> )	2 – 2.5	14	Apply when conditions are favorable for disease development.
	3.5 – 4	21	
Melting Out ( <i>Drechslera poae</i> )	2 – 2.5	14	Apply when conditions are favorable for disease development.
	3.5 – 4	21	
Microdochium Patch (formerly known as Fusarium Patch) ( <i>Microdochium nivale</i> )	2 – 2.5	14	Use preventatively. Begin applications when conditions are favorable for disease infection, prior to disease symptom development.
	3.5 – 4	28	
Necrotic Ring Spot ( <i>Ophiosphaerella korrae</i> )	2 – 2.5	14	Apply when conditions are favorable for disease development.
	3.5 – 4	28	
Pink Patch ( <i>Limonomyces roseipellis</i> )	2 – 2.5	14	Apply when conditions are favorable for disease development.
	3.5 – 4	28	
Pink Snow Mold ( <i>Microdochium nivale</i> )	5	Single application	Make a single application in late fall just before snow cover. Applying another snow mold fungicide, such as a Quali-Pro Chlorothalonil product or Quali-Pro Propiconazole 14.3% may enhance control under severe disease pressure.
Powdery Mildew ( <i>Erysiphe graminis</i> )	2 – 2.5	14	Begin applications when conditions are favorable for disease infection, prior to disease symptom development.
	3.5 – 4	28	
*Pythium Blight Pythium Root Rot ( <i>Pythium aphanidermatum</i> , <i>Pythium</i> spp.)	2 – 2.5	14	Use preventatively. Begin applications before disease is present. During periods of prolonged favorable conditions, treat on the 10 day application interval. For use on newly seeded as well as established turf.
	3.5 – 4	28	
Red Thread ( <i>Laetisaha fuciformis</i> )	2 – 2.5	14	Apply when conditions are favorable for disease development.
	3.5 – 4	28	

Target Diseases	Use Rate (lbs. product per 1000 sq. ft.)	Application Interval (days)	Application Instructions
Southern Blight ( <i>Sclerotium rolfsii</i> )	2 – 2.5	14	Apply when conditions are favorable for disease development.
	3.5 – 4	28	
Spring Dead Spot ( <i>Ophiosphaerella korrae</i> ) or ( <i>Ophiosphaerella narmari</i> ) or ( <i>Ophiosphaerella herpotricha</i> )	2 – 2.5	14	Apply 1 or 2 applications approximately one month prior to bermudagrass dormancy. It is recommended to use 1/4" to 1/2" of irrigation directly after application. Reapply 14 to 28 days later.
	3.5 – 4	28	
Summer Patch ( <i>Magnaporthe poae</i> )	2 – 2.5	14	Apply when conditions are favorable for disease development. Initiate applications when soil temperatures reach 65°F at a 2 inch soil depth.
	3.5 – 4	28	
Take-All Patch ( <i>Gaeumannomyces graminis var. avenae</i> )	3.5 – 4	28	Begin applications when conditions are favorable for disease infection, prior to disease symptom development. Make two applications 28 days apart in the spring and two applications 28 days apart in the fall.

\*Do not apply more than two sequential applications of Strobe Pro G for control of Pythium spp. For all other diseases when Pythium spp. is not present, do not apply more than three sequential applications of Strobe Pro G.

#### Strobe Pro G Rate Conversion Chart for Turf

Lb. Product Per 1000 Sq. Ft.	Lb. Product Per Acre	Lb. Azoxystrobin Per 1000 Sq. Ft.	Lb. Azoxystrobin Per Acre	Lb. Propiconazole Per 1000 Sq. Ft.	Lb. Propiconazole Per Acre
2	87.1	0.006	0.27	0.015	0.65
2.5	108.9	0.008	0.34	0.019	0.82
3.5	152.4	0.0109	0.47	0.026	1.14
4	174.2	0.012	0.54	0.030	1.31
5	217.8	0.016	0.68	0.038	1.63

## STORAGE AND DISPOSAL

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

**PESTICIDE STORAGE:** Store in a cool, dry, secure place. Do not store near seeds, fertilizers, or foodstuffs.

**PESTICIDE DISPOSAL:** Pesticide wastes are toxic. Improper disposal of excess pesticides, spray mixture, or rinsate is a violation of Federal law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

**CONTAINER HANDLING:** Non-refillable container. Do not reuse or refill this container. Completely empty bag into application equipment. Then offer for recycling if available or dispose of empty bag in a sanitary landfill, or by other procedures approved by state and local authorities.

**NOTICE:** Read the entire Directions for Use and Conditions of Sale and Limitation of Warranty and Liability before buying or using this product. If the terms are not acceptable, return the product at once, unopened, and the purchase price will be refunded.

## WARRANTY STATEMENT

The Directions for Use of this product must be followed carefully. It is impossible to eliminate all risks inherently associated with the use of this product. Ineffectiveness or other unintended consequences may result because of such factors as manner of use or application, weather, presence of other materials or other influencing factors in the use of the product, which are beyond the control of Control Solutions, Inc. or Seller. All such risks shall be assumed by Buyer and User, and Buyer and User agree to hold Control Solutions, Inc. and Seller harmless for any claims relating to such factors.

To the extent consistent with applicable law, Control Solutions, Inc. warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated in the Directions for Use, subject to the inherent risks referred to above, when used in accordance with directions under normal use conditions. This warranty does not extend to the use of this product contrary to label instructions, or under abnormal conditions or under conditions not reasonably foreseeable to or beyond the control of Seller or Control Solutions, Inc., and Buyer and User assume the risk of any such use. To the extent consistent with applicable law CONTROL SOLUTIONS, INC. MAKES NO WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE NOR ANY OTHER EXPRESS OR IMPLIED WARRANTY EXCEPT AS STATED ABOVE.

To the extent consistent with applicable law, IT IS **CONTROL SOLUTIONS INC., AND SELLERS INTENTION THAT** in no event shall Control Solutions or Seller be liable for any incidental, consequential or special damages resulting from the use or handling of this product. **THE EXCLUSIVE REMEDY OF THE USER OR BUYER, AND THE EXCLUSIVE LIABILITY OF CONTROL SOLUTIONS, INC., AND SELLER FOR ANY AND ALL CLAIMS, LOSSES, INJURIES OR DAMAGES (INCLUDING CLAIMS BASED ON BREACH OF WARRANTY, CONTRACT, NEGLIGENCE, TORT, STRICT LIABILITY OR OTHERWISE) RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT, SHALL BE THE RETURN OF THE PURCHASE PRICE OF THE PRODUCT OR, AT THE ELECTION OF CONTROL SOLUTIONS, INC. OR SELLER, THE REPLACEMENT OF THE PRODUCT.**

To the extent consistent with applicable law, Control Solutions, Inc. and Seller offer this product, and Buyer and User accept it, subject to the foregoing Conditions of Sale and Limitation of Warranty and Liability, which may not be modified except by written agreement signed by a duly authorized representative of Control Solutions, Inc.

# QUALI-PRO

Azoxystrobin	GROUP	11	FUNGICIDE
Propiconazole	GROUP	3	FUNGICIDE



# STROBE PRO G

## Granular Fungicide

Broad spectrum fungicide for control of plant diseases.

For use to control diseases on turf on golf courses, lawns and landscape areas around residential, institutional, public, commercial and industrial buildings, parks, recreational areas and athletic fields.

Not for use on turf being grown for sale or other commercial use as sod, or for commercial seed production, or for research purposes.

ACTIVE INGREDIENTS:	% BY WT.
Azoxystrobin .....	0.31%
Propiconazole.....	0.75%
OTHER INGREDIENTS: .....	98.94%
TOTAL: .....	100.0%

Contains 0.0075 lb. propiconazole and 0.0031 lb. azoxystrobin per lb. of product.

### KEEP OUT OF REACH OF CHILDREN CAUTION

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle.

(If you do not understand the label, find someone to explain it to you in detail.)

EPA Reg. No.: 53883-440

EPA Est. No.: 67572-GA-1

## CONTENTS: 30 POUNDS



0 72693 40127 3



ADAMA

Manufactured for:

## Control Solutions Inc.

5903 Genoa-Red Bluff, Pasadena, TX 77507  
A member of Adama  
Consumer and Professional Solutions

# QUALI-PRO

## Bifenthrin I/T 7.9 F

### *Insecticide/Termiticide*

For prevention and control of termites, carpenter ants and other pests of structures. To control listed pests in and around homes, commercial and industrial buildings, recreational areas, athletic fields, lawns, ornamentals, and greenhouses.

Controls pests in livestock and poultry houses.

For Use as a Termiticide: May only be used by individuals/firms licensed by the State to apply termiticide products. States may have more restrictive requirements regarding qualifications of persons using this product. Consult the pest control regulatory agency of your State prior to use of this product.

ACTIVE INGREDIENT:	% BY WT.
Bifenthrin* .....	7.9%
INERT INGREDIENTS: .....	92.1%
TOTAL: .....	100.0%

Quali-Pro Bifenthrin I/T 7.9 F contains 2/3 pound active ingredient per gallon.

\*Cis isomers 97% minimum, trans isomers 3% maximum.

Contains bifenthrin, the active ingredient used in Talstar P Professional Insecticide.

Quali-Pro Bifenthrin I/T 7.9 F is not manufactured or distributed by FMC Corp.

EPA Reg. No. 66222-190

## KEEP OUT OF REACH OF CHILDREN

# CAUTION

For additional precautionary, handling, and use statements, see inside of this booklet.

Manufactured for:

**Makhteshim Agan of North America, Inc.**

3120 Highwoods Blvd., Suite 100 • Raleigh, NC 27604

13819

EPA 020612/Rev A

### Net Contents: 1 Gallon

EPA Est. No. 53883-TX-002<sup>CS</sup>; 37429-GA-001<sup>BT</sup>; 37429-GA-002<sup>BO</sup>  
Letter(s) in lot number correspond(s) to superscript in EPA Est. No.

**QUALI-PRO**

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For additional precautionary, handling, and use statements, see inside of this booklet.

Manufactured for:

**Makhteshim Agan of North America, Inc.**

3120 Highwoods Blvd., Suite 100 • Raleigh, NC 27604

<b>FIRST AID</b>	
<b>IF SWALLOWED:</b>	<ul style="list-style-type: none"> <li>• Call a poison control center or doctor immediately for treatment advice.</li> <li>• Have person sip a glass of water if able to swallow.</li> <li>• Do not induce vomiting unless told to do so by the poison control center or doctor.</li> <li>• Do not give anything by mouth to an unconscious person.</li> </ul>
<b>IF INHALED:</b>	<ul style="list-style-type: none"> <li>• Move person to fresh air.</li> <li>• If person is not breathing, call 911 or an ambulance; then give artificial respiration, preferably by mouth-to-mouth if possible.</li> <li>• Call a poison control center or doctor for further treatment advice.</li> </ul>
<b>IF ON SKIN OR CLOTHING:</b>	<ul style="list-style-type: none"> <li>• Take off contaminated clothing.</li> <li>• Rinse skin immediately with plenty of water for 15-20 minutes.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
<b>IF IN EYES:</b>	<ul style="list-style-type: none"> <li>• Hold eye open and rinse slowly and gently with water for 15-20 minutes.</li> <li>• Remove contact lenses, if present, after the first 5 minutes; then continue rinsing eye.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
<p>Have the product container or label with you when calling a poison control center or doctor or going for treatment. You may also contact Prosar at 1-877-250-9291 for emergency medical treatment information.</p>	
<p><b>Note to Physician</b> - This product is a pyrethroid. If large amounts have been ingested, the stomach and intestine should be evacuated. Treatment is symptomatic and supportive. Digestible fats, oils, or alcohol may increase absorption and so should be avoided.</p>	

**PRECAUTIONARY STATEMENTS  
HAZARDS TO HUMANS AND DOMESTIC ANIMALS  
CAUTION**

Harmful if swallowed, inhaled, or absorbed through skin. Avoid contact with skin, eyes or clothing. Avoid breathing spray mist. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet. Remove contaminated clothing and wash before reuse.

All pesticide handlers (mixers, loaders, and applicators) must wear long-sleeved shirt and long pants, socks, shoes, and chemical-resistant gloves. After the product is diluted in accordance with label directions for use and/or when mixing and loading using a closed spray tank transfer system or an in-line injector system, shirt, pants, socks, shoes, and waterproof gloves are sufficient. In addition, all pesticide handlers must wear a respiratory protection device<sup>1</sup> when working in a non-ventilated space. All pesticide handlers must wear protective eye-wear when working in a non-ventilated space or when applying termiticide by rodding or sub-slab injection.

<sup>1</sup>Use one of the following: NIOSH-approved respirator with any R, P or HE filter or a NIOSH-approved respirator with an organic vapor (OV) cartridge or canister with any R, P, or HE prefilter.

When treating adjacent to an existing structure, the applicator must check the area to be treated and immediately adjacent areas of the structure for visible and accessible cracks and holes to prevent any leaks or significant exposures to persons occupying the structure. People present or residing in the structure during application must be advised to remove their pets and themselves from the structure if they see any signs of leakage. After application, the applicator is required to check for leaks. All leaks resulting in the deposition of termiticide in locations other than those prescribed on this label must be cleaned up prior to leaving the application site. Do not allow people or pets to contact contaminated areas or to reoccupy contaminated areas of the structure until the cleanup is completed.

#### **ENVIRONMENTAL HAZARDS**

This pesticide is extremely toxic to fish and aquatic invertebrates. Do not apply directly to water, to areas where surface water is present, or to intertidal areas below the mean high water mark. Drift and runoff from treated areas may be hazardous to aquatic organisms in neighboring areas. Do not contaminate water when disposing of equipment washwaters. Care should be used when spraying to avoid fish and reptile pets in/around ornamental ponds. This product is highly toxic to bees exposed to direct treatment or residues on blooming crops or weeds. Do not apply this product or allow to drift to blooming crops if bees are visiting the treatment area.

#### **PHYSICAL AND CHEMICAL HAZARDS**

Do not apply water-based dilutions of Quali-Pro Bifenthrin I/T 7.9 F to electrical conduits, motor housings, junction boxes, switch boxes or other electrical equipment because of possible shock hazard.

## **DIRECTIONS FOR USE**

It is a violation of Federal Law to use this product in a manner inconsistent with its labeling.

Do not apply a broadcast application to interior surfaces of homes.

Do not apply by air.

Do not apply in nurseries.

Do not apply this product through any kind of irrigation system.

Not for use on sod farm turf, golf course turf, or grass grown for seed.

Do not apply to pets, crops, or sources of electricity.

Firewood is not to be treated.

Use only in well-ventilated areas.

During any application to overhead areas of structure, cover surface below with plastic sheeting or similar material except for soil surfaces in crawl spaces.

Do not allow spray to contact food, foodstuffs, food-contacting surfaces or food utensils or water supplies.

Thoroughly wash dishes and food-handling utensils with soap and water if they become contaminated by application of this product.

Do not treat areas where food is exposed.

During indoor surface applications, do not allow dripping or runoff to occur.

Do not allow contact with treated surfaces by people or pets before spray has dried.

Quali-Pro Bifenthrin I/T 7.9 F will not discolor or otherwise harm surfaces that water alone will not discolor or otherwise harm.

Do not apply this product in patient rooms or in any rooms while occupied by the elderly or infirm.

Do not apply Quali-Pro Bifenthrin I/T 7.9 F in classrooms, libraries, sports venues, or other institutional facilities when they are occupied.

Quali-Pro Bifenthrin I/T 7.9 F may be applied with low-volume application equipment, including Actisol® and Micro-Injector®, for general surface, spot, crack and crevice, and deep harborage treatments.

Not for use on plants being grown for sale or other commercial use, or for commercial seed production, or for research purposes. For use on plants intended only for aesthetic purposes or climatic modifications and being grown in interior plantscapes, ornamental gardens or parks, or lawns and grounds.

Do not apply a broadcast application to interior surfaces of homes.

Application is prohibited directly into sewers or drains, or to any area like a gutter where drainage to sewers, storm drains, water bodies, or aquatic habitat can occur. Do not allow the product to enter any drain during or after application.

#### **Additional Application Restrictions for Residential Outdoor Surface and Space Sprays**

All outdoor applications must be limited to spot or crack-and-crevice treatments only, except for the following permitted uses:

1. Treatment to soil or vegetation around structures;
2. Applications to lawns, turf, and other vegetation;
3. Applications to building foundations, up to a maximum height of 3 feet.

Other than applications to building foundations, all outdoor applications to impervious surfaces such as sidewalks, driveways, patios, porches and structural surfaces (such as windows, doors, and eaves) are limited to spot and crack-and-crevice applications, only.

#### **Distributors Must Sell in Original Packages Only.**

#### **APPLICATION DIRECTIONS**

Not for use on plants being grown for sale or other commercial use, or for commercial seed production, or for research purposes. For use on plants intended only for aesthetic purposes or climatic modifications and being grown in interior plantscapes, ornamental gardens or parks, or lawn and grounds. Only use this product on plants being grown for aesthetic or climatic purposes and in interior and exterior sites including gardens, parks, lawns, and grounds, and other ornamental sites. Do not use on vegetation intended for sale or other commercial uses. Do not use on plants grown for seed production or research purposes.

Using this product in and around structures and building construction will prevent and control termite infestations.

To institute a barrier between the wood and the termites in the soil, the chemical emulsion must be effectively dispersed in the soil. It is important to remove unnecessary materials that contain cellulose and wood from around foundation walls, crawl spaces (inside of structure), and porches, and fix damaged plumbing and construction grade in order to deny termite access to moisture.

To use this product effectively, it is important that the service technician be familiar with current control practices including trenching, rodding, sub-slab injection, low-pressure spray applications, coarse fan spraying of soil surfaces, crack and crevice (void) injection, excavated soil treatment and brush and spray applications to infested or susceptible wood. Using these techniques correctly is essential to prevent or control infestations by subterranean termite species of genera *Reticulitermes*, *Zootermopsis*, *Coptotermes* and *Heterotermes*. When determining what procedures to follow, the service technician should consider certain variables. Some of the variables to consider are species biology and behavior, structure design, heating, ventilation, and air conditioning (HVAC) systems, water table, soil type and compaction, grade conditions, and the location and type of domestic water supplies and utilities.

For information concerning the most up-to-date control practices in a given region or locale, consult the local resources for structural pest control, state cooperative extensions or regulatory agencies.

### GENERAL APPLICATIONS AND RESTRICTIONS

Quali-Pro Bifenthrin I/T 7.9 F controls a wide range of listed pests on flowers, foliage plants, non-bearing fruit and nut trees, shrubs, and ornamental trees in interior and exterior plantscapes including those in hotels, office buildings, shopping malls, etc., and around athletic fields, homes, institutional buildings, parks, and recreational areas. Non-bearing fruit and nut trees are those that will not produce a harvestable crop during the season of application.

Quali-Pro Bifenthrin I/T 7.9 F can be tank mixed with insect growth regulators and other pesticides. Observe all precautions and directions for use for each product. Physical compatibility may vary with different combinations of products, so prepare a small-scale (pint or quart jar) test sample for any combination not tested previously. Use proper proportions in the small-scale test to achieve the correct result.

Unless otherwise noted in the label instructions, use the procedure below for preparation of a new tank mix:

1. Add wettable powders to tank water.
2. Mix well.
3. Add liquids and flowables.
4. Mix well.
5. Add emulsifiable concentrates.
6. Mix well.

Try reversing the order of addition or increasing the amount of water if the combination is not compatible using the above order. **NOTE:** After increasing the amount of water, if the mixture is found to be compatible, it is necessary to recalibrate the sprayer for a higher volume application. Do not allow mixture to stand overnight.

#### Formula for Determining the Active Ingredient Content of the Finished Emulsion

$$\frac{(7.9)(\text{Fl. Oz. of Quali-Pro Bifenthrin I/T 7.9 F added to tank})}{(\text{Gallons of finished spray mix})(128)} = \% \text{ Active Ingredient in emulsion}$$

### SUBTERRANEAN TERMITE CONTROL – GENERAL DIRECTIONS

**Important:** Observe the following precautions to avoid contamination of public and private water supplies:

- Use anti-backflow equipment and procedures to prevent insecticide from being siphoned into water supplies.
- Do not contaminate cisterns, wells, or other water tanks by treating the soil beneath these structures.
- Do not treat soil where runoff may occur.

- Do not treat water-saturated or frozen soil.
- Consult local and state specifications for recommended treatment practices in your area.
- If local or state specifications do not exist, consult the Federal Housing Administration (H.U.D.) guidance documents.

**Note: For the purposes of this label**, crawl spaces are defined as being inside of the structure.

**Critical Areas:** Points at which the foundation is penetrated or abuts another structure are critical areas. These include bath traps, cracks and expansion joints, utility entry points, and adjacent structures including patios, slab additions, and stairs.

### **Structures with Wells/Cisterns Inside Foundations**

Structures that contain wells or cisterns within the foundation of a structure can only be treated using the following techniques:

1. Do not treat soil while it is beneath or within the foundation or along the exterior perimeter of a structure that contains a well or cistern. The treated backfill method must be used if soil is removed and treated outside/away from the foundation. The treated backfill technique is described as follows:
  - a) Trench and remove soil to be treated onto heavy plastic sheeting or similar material or into a wheelbarrow.
  - b) Treat the soil at the rate of 4 gallons of dilute emulsion per 10 linear feet per foot of depth of the trench or 1 gallon per 1.0 cubic feet of soil. See “**Mixing Directions**” section of this label. Mix thoroughly into the soil taking care to contain the liquid and prevent runoff or spillage.
  - c) After the treated soil has absorbed the diluted emulsion, replace the soil into the trench.
2. Treat infested and/or damaged wood in place using an injection technique such as described in the “**Control of Wood-Infesting Insects in Wood**” section of this label.

### **Structures with Adjacent Wells/Cisterns and/or Other Water Bodies**

Applicators must inspect all structures with nearby water sources such as wells, cisterns, surface ponds, streams, and other bodies of water and evaluate, at a minimum, the treatment listed below prior to making an application:

1. Prior to treatment, if feasible, expose the water pipe(s) coming from the well to the structure, if the pipe(s) enter the structure within 3 feet of grade.
2. Prior to treatment, applicators are advised to take precautions to limit the risk of applying the termiticide into subsurface drains that could empty into any bodies of water. These precautions include evaluating whether application of the termiticide to the top of the footer may result in contamination of the subsurface drain. Factors such as depth to the drain system and soil type and degree of compaction should be taken into account in determining the depth of the treatment.
3. When appropriate (i.e., on the water side of the structure), the treated backfill technique (described above) can also be used to minimize off-site movement of termiticide.

Before these techniques are used close to cisterns, wells, or other bodies of water, seek advice from local, state, or federal agencies for information on treatment practices that are accepted in your area.

**Application Rate:** Use a 0.06% emulsion for subterranean termites. For other pests on the label, use specific listed rates.

**Mixing Directions:** Mix the termiticide use dilution in the following manner: Fill tank 1/4 to 1/3 full. Start pump to begin bypass agitation and place end of treating tool in tank to allow circulation through hose. Add appropriate amount of Quali-Pro Bifenthrin I/T 7.9 F. Add remaining amount of water. Let pump run and allow recirculation through the hose for 2 to 3 minutes.

Quali-Pro Bifenthrin I/T 7.9 F may also be combined into full tanks of water. If combined into full tanks of water, allow sufficient time for agitation and/or recirculation to ensure consistency of the dilution.

To prepare a 0.06% water emulsion ready to use, dilute 3 quarts of Quali-Pro Bifenthrin I/T 7.9 F with 99.25 gallons of water.

**Mixing:** Using the chart below, determine the volume of Quali-Pro Bifenthrin I/T 7.9 F and water required to produce the desired volume of finished emulsion

<b>Amount of Quali-Pro Bifenthrin I/T 7.9 F (Gallons except where noted)</b>			
<b>Emulsion Concentrate</b>	<b>Amount of Quali-Pro Bifenthrin I/T 7.9 F</b>	<b>Amount of Water</b>	<b>Desired Gallons of Finished Emulsion</b>
0.06%	1 oz.	127 oz.	1
	5 oz.	4.9	5
	10 oz.	9.9	10
	25 oz.	24.8	25
	1.5 qt.	49.6	50
	2.25 qt.	74.4	75
	3 qt.	99.25	100
	4.5 qt. 6 qt.	148.8 198.5	150 200
0.12% *	2 oz.	126 oz.	1
	10 oz.	4.9	5
	19.5 oz.	9.8	10
	1.5 qt.	24.6	25
	3 qt.	49.2	50
	4.5 qt.	73.8	75
	6 qt.	98.5	100
	9 qt. 3	147.7 197	150 200

Units of measure:

1 pint = 16 fluid ounces (oz.)

1 quart = 2 pints = 4 cups = 32 fluid ounces (oz.)

\* When treating for termites, use this rate only in conjunction with volume adjustments, foam applications, or underground services applications.

**Application Volume:** To provide maximum control and protection against termite infestation, apply the specified volume of the finished water emulsion and active ingredient as set forth in the directions for use section of this label. If soil will not accept the labeled application volume, the volume may be reduced provided there is a corresponding increase in concentration so that the amount of active ingredient applied to the soil remains the same.

**Note:** Large reductions of application volume reduce the ability to obtain a continuous barrier. Variance is allowed when volume and concentration are consistent with the label-directed rates and a continuous barrier can still be achieved.

The volume of the 0.12% emulsion may be reduced by 1/2 the labeled volume where desirable for pre- and post-construction applications. When the volume is reduced, the hole spacing for sub-slab injection and soil rodding may also need to be adjusted to account for lower volume dispersal of the termiticide in the soil. Consult the following **Volume Adjustment Chart** for details.

<b>VOLUME ADJUSTMENT CHART</b>		
<b>Rate (% emulsion)</b>	<b>0.06%</b>	<b>0.12%</b>
Volume allowed		
• Horizontal (gallons emulsion/10 ft <sup>2</sup> )	1.0 gallons	0.5 gallons
• Vertical (gallons emulsion/10 linear ft.)	4.0 gallons	2.0 gallons

**After Treatment:** All holes in commonly occupied areas into which material has been applied must be plugged. Plugs must be of a non-cellulose material or covered by an impervious, non-cellulose material.

#### **Foam Applications**

Quali-Pro Bifenthrin I/T 7.9 F dilution from 0.06 to 0.12% may be converted to foam with 2X - 40X expansion characteristics and used to control or prevent termite infestations.

Depending on the circumstances, foam applications may be used alone or in combination with liquid emulsion applications. Applications may be made behind veneers, piers, chimney bases, into rubble foundations, into block voids or structural voids, under slabs, stoops, porches, or to the soil in crawl spaces and other similar voids.

Foam and liquid application must be consistent with volume and active ingredient instructions in order to ensure proper application has been made. The volume and amount of active ingredient are essential to an effective treatment. At least 75% of the labeled liquid emulsion volume of product must be applied with the remaining percent delivered to appropriate areas using foam application. Refer to label and use instructions of the foam manufacturer and the foaming equipment manufacturer.

Foam applications are generally a good supplement to liquid treatments in difficult areas but may be used alone in difficult spots.

### **Application Under Slabs or to Soil in Crawl Spaces to Prevent or Control Termites**

When making applications, Quali-Pro Bifenthrin I/T 7.9 F foam can be used alone or in combination with liquid dilution. Whether applied as a dilution, foam, or some of both, the equivalent of at least 4 gallons of 0.06% dilution (4 ounces of Quali-Pro Bifenthrin I/T 7.9 F concentrate) per 10 linear feet must be applied for a vertical barrier, or at least 1 gallon of 0.06% dilution (1 ounce of Quali-Pro Bifenthrin I/T 7.9 F concentrate) per 10 square feet must be applied for a horizontal barrier. For a foam-only application, apply Quali-Pro Bifenthrin I/T 7.9 F concentrate in sufficient concentration and volume to equal 4 ounces of concentrate per 10 linear feet or 1 ounce of concentrate per 10 square feet. For example, 2 gallons of 0.12% dilution converted to foam and used to cover 10 linear feet is the equivalent of 4 gallons of 0.06% dilution per 10 linear feet.

### **Sand Barrier Installation and Treatment**

As long as termites have access to soil that has not been treated and can avoid soil that has been treated with Quali-Pro Bifenthrin I/T 7.9 F, they can build mud tubes over surfaces that have been treated. Cracks and spaces should be filled with play box or builder's sand and then treated in the same manner as soil. Follow the rates listed on the Quali-Pro Bifenthrin I/T 7.9 F label.

Re-treatment for subterranean termites can only be performed if there is clear evidence of reinfestation or disruption of the barrier due to construction, excavation, or landscaping and/or evidence of the breakdown of the termiticide barrier in the soil. These vulnerable or reinfested areas may be re-treated in accordance with application techniques described in this product's labeling. The timing and type of these re-treatments will vary depending on factors such as termite pressure, soil types, soil conditions and other factors which may reduce the effectiveness of the barrier.

Annual re-treatment of the structure is prohibited unless there is clear evidence that reinfestation or barrier disruption has occurred.

### **PRE-CONSTRUCTION SUBTERRANEAN TERMITE TREATMENT**

**Do not apply at a lower dosage and/or concentration than specified on this label for applications prior to the installation of the finished grade.** When treating foundations deeper than 4 feet, apply the termiticide as the backfill is being replaced; or if the construction contractor fails to notify the applicator to permit this, treat the foundation to a minimum depth of 4 feet after the backfill has been installed. The applicator must trench and rod into the trench or trench along the foundation walls and around pillars and other foundation elements at the rate prescribed from grade to a minimum depth of 4 feet. When the top of the footing is exposed, the applicator must treat the soil adjacent to the footing to a depth not to exceed the bottom of the footing. However, in no case should a structure be treated below the footing.

To produce effective pre-construction subterranean termite control, create vertical and/or horizontal chemically treated zones of protection using 0.06% emulsion of Quali-Pro Bifenthrin I/T 7.9 F. Follow the current edition of the Housing and Urban Development Minimum Property Standards to assure that F.H.A. termite-proofing requirements are met.

### **Horizontal Barriers**

Establish a horizontal chemical barrier wherever treated soil will be covered by a slab such as basement floors, carports, entrance platforms, footing trenches, and slab floors.

Apply 1 gallon of 0.06% dilution per 10 square feet, or use 1 fluid ounce of Quali-Pro Bifenthrin I/T 7.9 F per 10 square feet in sufficient water (no less than 1/2 gallon or more than 2 gallons) to provide a uniform treated barrier for the area being treated.

If the fill is coarse aggregate such as washed gravel, a sufficient volume of dilution must be applied to allow it to reach the soil beneath the coarse fill.

Make applications with a low-pressure spray (less than 50 psi) using a coarse spray nozzle. If foundation walls have not been installed around the treated soil and the slab will not be poured the same day as treatment, the treated soil must be covered with a waterproof barrier. Polyethylene sheeting may be used for this purpose.

### **Vertical Barriers**

Establish vertical barriers in critical areas such as along the inside of foundation walls, plumbing, bath traps, utility services and other features that will penetrate the slab.

Using a 0.06% dilution, apply 4 gallons of dilution per 10 linear feet per foot of depth or 4 fluid ounces of Quali-Pro Bifenthrin I/T 7.9 F per 10 linear feet per foot of depth from grade level to the top of the footing in sufficient water to provide a uniform treated barrier. Use not less than 2 gallons to not more than 8 gallons of water per 10 linear feet.

When trenching and rodding into the trench, or trenching, take care to ensure that the dilution reaches the top of the footing. Space the rod holes so that a continuous treated barrier is created, but not exceeding 12 inches apart. Avoid washing out the soil around the footing. Trenches should be about 6 inches wide and 6 inches deep. Mix the chemical dilution with the soil as it is being replaced in the trench. Inside vertical barriers may not be required for monolithic slabs.

When treating hollow block voids, use 2 gallons of dilution per 10 linear feet to assure that the dilution reaches the top of the footing.

Prior to each application, applicators must notify the general contractor, construction superintendent, or similar responsible party of the intended termiticide application and intended sites of application and instruct the responsible person to notify construction workers and other individuals to leave the area to be treated during application and until the termiticide is absorbed into the soil.

### **POST-CONSTRUCTION SUBTERRANEAN TERMITE TREATMENT**

For post-construction treatment, use a 0.06% dilution. Post-construction treatments shall be made by sub-slab injection, trenching and rodding into the trench, or trenching using low-pressure spray not exceeding 25 psi at the nozzle. Proper precautions should be taken to avoid soil washout around the footing.

Locate, identify, and mark wells, electrical conduits, water and sewer lines, and radiant heat pipes prior to application of Quali-Pro Bifenthrin I/T 7.9 F. Do not puncture or inject Quali-Pro Bifenthrin I/T 7.9 F into such structures.

### **Basements**

Treatment must be made by trenching and rodding into the trench or trenching at the rate of 4 gallons of dilution per 10 linear feet per foot of depth wherever the footing from grade to the bottom of the foundation is greater than 1 foot of depth. When the footer is greater than four feet below grade, the applicator may trench and rod into the trench or trench beside foundation walls at the rate designated for four feet of depth. Space rod holes to create a continuous insecticidal barrier, but in no case more than 12 inches apart. Depending on the type of soil, degree of compaction, and location of termite activity, the actual depth of treatment will differ. However, a

structure should never be treated below the footer. Sub-slab injection may be needed beside the inside of foundation walls, around conduits, piers, and pipes, beside both sides of interior footing-supported walls, and beside cracks and partition walls.

### **Crawl Spaces – Accessible**

For crawl spaces, apply vertical termiticide barriers at the rate of 4 gallons of emulsion per 10 linear feet per foot of depth from grade to the top of the footing, or if the footing is more than 4 feet below grade to a minimum depth of 4 feet. Apply by trenching and rodding into the trench, or trenching. Treat both sides of foundation and around all piers and pipes. Where physical obstructions such as concrete walkways adjacent to foundation elements prevent trenching, treatment may be made by rodding alone. When soil type and/or conditions make trenching prohibitive, rodding may be used. When the top of the footing is exposed, the applicator must treat the soil adjacent to the footing to a depth not to exceed the bottom of the footing. Read and follow the mixing and use direction section of the label if situations are encountered where the soil will not accept the full application volume.

1. Rod holes and trenches must not extend below the bottom of the footing.
2. Rod holes must be spaced so as to achieve a continuous termiticide barrier, but in no case more than 12 inches apart.
3. Trenches must be a minimum of 6 inches deep or to the bottom of the footing, whichever is less, and need not be wider than 6 inches. When trenching in sloping (tiered) soil, the trench must be stepped to ensure adequate distribution and prevent termiticide from running off. The emulsion must be mixed with the soil as it is replaced in the trench.
4. When treating plenums or crawl spaces, turn off the air circulation system of the structure until application has been completed and all termiticide has been absorbed by the soil.

### **Crawl Spaces – Inaccessible**

For inaccessible interior areas such as areas where there is insufficient clearance between floor joists and ground surfaces to allow operator access, excavate if possible and treat according to the instruction for accessible crawl spaces. Otherwise, apply one or a combination of the following two methods:

1. To establish a horizontal barrier, apply to the soil surface 1 gallon of emulsion per 10 square feet overall using a nozzle pressure of less than 25 psi and a coarse application nozzle (e.g., Delavan Type RD Rain-drop, RD-7 or larger, or Spraying Systems Co. 8010LP TeeJet® or comparable nozzle). For an area that cannot be reached with the application wand, use one or more extension rods to make the application to the soil. Do not broadcast or powerspray with higher pressures.
2. To establish a horizontal barrier, drill through the foundation wall or through the floor above and treat the soil perimeter at a rate of 1 gallon of emulsion per 10 square feet. Drill spacing must be at intervals not to exceed 16 inches. Many states have smaller intervals, so check State regulations which may apply.

When treating plenums and crawl spaces, turn off the air circulation systems of the structure until application has been completed and all termiticide has been absorbed by the soil.

**Excavation Technique:** When treating in troublesome areas (e.g., beside fieldstone or rubble walls, beside faulty foundation walls, and around pipes and utility lines leading downward from the structure to a well or pond), apply using the following technique:

- a. Prepare a trench placing the removed soil onto heavy-weight plastic sheeting or similar water-impermeable material.

- b. Treat the soil with 4 gallons of 0.06% dilution per 10 linear feet per foot of depth of the trench. Completely mix the dilution into the soil exercising care to avoid liquid running off the sheeting.
- c. Place the treated soil back into the trench after it has absorbed the dilution.

**Attention:** Wear NIOSH-approved unvented goggles and a respirator when applying Quali-Pro Bifenthrin I/T 7.9 F in a confined area.

### **Foundations**

For applications made after the final grade is installed, the applicator must trench and rod into the trench or trench along the foundation walls and around pillars and other foundation elements at the rate prescribed from grade to the top of the footing. When the footing is more than four (4) feet below grade, the applicator must trench and rod into the trench or trench along the foundation walls at the rate prescribed to a minimum depth of four feet. The actual depth of treatment will vary depending on soil type, degree of compaction, and location of termite activity. When the top of the footing is exposed, the applicator must treat the soil adjacent to the footing to a depth not to exceed the bottom of the footing. However, in no case should a structure be treated below the footing.

### **Masonry Voids**

Drill and treat voids in multiple masonry elements of the structure extending from the structure to the soil in order to create a continuous treatment barrier in the area to be treated. Apply at a rate of 2 gallons of emulsion per 10 linear feet of footing using a nozzle pressure of less than 25 psi. When using this treatment, access holes must be drilled below the sill plate and should be as close as possible to the footing as is practical. Treatment of voids in block or rubble foundation walls must be closely examined. Applicators must inspect areas of possible runoff as a precaution against application leakage in the treated areas. Some areas may not be treatable or may require mechanical alteration prior to treatment.

All leaks resulting in the deposition of termiticide in locations other than those prescribed on this label must be cleaned up prior to leaving the application site. Do not allow people or pets to contact contaminated areas or to reoccupy the contaminated areas of the structure until the cleanup is completed.

**NOTE:** When treating behind veneer structures (walls, etc.), take proper care to not drill beyond the veneer. If concrete blocks exist behind the veneer, both can be drilled and treated simultaneously.

Quali-Pro Bifenthrin I/T 7.9 F may not be used in voids insulated with rigid foam insulation.

### **Slabs**

Create vertical barriers by trenching and rodding into the trench or trenching outside at a rate of 4 gallons of dilution per 10 linear feet per foot of depth and by sub-slab injection within the structure. Ensure an even distribution of chemical. Applications must not be made below the bottom of the footing.

Apply beside the outside of the foundation and under the slab on the inside of foundation walls where needed. Treatment of slabs may also be necessary under and beside both sides of any interior footing-supported walls, in all cracks and expansion joints, and beside one side of interior partitions. By long-rodding or grid pattern injection vertically through the slab, horizontal barriers may be created where necessary.

- a. To permit the creation of an uninterrupted insecticidal barrier, drill holes in the foundation and/or slab.
- b. For foundations that are less than or equal to 1 foot, dig a narrow trench about 6 inches wide beside the outside of the foundation walls. Do not dig beneath the bottom of the footing. As the soil is placed back into the trench, apply 4 gallons of 0.06% dilution per 10 linear feet per foot of depth to the trench and soil.

- c. Follow the rates stated above for basements for foundations that are deeper than 1 foot.  
d. A 0.06% dilution may be used to treat soil that is exposed and wood in bath traps.

**Annual re-treatment of the structure is prohibited unless there is clear evidence that reinfestation or barrier disruption has occurred.**

### FOOD HANDLING ESTABLISHMENTS

If used as a general spot, surface, or crack and crevice treatment, Quali-Pro Bifenthrin I/T 7.9 F may be applied in both food/feed and nonfood areas of food/feed-handling establishments.

Food/feed-handling establishments are any place other than private residences where exposed food/feed is held, processed, prepared or served, including areas for receiving, storing, packing (bottling, boxing, canning, wrapping), preparing, enclosed processing systems (dairies, edible oils, mills, syrups) of food and edible waste storage. Serving areas where food is exposed and the facility is in operation are also considered food areas.

Nonfood areas in which applications are allowed include entries and vestibules, floor drains (to sewers), garages, garbage rooms, lavatories, locker rooms, machine rooms, mop closets, offices, and storage (after canning or bottling).

Listed below are some of the use sites that are allowed:

- aircraft (do not use in aircraft cabins)
- apartment buildings
- bakeries
- bottling facilities
- breweries
- buses
- cafeterias
- candy plants
- canneries
- dairy product processing plants
- food manufacturing plants
- food processing plants
- food service establishments
- granaries
- grain mills
- hospitals
- hotels
- industrial buildings
- laboratories
- meat/poultry/egg processing plants
- mobile/motor homes
- nursing homes
- offices
- railcars
- restaurants
- schools
- ships
- trailers
- trucks
- vessels
- warehouses
- wineries

**General Surface Application: Do not use this application method in food/feed-handling establishments when the facility is in operation or foods/feeds are exposed.** During treatment, remove or cover all food-processing and/or handling equipment and do not apply directly to food products. All equipment, benches, shelving and other surfaces in food-processing plants, bakeries, cafeterias and other facilities which food will contact must be washed after treatment. Clean food-handling equipment or processing equipment and rinse completely with fresh clean water.

**Spot, Crack and Crevice Application:** These types of treatments can be done when the facility is operating, but food should be covered or removed from the treatment area. Do not apply directly to food.

**Foam Applications:** Converting Quali-Pro Bifenthrin I/T 7.9 F to foam will allow it to be used to treat structural voids. To produce a 0.02% to 0.06% foam concentration, dilute 0.33 to 1.0 fl. oz. of Quali-Pro Bifenthrin I/T 7.9 F per gallon of water and add the manufacturer's recommended amount of foaming agent. Before application, make sure that the foaming agent is compatible with Quali-Pro Bifenthrin I/T 7.9 F.

### INDOOR USES

In the home, all food-processing surfaces and utensils should be covered during treatment or thoroughly washed before reuse. Exposed food should be covered or removed. Do not permit humans or pets to contact treated surfaces until the spray has dried.

During any overhead applications to overhead interior areas of structures, cover surfaces below with plastic sheeting or similar materials.

Wear protective clothing, unvented goggles, gloves and respirator when applying to overhead areas or in poorly ventilated areas. Avoid touching sprayed surfaces until spray has completely dried.

Quali-Pro Bifenthrin I/T 7.9 F may be used to control ants, grocer beetles, boxelder bugs, carpet beetles, centipedes, clothes moths, cockroaches, crickets, earwigs, firebrats, flies, gnats, midges, millipedes, pillbugs, scorpions, silverfish, sowbugs, spiders, ticks, and wasps.

In structures and buildings and on modes of transportation, use a 0.02% to 0.06% suspension (0.33 to 1 fl. oz. per gallon of water) using a crack and crevice, pinstream, spot, coarse, low-pressure spray (25 psi or less) or with a paint brush.

**Indoor Treatments:** Apply where pests hide. These areas include but are not limited to baseboards, corners, storage areas, closets, around water pipes, doors and windows, attics and eaves, behind and under refrigerators, cabinets, sinks, furnaces, stoves, the underside of shelves, and drawers. Treat with a low-pressure, coarse, crack and crevice or spot spray. Pay close attention to cracks and crevices. Not for use as a space spray.

**Mixing Directions:** See mixing directions in “**Pest Control on Outside Surfaces and Around Buildings**” section.

To make a dilution for brush or spray treatments:

- Dilute Quali-Pro Bifenthrin I/T 7.9 F with water.
- Fill sprayer with the required amount of water.
- Add Quali-Pro Bifenthrin I/T 7.9 F.
- To ensure proper mixing, close sprayer and shake before use.
- Only mix the amount of solution that is necessary for treatment.

In order to achieve and/or maintain control in times of high pest pressure, re-treatment may be needed.

Repeat application should only take place if there are signs of renewed insect activity and must not exceed one application per 7 days.

**Ants:** Apply to any ant trails, around doors and windows, and other places that ants frequent.

**Bees and Wasps:** Apply to nests in late evening when these pests are at rest. Spray nests, entrances to nests and surrounding areas thoroughly. Contact as many insects as possible. Re-treat if signs of renewed activity exist.

**Boxelder Bugs, Centipedes, Earwigs, Beetles, Millipedes, Pillbugs, and Sowbugs:** Treat near doors and windows, storage areas, baseboards and other sites where these pests may be found.

**Cockroaches, Crickets, Firebrats, Scorpions, Silverfish, Spiders, and Ticks:** Use a coarse low-pressure, crack and crevice or spot spray paying close attention to cracks and crevices. Treat where pests hide. These areas include but are not limited to attics and eaves, baseboards, closets, corners, storage areas, around water pipes, doors and windows, behind and under cabinets, furnaces, refrigerators, sinks, stoves, and the underside of shelves and drawers.

### **LIVESTOCK AND POULTRY BUILDINGS AND KENNELS**

Quali-Pro Bifenthrin I/T 7.9 F may be used as a surface spray (including directed spray) and crack and crevice application for control of flies, fleas, beetles, bed bugs, mites and ticks. Usual cleaning of the structure must be completed along with the Quali-Pro Bifenthrin I/T 7.9 F application for effective control.

For the areas of the structure that are not in use, make application to floors, walls, pipes, windows, and doors where pests may be present at a rate of 0.33 to 1 oz per 1000 sq ft. Cover feed and water units prior to application to prevent contamination. Outside applications to sides and foundations are also helpful against interior infestation.

For areas of the structure that are in use, apply inside to cracks and crevices only at a rate of 0.33 to 1 oz per 1000 sq. feet. Outside applications to sides and foundation are also helpful against interior infestation. Do not apply directly to animals.

Quali-Pro Bifenthrin I/T 7.9 F will control adult flies by spraying in and around the animal structure. The application should be made anywhere flies will sit including windows, inside and outside walls, fences, vegetation, and on manure in areas that cannot be cleaned.

Applications in poultry houses should be made at a rate of 0.33 to 1 fl oz per 1000 sq feet to floors, walls, poles, and cages (if used), cracks and crevices. In order to prevent unobtrusive pests, maintain a year-round treatment program. Applications should be made after each batch or cleaning, but not more than once every 8 weeks. Outside applications to sides (2-3 feet high), foundation, and ground (6-10 feet out) are also helpful against interior infestation.

Quali-Pro Bifenthrin I/T 7.9 F should be applied at a rate of 0.33 to 1 fl oz per 1000 sq feet for control of beetles in structures containing birds (including broilers for breeding) grown on refuse matter. Make application after animals are removed and during harrowing. When structure is cleaned out, apply to bare dirt or cement, sides, and exterior border, and treat new litter that is put down. Reapply after each batch of animals.

Use Quali-Pro Bifenthrin I/T 7.9 F at a rate of 0.33 to 1 fl oz per 1000 sq ft to treat the outside edge of the manure when used in caged-layer houses to control beetles. Do not apply directly to accrued waste. An application to sides, ceiling, poles, and exterior part of structure should be made. Reapply between each batch of animals.

### **RESTRICTIONS**

- Do not apply to milk rooms.
- Do not apply as a general surface spray when animals are present in structure. When animals are present, only cracks and crevices may be treated.
- Applications must be dry before allowing animals back into structure.
- Spray must be dry before applying a disinfectant.
- Cover feed and water units when making application so as not to contaminate.

## LAWNS

Use Quali-Pro Bifenthrin I/T 7.9 F as a broadcast treatment. To accomplish uniform control when applying to dense grass foliage, use volumes of up to 10 gallons per 1000 square feet.

To ensure control of sub-surface pests including mole crickets using low-volume treatments, (i.e., less than 2 gallons per 1000 square feet), immediately follow the treatment with irrigation of the treated area with at least 0.25 inches of water.

### Lawn Application Rates

Under typical conditions, the application rates shown in the table below will provide control of the listed pests. Quali-Pro Bifenthrin I/T 7.9 F may, however, be applied at up to 1 fl. oz. per 1000 square feet at the discretion of the applicator. Maximum residual control requires the higher treatment rates.

Pest	Application Rate Quali-Pro Bifenthrin I/T 7.9 F
Armyworms <sup>1</sup> Cutworms <sup>1</sup> Sod Webworm <sup>1</sup>	0.18 - 0.25 fluid oz. per 1000 sq. ft.
Annual Bluegrass Weevil (Hyperodes)(Adult) <sup>2</sup> Banks Grass Mite <sup>6</sup> Billbugs (Adult) <sup>3</sup> Black Turfgrass Ataenius Adult <sup>4</sup> Centipedes Chinch Bugs <sup>5</sup> Crickets Earwigs Fleas (Adult) Grasshoppers Leafhoppers Mealybugs Millipedes Mites <sup>6</sup> Pillbugs Sowbugs	0.25 - 0.5 fluid oz. per 1000 sq. ft.
Ants Fleas (Larvae) <sup>7</sup> Imported Fire Ants <sup>8</sup> Japanese Beetle (Adult) Mole Cricket (Adult) <sup>9</sup> Mole Cricket (Nymph) <sup>10</sup> Ticks <sup>11</sup>	0.5 - 1.0 fluid oz. per 1000 sq. ft.

In New York State, this product may not be applied to any grass or turf area within 100 feet of a water body (lake, pond, river, stream, wetland, or drainage ditch).

In New York State, do make a single repeat application of Quali-Pro Bifenthrin I/T 7.9 F if there are signs of renewed insect activity, but not sooner than two weeks after the first application.

#### Notes

- <sup>1</sup> **Armyworms, Cutworms, and Sod Webworms:** Postpone irrigation or mowing for 24 hours after application to obtain the best possible control. Higher treatment rates (up to 1 fluid oz. per 1000 square feet) may be necessary if high pest pressure exists and if the grass is maintained taller than 1 inch.
- <sup>2</sup> **Annual Bluegrass Weevil (*Hyperodes*) adults:** Treatment of this species should be timed as they travel into grass areas and away from their overwintering sites. Travel usually begins when *Forsythia* is in full bloom and ends when *Cornus florida* (flowering dogwood) is in full bloom. For additional detailed information regarding treatment timing, check with your State Cooperative Extension Service.
- <sup>3</sup> **Billbug adults:** Treatment of adult billbugs should be made when they are first noticed in April and May. To optimize treatment timing, degree day models have been developed. For detailed information particular to your region, check with your State Cooperative Extension Service. Spring treatments for billbug adults will also offer control of over-wintered chinch bugs in temperate climates.
- <sup>4</sup> **Black Turfgrass *Ataenius* adults:** In order to control the 1st and 2nd generation of black turfgrass *ataenius* adults respectively, treatments should take place in May and July. Time the May treatment to match with the full bloom stage of Vanhoutte spiraea (*Spiraea vanhoutte*) and horse chestnut (*Aesculus hippocastanum*). Time the July treatment to match with the blooming Rose of Sharon (*Hibiscus syriacus*).
- <sup>5</sup> **Chinch Bugs:** Mostly found in the thatch layer, chinch bugs infest the base of grass plants. In order to optimize the penetration of the insecticide to location of the chinch bugs, irrigation of the grass prior to treatment may be necessary. If grass is being kept at a long mowing height or if the thatch layer is excessive, use higher volume treatments. It may be necessary to use higher application rates (up to 1 fluid oz. per 1000 square feet) to control populations made up of both adults and nymphs in mid-summer.
- <sup>6</sup> **Mites:** Apply Quali-Pro Bifenthrin I/T 7.9 F in combination with a labeled rate of a surfactant to achieve optimal control of eriophyid mites. A second application may be needed 5 to 7 days after the first to ensure optimal control.
- <sup>7</sup> **Flea larvae:** Immature fleas mature in shaded areas accessible to pets or other animals. When treating these areas, use a higher volume treatment so that the insecticide penetrates into the soil. NOTE: If adult fleas on lawn areas are being controlled by applying Quali-Pro Bifenthrin I/T 7.9 F at a rate of 0.25 fl. oz. per 1000 square feet, then the rate of larval application can be accomplished by two- to four-fold increase in spray volume.
- <sup>8</sup> **Imported Fire Ants:** The best control will be achieved by using broadcast treatments in combination with mound drenches. This will control present colonies along with foraging workers and newly mated fly-in queens. It is critical either to use high-volume treatments or to irrigate prior to application if the soil is dry. Apply 1 fl. oz. per 1000 square feet when using broadcast treatments. For mound drenches, dilute 1 teaspoon of Quali-Pro Bifenthrin I/T 7.9 F per gallon of water and use 1 to 2 gallons of finished dilution using sufficient force to penetrate the top and allow dilution to flood ant channels. Treat a four-foot diameter around each ant mound. Application should be made in late evening or early morning when it is cooler (65° - 80° when insects are most active). NOTE: A spray rig calibrated to apply 1 fluid oz. per 1000 square feet of Quali-Pro Bifenthrin I/T 7.9 F in 5 gallons per 1000 square feet contains the equivalent dilution (1 teaspoon per gallon) required for fire ant mound drenches in the spray tank.

- <sup>9</sup> **Mole Cricket adults:** Since the preferred grass areas are subject to constant invasion in early spring by the active adult stage, it can be difficult to maintain control of adult mole crickets. It is ideal to treat the areas as late in the day as possible and water immediately after application with up to 0.5 inches of water. To ensure maximum contact when soil is dry, it is necessary to irrigate prior to treatment to bring the adult mole crickets closer to the soil surface. To obtain optimal control of potential nymphal populations, the grass areas preferred by adult mole crickets should be treated at immediately prior to peak hatch stage. (See note 10 below).
- <sup>10</sup> **Mole Cricket nymphs:** Treat grass areas that are preferred by adult mole crickets in the spring just before peak egg hatch. Young nymphs are more vulnerable to insecticidal treatment at this stage because they are close to the soil surface where the insecticide is most concentrated and thereby providing the most efficient control. For larger more damaging nymphal stages later in the year, it may be necessary to use higher application rates more frequently. It is ideal to treat the areas as late in the day as possible and water immediately after application with up to 0.5 inches of water. To ensure maximum contact when soil is dry, it is necessary to irrigate prior to treatment to bring the adult mole crickets closer to the soil surface.
- <sup>11</sup> **Ticks (including ticks that may transmit Lyme Disease and Rocky Mountain Spotted Fever):** Make application to the entire area where contact with ticks may occur. Do not make spot treatments. When applying to areas with heavy leaf litter or dense ground cover, use higher spray volumes. To attain and/or sustain control in times of high pest pressure, re-treatments may be necessary; re-treat only if signs of continued or renewed tick activity are present. Repeat treatments must not be made more often than once per 7 days. **Deer ticks (*Ixodes sp.*)** have a four-stage life cycle spanning 2 years. Treat in late fall and/or early spring to both larval and nymphal stages present in leaf litter and the soil and adults living in the grass and low-lying vegetation above ground. **American dog ticks** invade suburban settings in areas where residences and dwellings are constructed on former fields or wooded areas. These pests normally gather by paths or roadways where they are likely to find a host. To control tick larvae, nymphs and adults, treatments should take place, as needed, from mid-spring to early fall.

**Quali-Pro Bifenthrin I/T 7.9 F Lawn Dilution Chart**

<b>Application Volume:</b>	<b>Application Rate:</b>	<b>Fluid Ounces* of Quali-Pro Bifenthrin I/T 7.9 F Diluted to these Volumes of Finished Spray</b>			
<b>Gallons Per 1000 Sq. Ft.</b>	<b>Fluid Ounces per 1000 Sq. Ft.</b>	<b>1 gallon</b>	<b>5 gallons</b>	<b>10 gallons</b>	<b>100 gallons</b>
1.0	0.18	0.18	0.90	1.8	18.0
1.0	0.25	0.25	1.25	2.5	25.0
1.0	0.5	0.5	2.5	5.0	50.0
1.0	1.0	1.0	5.0	10.0	100.0
2.0	0.18	-	0.45	0.90	9.0
2.0	0.25	0.13	0.63	1.25	12.5
2.0	0.5	0.25	1.25	2.5	25.0
2.0	1.0	0.5	2.5	5.0	50.0
3.0	0.18	-	0.30	0.60	6.0
3.0	0.25	-	0.42	0.83	8.3
3.0	0.5	0.17	0.83	1.67	16.7
3.0	1.0	0.33	1.67	3.33	33.3
4.0	0.18	-	0.23	0.45	4.5
4.0	0.25	-	0.31	0.63	6.3
4.0	0.5	0.13	0.63	1.25	12.5
4.0	1.0	0.25	1.25	2.5	25.0
5.0	0.18	-	0.18	0.36	3.6
5.0	0.25	-	0.25	0.5	5.0
5.0	0.5	0.1	0.5	1.0	10.0
5.0	1.0	0.2	1.0	2.0	20.0
10.0	0.18	-	-	0.18	1.8
10.0	0.25	-	0.13	0.25	2.5
10.0	0.5	-	0.25	0.5	5.0
10.0	1.0	0.1	0.5	1.0	10.0

\*To convert to millimeters, multiply by 29.57

1 fluid ounce = 29.57 mL = 2 tablespoons = 6 teaspoons

Do not use household utensils to measure Quali-Pro Bifenthrin I/T 7.9 F.

## ORNAMENTALS AND TREES

Treat with 0.125 to 1.0 fl. oz. of Quali-Pro Bifenthrin I/T 7.9 F per 1000 square feet or 5.4 to 43.5 fl. oz. per 100 gallons for ornamental applications. As long as the highest label rate (1.0 fl. oz. per 1000 square feet or 43.5 fl. oz. per 100 gallons) is not exceeded, Quali-Pro Bifenthrin I/T 7.9 F can be diluted and used in different volumes of water. If diluted with water or other carriers, low-volume equipment can be used for application as long as the highest label rate (1.0 fl. oz. per 1000 square feet or 43.5 fl. oz. per 100 gallons) is not exceeded.

Treat as a full-coverage foliar spray using the stated application rate. If pest pressure and density of foliage increases, repeat treatments using higher rates may be needed to reach the desired control. Repeat treatments should not be made more often than once per 7 days.

Before application to entire planting, test treat a small number of plants and watch for signs of sensitivity. Some plant species may be sensitive to the final spray solution.

To avoid or delay pest resistance, it is recommended to use an alternate class of pesticide in any application program.

## GREENHOUSES AND INTERIOR PLANTSCAPES

Quali-Pro Bifenthrin I/T 7.9 F is effective for use on a broad range of insects and mites on trees, shrubs, leafy plants, nonbearing fruit and nut trees, and flowers grown in greenhouses. It may also be used in interior plants such as hotels, shopping malls, office buildings and other similar areas.

Quali-Pro Bifenthrin I/T 7.9 F may be used by itself or in a tank mix with other products such as insect growth regulators.

**Calculating Dilution Rates using the Ornamental, Greenhouse, and Interior Plantscape Application Rates Table and the Quali-Pro Bifenthrin I/T 7.9 F Ornamental, Greenhouse, and Interior Plantscape Dilution Chart:** To determine the proper dilution of Quali-Pro Bifenthrin I/T 7.9 F that is required to control specific pests, follow the steps below:

1. Determine the target pest that is the least susceptible (i.e., the pest that requires the highest application rate for effective control).
2. Choose a treatment rate in terms of fl. oz. of Quali-Pro Bifenthrin I/T 7.9 F.
3. Determine the dilution volume necessary for the treatment.
4. Use the proper amount of Quali-Pro Bifenthrin I/T 7.9 F that must be mixed in your preferred volume of water as shown in the Ornamental Dilution Chart.

As an example, if you were treating for cutworms, the Ornamental Application Rates table shows that 0.125 – 0.25 fluid ounces of Quali-Pro Bifenthrin I/T 7.9 F should be applied per 1000 square feet. Select the application rate of 0.25 fluid oz. per 1000 square feet due to evidence of high pest pressure. The application volume is determined to be 300 gallons per acre which is equivalent to 6.9 gallons per 1000 square feet. The corresponding value in the Ornamental Dilution Chart shows that 0.36 fluid oz. of Quali-Pro Bifenthrin I/T 7.9 F should be mixed with 10 gallons of water.

## Ornamental, Greenhouse, and Interior Plantscape Application Rates

Under typical conditions, the application rates in the table below will offer optimal control of the listed pests, but Quali-Pro Bifenthrin I/T 7.9 F can be used at up to 1 fl. oz. per 1000 square feet (43.5 fl. oz. per 100 gallons) at the discretion of the applicator. When maximum residual control is preferred, higher treatment rates are necessary.

**Quali-Pro Bifenthrin I/T 7.9 F Ornamental, Greenhouse, and Interior Plantscape Application Rate Table**

Pest	Application Rate Quali-Pro Bifenthrin I/T 7.9 F	
	Fluid Ounces per 1000 square ft.	Fluid Ounces per 100 gallons
Bagworms <sup>1</sup> Cutworms Elm Leaf Beetles Fall Webworms Gypsy Moth Caterpillars Lace Bugs Leaf Feeding Caterpillars Tent Caterpillars	0.125 - 0.25	5.4 - 10.8
Adelgids <sup>†</sup> Ants Aphids Bees Beet Armyworm Beetles <sup>2,†</sup> Black Vine Weevil (Adults) Brown Soft Scales Broad Mites Budworms California Red Scale (Crawlers) <sup>13</sup> Centipedes Cicadas <sup>†</sup> Citrus Thrips Clover Mites Crickets Diaprepes (Adults) Earwigs European Red Mite Flea Beetles Fungus Gnats (Adults) Grasshoppers Japanese Beetle (Adult) <sup>†</sup> Leafhoppers Leafrollers	0.25 - 0.5	10.8 - 21.7

*(continued)*

**Quali-Pro Bifenthrin I/T 7.9 F Ornamental, Greenhouse, and Interior Plantscape Application Rate Table** (continued)

Pest	Application Rate Quali-Pro Bifenthrin I/T 7.9 F	
	Fluid Ounces per 1000 square ft.	Fluid Ounces per 100 gallons
Mealybugs Millipedes Mites Mosquitoes Orchid Weevil Pillbugs Pine Needle Scales (Crawlers) <sup>2</sup> Plant Bugs (Including <i>Lygus</i> spp.) Psyllids <sup>1</sup> San Jose Scales (Crawlers) <sup>2</sup> Scorpions Sowbugs Spider Mites <sup>3</sup> Spiders Spittlebugs <sup>†</sup> Thrips Tip Moths Treehoppers <sup>†</sup> Twig Borers <sup>2</sup> Wasps Weevils <sup>2</sup> Whiteflies	0.25 - 0.5	10.8 - 21.7
Imported Fire Ants** Leafminers Pecan Leaf Scorch Mite Pine Shoot Beetle (Adults) Spider Mites <sup>14</sup>	0.5 - 1.0	21.7 - 43.5

<sup>1</sup> **Bagworms:** For optimum control, treat when larvae have started to hatch and are young, directing spray to contact as many larvae as possible.

<sup>2</sup> **Beetles, Scale Crawlers, Twig Borers, and Weevils:** Apply to plant foliage; also treat trunks, stems, and twigs.

<sup>3</sup> **Spider Mites:** Apply during spring and mid-summer for most effective control of two-spotted spider mites. During mid- to late-summer, it may be necessary to make more frequent treatments, possibly at higher rates for suitable control. Control may be enhanced by adding a surfactant or horticultural oil or by combining Quali-Pro Bifenthrin I/T 7.9 F with other products registered to control mites. Applications of Quali-Pro Bifenthrin I/T 7.9 F may be alternated with chemicals offering other modes of action that delay or prevent resistance by two-spotted spider mites. For recommendations on resistance management in your region, check with your local Cooperative Extension Service.

\*\*For foraging ants.

† Not for use in California.

### RESTRICTIONS FOR CALIFORNIA

- Greenhouse applicators must wear: Full-body, chemical-resistant protective suit (such as barrier laminate, butyl rubber, polyvinyl chloride, or equivalent).
- Reapplication Interval: Reapplications to greenhouses must be at intervals of 30 days or longer.
- Greenhouse Harvesters must wear: Regular-length gloves plus a long-sleeved shirt or elbow-length (gauntlet-type) gloves during the 30 days following application.

### Quali-Pro Bifenthrin I/T 7.9 F Ornamental, Greenhouse, and Interior Plantscape Dilution Chart

Application Volume: Gallons Per		Application Rate: Fl. Oz. per	Fluid Ounces* of Quali-Pro Bifenthrin I/T 7.9 F Diluted to these Volumes of Finished Spray			
1000 sq. ft.	Acre	1000 sq. ft.	1 gallon	5 gallons	10 gallons	100 gallons
2.3	100	0.125	-	0.27	0.54	5.4
2.3	100	0.25	0.11	0.54	1.08	10.8
2.3	100	0.5	0.22	1.09	2.17	21.7
2.3	100	1.0	0.44	2.17	4.35	43.5
4.6	200	0.125	-	0.14	0.27	2.7
4.6	200	0.25	-	0.27	0.54	5.4
4.6	200	0.5	0.11	0.54	1.09	10.9
4.6	200	1.0	0.22	1.09	2.17	21.7
6.9	300	0.125	-	-	0.18	1.8
6.9	300	0.25	-	0.18	0.36	3.6
6.9	300	0.5	-	0.36	0.72	7.2
6.9	300	1.0	0.15	0.72	1.45	14.5

\*To convert to millimeters, multiply by 29.57

300 gallons per acre is a typical application volume for landscape ornamental applications.

1 fluid ounce = 29.57 mL = 2 tablespoons = 6 teaspoons

Do not use household utensils to measure Quali-Pro Bifenthrin I/T 7.9 F.

### Pest Control on Outside Surfaces and Around Buildings

Quali-Pro Bifenthrin I/T 7.9 F may be used to control Ants including Carpenter Ants and Fire Ants, Armyworms, Bees, Beetles†, Biting Flies, Boxelder Bugs, Centipedes, Chiggers, Chinch Bugs, Clover Mites, Crickets, Cutworms, Dichondra Flea Beetles, Earwigs, Elm Leaf Beetles, Firebrats, Fleas, Flies, Gnats, Grasshoppers, Hornets, Japanese Beetles†, Midges, Millipedes, Mosquitoes, Moths, Roaches (including Cockroaches), Scorpions, Silverfish, Sod Webworms, Sowbugs (Pillbugs), Spider Mites, Spiders (including Black Widow Spiders), Springtails, Ticks (including Brown Dog Ticks), and Wasps.

† Not for use in California.

Use a 0.02 to 0.06% dilution to spray the outside surfaces of buildings such as private homes, duplexes, townhouses, condominiums, house trailers, apartment complexes, carports, garages, fence lines, storage sheds, barns, and other residential and non-commercial structures. Sites of treatment include but are not limited to exterior siding, foundations, porches, window frames, eaves, patios, garages, garbage areas, lawn areas, trunks of trees and shrubs and other areas where pests may be found. Use a spray volume of up to 10 gallons of emulsion per 1000 square feet. Use higher dilution volumes if vegetation or landscape materials are dense.

Applications to vertical exterior surfaces (e.g., foundations) are permitted to a maximum height of 3 feet from ground level. Sections of vertical exterior surfaces that abut non-porous horizontal surfaces can only be treated if either 1) these sections are protected from rainfall and spray from sprinklers or 2) they do not drain into a sewer, storm drain, or curbside gutter. (e.g., not to sections that abut driveways or sidewalks that drain into streets).

Follow "Additional Application Restrictions for Residential Outdoor Surface and Space Sprays" under

#### **DIRECTIONS FOR USE.**

#### **Mixing Directions**

Suspension	Quali-Pro Bifenthrin I/T 7.9 F per gallon of water	Remarks
0.02%	0.33 fl. oz.	<ul style="list-style-type: none"><li>• Do not use household utensils to measure Quali-Pro Bifenthrin I/T 7.9 F.</li><li>• Use higher treatment rates for quicker knockdown or longer residual control.</li><li>• High pest pressure may require subsequent applications.</li><li>• Repeat application only if there is evidence of renewed insect activity and not more than once per 7 days.</li></ul>
0.06%	1.0 fl. oz.	

**Perimeter Treatment:** Treat a band of soil and vegetation 6 to 10 feet wide around and next to the structure and the foundation of the structure to a height of 2 to 3 feet. Use 0.33 to 1.0 fluid oz. of Quali-Pro Bifenthrin I/T 7.9 F per 1000 square feet in enough water to provide sufficient coverage (refer to Perimeter Application Dilution Chart).

For sections of foundation that abut non-porous horizontal surfaces, the treated areas must be protected from rainfall and spray from sprinklers or they do not drain into a sewer, storm drain, or curbside gutter (e.g., not to sections that abut driveways or sidewalks that drain into streets).

**Quali-Pro Bifenthrin I/T 7.9 F Perimeter Application Dilution Chart**

<b>Application Volume: Gallons Per</b>	<b>Application Rate: Fluid Ounces per</b>	<b>Fluid Ounces* of Quali-Pro Bifenthrin I/T 7.9 F Diluted to these Volumes of Finished Spray</b>			
<b>1000 Sq. Ft.</b>	<b>1000 Sq. Ft.</b>	<b>1 gallon</b>	<b>5 gallons</b>	<b>10 gallons</b>	<b>100 gallons</b>
1	0.33	0.33	1.67	3.33	33.3
1	0.5	0.5	2.5	5.0	50.0
1	0.67	0.67	3.33	6.67	66.7
1	0.75	0.75	3.75	7.5	75.0
1	1.0	1.0	5.0	10.0	100.0
2	0.33	0.17	0.83	1.65	16.5
2	0.5	0.25	1.25	2.5	25.0
2	0.67	0.33	1.67	3.35	33.5
2	0.75	0.38	1.88	3.75	37.5
2	1.0	0.5	2.5	5.0	50.0
3	0.33	0.11	0.55	1.10	11.0
3	0.5	0.17	0.83	1.67	16.7
3	0.67	0.22	1.11	2.23	22.3
3	0.75	0.25	1.25	2.5	25.0
3	1.0	0.33	1.67	3.33	33.3
4	0.33	-	0.41	0.83	8.3
4	0.5	0.13	0.63	1.25	12.5
4	0.67	0.17	0.84	1.67	16.7
4	0.75	0.19	0.94	1.88	18.8
4	1.0	0.25	1.25	2.5	25.0
5	0.33	-	0.33	0.67	6.7
5	0.5	0.1	0.5	1.0	10.0
5	0.67	0.13	0.67	1.33	13.3
5	0.75	0.15	0.75	1.5	15.0
5	1.0	0.2	1.0	2.0	20.0
10	0.33	-	0.17	0.33	3.3
10	0.5	-	0.25	0.5	5.0
10	0.67	-	0.33	0.67	6.7
10	0.75	-	0.38	0.75	7.5
10	1.0	0.1	0.5	1.0	10.0

\*To convert to milliliters, multiply by 29.57

1 fluid oz. = 29.57 mL = 2 tablespoons = 6 teaspoons

**Do not use household utensils to measure Quali-Pro Bifenthrin I/T 7.9 F.**

**Ant and Fire Ant Mound Drench Using 0.06% Dilution:** Use 1-2 gallons of dilution for each mound area. Sprinkle the mound until wet and apply to a 4 ft. diameter circle around the mound. For mounds larger than 12 inches, use a larger volume. Application should be made in late evening or early morning when it is cooler (65° - 80°) when insects are most active.

**Mosquito Control:** To control mosquitoes around buildings, landscapes, and lawns, dilute 0.33 to 1.0 fl. oz. per gallon of water and use one gallon of dilution per 1000 square feet as a general spray. Quali-Pro Bifenthrin I/T 7.9 F can be mixed at lower concentrations and applied at higher volumes to ensure application of the proper amount of product to a given area (refer to the Ornamental or Perimeter Application Charts).

### Other Pest Control Applications

#### Controlling Ants Indoors and Outdoors

**Pest Ants Indoors:** Apply to ant nests for best results. Apply a dilution of 0.5 to 1.0 fl. oz. of Quali-Pro Bifenthrin I/T 7.9 F per gallon of water at the rate of one gallon of dilution per 1000 square feet to places where ants have been seen or are believed to forage as a general surface, spot or crack and crevice treatment. Some of these areas include baseboards, cracks and crevices, in and behind cabinets, under and behind dishwashers, furnaces, refrigerators, sinks and stoves, around pipes, and in corners. Pay close attention when treating entry points into the home or around windows and doors. When combining liquid Quali-Pro Bifenthrin I/T 7.9 F treatments with bait treatments, use Quali-Pro Bifenthrin I/T 7.9 F as instructed above and apply baits in those areas where Quali-Pro Bifenthrin I/T 7.9 F has not been applied.

**Pest Ants Outdoors:** Apply to ant nests for best results. Treat ant trails, around windows and doors, and other places where ants have been seen or are likely to forage. As stated in the "Pest Control on Outside Surfaces and Around Buildings" section, treat using a low- or high-volume perimeter treatment depending on density vegetation and landscaping materials. When treating concrete surfaces, more frequent treatments, higher dilutions and/or application volumes may be needed for ant control. The following procedures must be followed to help achieve maximum control of the pest:

1. Dilute 0.5 to 1.0 fl. oz. of Quali-Pro Bifenthrin I/T 7.9 F per gallon of water and apply at a rate of up to 10 gallons of dilution per 1000 square feet for maximum residual control.
2. Vegetation and porous surfaces should be treated with high-volume applications using dilutions that are calculated to deliver 0.5 to 1.0 fluid oz. of Quali-Pro Bifenthrin I/T 7.9 F per 1000 square feet (refer to the Ornamental and Perimeter Application Dilution Charts).
3. Treat non-porous surfaces only in areas protected from rainfall and spray from sprinklers with low-volume applications using 0.5 to 1.0 fluid oz. of Quali-Pro Bifenthrin I/T 7.9 F per gallon of water and applying this dilution at the rate of one gallon per 1000 square feet.

**Carpenter Ants Indoors:** Treat areas where carpenter ants are seen or are predicted to forage such as baseboards, in and behind cabinets, under and behind dishwashers, furnaces, refrigerators, sinks, and stoves, around pipes, cracks and crevices, and in corners by diluting 0.5 to 1.0 fluid oz. of Quali-Pro Bifenthrin I/T 7.9 F per gallon of water and applying at the rate of one gallon of dilution per 1000 square feet as a general surface, crack and crevice, spot and/or foam application. Spray or foam into cracks and crevices, or drill holes and spray, mist, or foam into voids and galleries where carpenter ants or their nests are present. When combining liquid Quali-Pro Bifenthrin I/T 7.9 F treatments with bait treatments, use Quali-Pro Bifenthrin I/T 7.9 F as instructed above and apply baits in those areas where Quali-Pro Bifenthrin I/T 7.9 F has not been applied.

**Carpenter Ants Outdoors:** Treat carpenter ant nests for best results. Treat areas where carpenter ants are seen or are believed to forage such as ant trails and around doors and windows. As stated in the “Pest Control on Outside Surfaces and Around Buildings” section, treat using a low- or high-volume perimeter treatment. When treating concrete surfaces, more frequent treatments, higher dilutions and/or application volumes may be needed for carpenter ant control. The following procedures must be followed to help achieve maximum control of the pest:

1. Dilute 0.5 to 1.0 fl. oz. of Quali-Pro Bifenthrin I/T 7.9 F per gallon of water and apply at a rate of up to 10 gallons of dilution per 1000 square feet to obtain residual control.
2. Vegetation and porous surfaces should be treated with high-volume applications using dilutions that are calculated to deliver 0.5 to 1.0 fluid oz. of Quali-Pro Bifenthrin I/T 7.9 F per 1000 square feet (refer to the Ornamental and Perimeter Application Dilution Charts).
3. Treat non-porous surfaces only in areas protected from rainfall and spray from sprinklers with low-volume applications using 0.5 to 1.0 fluid oz. of Quali-Pro Bifenthrin I/T 7.9 F per gallon of water and applying this dilution at the rate of one gallon per 1000 square feet.
4. Use 0.5 to 1.0 fl. oz. of Quali-Pro Bifenthrin I/T 7.9 F per gallon of water on tree trunks with carpenter ant trails or evidence of foraging. Apply to the bark, completely wetting it from the bottom of the tree to the highest possible point on the trunk.

To control carpenter ants inside deck materials, fencing, trees, utility poles or other structural elements, drill to find the inside infested cavity and inject or foam a 0.06% dilution (1.0 fl. oz. of Quali-Pro Bifenthrin I/T 7.9 F per gallon of water) into the cavity with adequate volume and a proper treatment tool with a splash-back guard. Where there are ants tunneling below the surfaces, dilute 0.5 to 1.0 fl. oz. of Quali-Pro Bifenthrin I/T 7.9 F per gallon of water and apply as a drench or foam at intervals of 8 to 12 inches. A uniform barrier should be established where there are ants tunneling below surfaces such as at the edges of walls, driveways or other hard surfaces.

Use a sprinkling can or a hose-end sprayer to distribute a coarse drenching spray; apply a 0.06% dilution to stored lumber and wood piles. This wood may be used for lumber or may be burned after 30 days. Do not use this method of application in structures.

Diluting 1.0 fluid oz. of Quali-Pro Bifenthrin I/T 7.9 F per gallon of water and applying to the soil below where the firewood will be stacked at the rate of one gallon of dilution per 8 square feet will protect the wood from carpenter ants.

DO NOT treat firewood with this product.

#### **Controlling Termites (Above Ground Only)**

The treatment methods that are expressed below are intended to kill termite workers or winged reproductives present at the time of application. These methods should supplement, not substitute for, mechanical alteration, soil treatment, or foundation treatment.

Controlling winged reproductive termites and exposed workers in localized areas may be accomplished by diluting 1.0 fl. oz. of Quali-Pro Bifenthrin I/T 7.9 F per gallon of water and applying the dilution at the rate of one gallon per 1000 square feet to crawl spaces, unfinished basements, attics, and other crawl spaces as a course fan spray. Both swarming termites and the areas where they gather should be treated.

Controlling above-ground termites in localized areas of infested wood may be accomplished by diluting 1.0 fl. oz. of Quali-Pro Bifenthrin I/T 7.9 F per gallon of water and applying as a foam or a liquid to voids and galleries in wood that is damaged in addition to spaces between wooden structural members and between the foundation and sill plate where the wood is at risk of attack. Drilling and then injecting the foam or dilution into damaged wood or wall voids with an appropriate directional injector will help reach those areas that are not easy to access. After treatment is completed, securely plug the holes that are in regularly occupied areas in the construction elements.

Controlling termite carton nests in building voids can be accomplished by diluting 1.0 fl. oz. of Quali-Pro Bifenthrin I/T 7.9 F per gallon of water and applying as a foam or a liquid using a pointed projection tool. To obtain control, various depths of injection and numerous injection points may be needed. After treatment is complete and when feasible, remove the carton nest material from the building void.

### **Pests Under Slabs**

To control infestations of Arthropods (e.g., ants, cockroaches, and scorpions) that live beneath the slab area, drill or horizontally rod and inject 1 gallon of a 0.06% to 0.12% dilution per 10 square feet or 2 gallons of dilution per 10 linear feet.

### **Posts, Poles, and Other Constructions**

Around wooden constructions (signs, fences, and landscape ornamentation), an insecticidal barrier can be established by treating with a 0.06% dilution. Sub-surface injection and gravity-flow through holes in the bottom of the trench are two treatment methods that can be used on poles and posts that have already been installed. Establishing a complete chemical zone around the pole can be accomplished by treating on all sides. For poles and posts that are fewer than 6 inches in diameter, use 1 gallon of dilution per foot of depth and 1.5 gallons for larger poles applying under the wood to a depth of 6 inches. Four gallons per 10 linear feet per foot of depth should be used for larger constructions.

### **Control of Wood-Infesting Insects in Wood (Localized Areas in Structures)**

<b>Insects</b>	<b>Application Rate</b>	<b>Remarks</b>
Termites Ants Carpenter Ants Wood-infesting beetles (including but not limited to Old House Borer & Powder Post)	Apply a 0.06% dilution to voids and galleries in damaged wood and in spaces between wooden members of a structure and between wood and foundations where wood is at risk.	<ul style="list-style-type: none"> <li>• Can be applied as a paint or fan spray.</li> <li>• Place plastic sheeting under overhead areas that are spot treated except for soil surfaces in crawl spaces.</li> <li>• Areas to which access is difficult can be treated by drilling and then injecting dilution with a crack and crevice injector into the damaged wood or void spaces. (Not intended as a replacement for soil treatment, mechanical alteration, or fumigation to control widespread infestation of wood-infesting insects.)</li> </ul>

### **Control of Wood-Infesting Insects and Nuisance Pests** (Outside of Structures)

In order to control wood-infesting insects active inside trees, utility poles and/or fences, a 0.06% dilution should be injected into the infested cavity which can be found by drilling into the wood. If treating nuisance pests on the exterior of the structure, use a fan spray at a maximum pressure of 25 psi and apply up to the point of runoff. To control Bees, Wasps, Hornets, and Yellow-Jackets, direct the spray at nest openings in the ground, bushes, and in cracks and crevices where the insects may nest. Saturate the openings and contact as many insects as possible.

**Underground Services** (e.g., cables, conduits, pipes, utility lines, wires, etc.) may be in rights-of-way inside of structures or to guard long range (miles) of installations of services.

Treat the soil using a 0.06 to 0.12% Quali-Pro Bifenthrin I/T 7.9 F dilution to prevent and control termite and ant infestations.

Treat the bottom of the trench with 2 gallons of dilution per 10 linear feet and let it soak into the soil. Place the services on the treated soil and cover with about 2 inches of fill soil. Apply another 2 gallons per 10 linear feet over the fill soil to complete the chemical barrier. Only treat the soil in the area near the services in wide trenches, but ensure a continuous barrier of treated soil surrounding the services.

In the event that the soil will not accept the volume stated above, 1 gallon of 0.12% Quali-Pro Bifenthrin I/T 7.9 F may be applied per 10 linear feet of trench over the soil that covers the services and to the base of the trench.

Fill the remainder of the trench with the treated fill soil. Where each service sticks out of the ground, the soil may be treated by trenching/rodding no more than 1 to 2 gallons of dilution into the soil.

**Precautions:** Do not treat electrically active underground services.

## **STORAGE AND DISPOSAL**

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

**STORAGE AND SPILL PROCEDURES:** Store upright at room temperature. Avoid exposure to extreme temperatures. In case of spillage or leakages, soak up with an absorbent material such as sand, sawdust, earth, Fuller's earth, etc. Dispose of with chemical waste.

**PESTICIDE DISPOSAL:** Pesticide, spray mixture, or rinse water that cannot be used according to label instructions must be disposed of at or by an approved waste disposal facility.

### **CONTAINER DISPOSAL:**

**For Containers equal to or less than 5 Gallons:** Nonrefillable container. Do not reuse or refill this container. Clean container promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container ¼ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Offer for recycling if available. If recycling is not available, puncture or dispose of in a sanitary landfill or incineration or if allowed by state and local authorities, by burning. If burned stay out of smoke.

### LIMITATION OF WARRANTY AND LIABILITY

Read the entire directions for use, conditions of warranties and limitations of liability before using this product. If terms are not acceptable, return the unopened product container at once.

By using this product, user or buyer accepts the following **CONDITIONS, DISCLAIMER OF WARRANTIES and LIMITATIONS OF LIABILITY.**

**CONDITIONS:** The directions for use of this product are believed to be adequate and must be followed carefully. However, it is impossible to eliminate all risks associated with the use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of such factors as weather conditions, presence of other materials, or the manner of use or application, all of which are beyond the control of Makhteshim Agan of North America, Inc. All such risks shall be assumed by the user or buyer.

**DISCLAIMER OF WARRANTIES:** To the extent consistent with applicable law, Makhteshim Agan of North America, Inc. makes no other warranties, express or implied, of merchantability or of fitness for a particular purpose or otherwise, that extend beyond the statements made on this label. No agent of Makhteshim Agan of North America, Inc. is authorized to make any warranties beyond those contained herein or to modify the warranties contained herein. To the extent consistent with applicable law, Makhteshim Agan of North America, Inc. disclaims any liability whatsoever for special, incidental or consequential damages resulting from the use or handling of this product.

**LIMITATIONS OF LIABILITY:** To the extent consistent with applicable law, the exclusive remedy of the user or buyer for any and all losses, injuries or damages resulting from the use or handling of this product, whether in contract, warranty, tort, negligence, strict liability or otherwise, shall not exceed the purchase price paid or at Makhteshim Agan of North America, Inc.'s election, the replacement of product.

Micro-injector is a registered trademark of Whitmire Micro-Gen Research Laboratories.

Actisol is a registered trademark of Roussel-Uclaf.

Quali-Pro is a registered trademark of Makhteshim Agan of North America, Inc.



# QUALI-PRO

## Bifenthrin I/T 7.9 F

*Insecticide/Termiticide*

For prevention and control of termites, carpenter ants and other pests of structures. To control listed pests in and around homes, commercial and industrial buildings, recreational areas, athletic fields, lawns, ornamentals, and greenhouses. Controls pests in livestock and poultry houses.

For Use as a Termiticide: May only be used by individuals/firms licensed by the State to apply termiticide products. States may have more restrictive requirements regarding qualifications of persons using this product. Consult the pest control regulatory agency of your State prior to use of this product.

ACTIVE INGREDIENT:	% BY WT.
Bifenthrin* .....	7.9%
INERT INGREDIENTS: .....	92.1%
TOTAL: .....	100.0%

Quali-Pro Bifenthrin I/T 7.9 F contains 2/3 pound active ingredient per gallon.

\*Cis isomers 97% minimum, trans isomers 3% maximum.

Contains bifenthrin, the active ingredient used in Talstar P Professional Insecticide.

Quali-Pro Bifenthrin I/T 7.9 F is not manufactured or distributed by FMC Corp.

EPA Reg. No. 66222-190

### KEEP OUT OF REACH OF CHILDREN CAUTION

For additional precautionary, handling, and use statements, see inside of this booklet.

Manufactured for:

**Makhteshim Agan of North America, Inc.**

3120 Highwoods Blvd., Suite 100 • Raleigh, NC 27604

13819

EPA 020612/Rev A

**Net Contents: 1 Gallon**

EPA Est. No. 53883-TX-002<sup>CS</sup>; 37429-GA-001<sup>BT</sup>; 37429-GA-002<sup>BO</sup>  
Letter(s) in lot number correspond(s) to superscript in EPA Est. No.



# SAFETY DATA SHEET

## Quali-Pro Bifenthrin I/T 7.9 F

### SECTION 1: IDENTIFICATION

**Product Name:** Quali-Pro Bifenthrin I/T 7.9 F  
**EPA Registration No.:** 53883-365  
**Recommended Use:** Insecticide; See product label for a complete list of uses and use sites.  
**Restrictions on Use:** See product label for any restrictions on the use of this product.  
**Chemical Family:** Pyrethroid  
**Chemical Name of Active Ingredient(s):** Bifenthrin: 2-Methyl-3-phenylphenyl)methyl (1S,3S)—[(Z)-2-chloro-3,3,3-trifluoroprop-1-enyl]-2,2-dimethylcyclopropane-1-carboxylate  
**Manufactured for:** Control Solutions, Inc.  
5903 Genoa-Red Bluff  
Pasadena, TX 77507

**FOR FIRE, SPILL, AND/OR LEAK EMERGENCIES CONTACT: CHEMTREC 1-800-424-9300**

**FOR MEDICAL EMERGENCIES AND HEALTH AND SAFETY INQUIRIES CONTACT: Safety Call 1-866-897-8050**

### SECTION 2: HAZARD(S) IDENTIFICATION

**EMERGENCY OVERVIEW:** Eggshell white liquid with a mild chemical odor.

**OSHA HCS CLASSIFICATION (29 CFR 1910.1200)**

Acute Inhalation Toxicity	Category 4
Skin Sensitization	Category 1B

**Signal Word:** WARNING



**Hazard Statement(s):** Harmful if inhaled.  
May cause an allergic skin reaction.

**Precautionary Statement(s):**

**Prevention:** Avoid breathing mist/ vapors/spray.  
Use only outdoors or in a well-ventilated area.  
Contaminated work clothing must not be allowed out of the workplace.  
Wear protective gloves.

**Response:** **IF INHALED:** Remove person to fresh air and keep comfortable for breathing. Call a poison center/doctor if you feel unwell.  
**IF ON SKIN:** Wash with plenty of soap and water.  
**IF SKIN IRRITATION OR RASH OCCURS:** Get medical advice/attention. Specific treatment (see first aid section of this document). Wash contaminated clothing before reuse.

**Storage:** No statement required. See section 7 for storage information.

**Disposal:** Dispose of contents/container in accordance with Federal, state and local laws and regulations.

The following percentage of the mixture consists of components with unknown hazards regarding the acute toxicity:

22.1% Acute oral toxicity  
23.56% Acute dermal toxicity

- 23.56% Acute Inhalation toxicity
- 22.1% Eye irritation
- 22.1% Skin irritation
- 22.1% Skin Sensitization

**SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS**

Chemical Name	CAS Number	Weight %
Bifenthrin	82657-04-3	7.9%

\*Ingredients not listed or listed with a weight % range are considered a trade secret and are withheld under 29 CFR 1910.1200(i).

**SECTION 4: FIRST AID MEASURES**

<b>IF IN EYES:</b>	Hold eye open and rinse slowly and gently with water for 15 to 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.
<b>IF ON SKIN:</b>	Take off contaminated clothing. Rinse skin immediately with plenty of water for 15 to 20 minutes. Call a poison control center or doctor for treatment advice.
<b>IF INHALED:</b>	Move person to fresh air. If person is not breathing, call 911 or an ambulance; then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or doctor for further treatment advice.
<b>IF INGESTED:</b>	Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give anything by mouth to an unconscious person.

**Most important symptoms/effects, acute and delayed:** Allergic skin reaction.

**NOTE TO PHYSICIAN:** This product is a pyrethroid. If large amounts have been ingested, the stomach and intestine should be evacuated. Treatment is symptomatic and supportive. Digestible fats, oils, or alcohol may increase absorption and so should be avoided.

**SECTION 5: FIRE-FIGHTING MEASURES**

- Suitable Extinguishing Media:** Foam, dry chemical, carbon dioxide or water spray
- Unsuitable Extinguishing Media:** Water jet
- Hazardous Combustion Products:** Thermal decomposition may produce toxic carbon and nitrogen oxides.
- Special Protective Equipment & Precautions:** Evacuate area and fight fire upwind from a safe distance to avoid hazardous vapors and decomposition products. Foam and/or dry chemical are preferred to minimize environmental contamination. If water is used, dike and collect water to prevent run-off. Wear self-contained breathing apparatus and full fire-fighting turn-out gear (Bunker gear).
- Unusual Fire & Explosion Hazards:** None known

**SECTION 6: ACCIDENTAL RELEASE MEASURES**

**Personal Precautions:** See Section 8 for personal protection equipment.

**Environmental Precautions:** Keep spilled material and any rinsate from contaminating soil or from entering sewage and drainage systems and bodies of water.

**Methods for Containment:** Isolate the spill area. Keep unnecessary and unprotected personnel from entering. Absorb small spills with sand, vermiculite or other inert absorbent. Dike large spills using absorbent or impervious material such as clay or sand. Recover and contain as much free liquid as possible for reuse. Allow absorbed material to solidify and scrape up for disposal.

**Methods for Clean-up:** Place contaminated material in appropriate container for disposal. After removal, flush contaminated area thoroughly with water. Pick up wash liquid with additional absorbent and place in a disposable container. Do not put spilled material back in the original container.

**Other Information:** None known

**SECTION 7: HANDLING AND STORAGE**

**Handling:** RECOMMENDATIONS ARE INTENDED FOR MANUFACTURING, PACKAGING AND COMMERCIAL BLENDING WORKERS. PESTICIDE APPLICATORS AND WORKERS must refer to the product label and Directions for Use attached to the product for Agricultural Use Requirements in accordance with the EPA Worker Protection Standard 40 CFR part 170. Handle and open container in a manner as to prevent spillage. Do not eat, drink or smoke while handling this product. Immediately wash off accidental splashes of the concentrate or spray mixture from skin, clothing and out of eyes.

**Storage:** **See pesticide label for full information on product storage.** Do not contaminate water, food or feed by storage of this product. Store away from sources of heat, out of direct sunlight and away from incompatible materials. Pesticides should be stored in secured areas away from children and animals.

**Storage Temperature (Min/Max):** Not determined but avoid extreme temperatures.

**Product Incompatibilities:** Avoid contact with strong oxidizers.

**SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**

**Users of a pesticide product must refer to the product label for personal protective equipment requirements.**

**Exposure Guidelines:**

COMPONENT	OSHA PEL	ACGIH TLV	NIOSH REL
No components listed			

**Engineering Controls:** Provide general or local exhaust ventilation systems to maintain airborne concentrations below OSHA PELs or other specified exposure limits. Local exhaust ventilation is preferred.

**Respiratory Protection:** In areas of poor ventilation, use a NIOSH approved respirator with cartridges/canisters approved for pesticides.

**Eye Protection:** Chemical goggles or safety glasses and full-face shield.

## Quali-Pro Bifenthrin I/T 7.9 F

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<b>Protective Gloves:</b>	Chemical-resistant gloves such as barrier laminate, butyl rubber, nitrile, neoprene rubber, polyvinyl chloride (PVC) or Viton.
<b>Other Protective Clothing:</b>	Long-sleeved shirt, long pants and chemical resistant footwear plus socks.
<b>General Safety Measures:</b>	Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet. Remove clothing immediately after handling this product. Wash outside of gloves before removing. Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them. Follow manufacturer's instructions for cleaning and maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

**SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES**

<b>Appearance:</b>	Eggshell white liquid	<b>Upper/Lower Flammability Limits:</b>	Not determined
<b>Odor:</b>	Mild chemical odor	<b>Vapor Pressure:</b>	Not determined
<b>Odor Threshold:</b>	Not determined	<b>Vapor Density:</b>	Not determined
<b>pH (1% dispersion):</b>	5.8 – 6.2	<b>Relative Density (@24°C):</b>	1.038 (typical)
<b>Melting /Freezing Point:</b>	Not determined	<b>Solubility in Water:</b>	Dispersible
<b>Boiling Point/Range:</b>	Not determined	<b>Partition Coefficient:</b>	Not determined
<b>Flash Point:</b>	>212°F (>100°C)	<b>Auto-ignition Temperature:</b>	Not determined
<b>Evaporation Rate:</b>	Not determined	<b>Decomposition Temperature:</b>	Not determined
<b>Flammability:</b>	Not applicable	<b>Viscosity:</b>	Not determined

**SECTION 10: STABILITY AND REACTIVITY**

<b>Reactivity:</b>	No hazardous chemical reactions known.
<b>Chemical Stability:</b>	Stable under normal storage and handling conditions.
<b>Possibility of Hazardous Reactions:</b>	No potential for hazardous reactions known.
<b>Conditions to Avoid:</b>	Extreme temperatures
<b>Incompatible Materials:</b>	Strong oxidizers
<b>Hazardous Decomposition Products:</b>	Thermal decomposition may produce toxic carbon and nitrogen oxides.

**SECTION 11: TOXICOLOGICAL INFORMATION**

<b>Likely Routes of Exposure:</b>	Eye contact, Skin contact, Inhalation, Ingestion
<b>Symptoms of Exposure:</b>	No overt symptoms.
<b>Oral LD<sub>50</sub>:</b>	4,489 mg/kg (Estimated based upon component data)
<b>Dermal LD<sub>50</sub>:</b>	4,685 mg/kg (Estimated based upon component data)
<b>Inhalation LC<sub>50</sub>:</b>	4.56 mg/L (Estimated based upon component data)
<b>Eye Irritation/Damage:</b>	Not anticipated to be an eye irritant based upon component data.
<b>Skin Corrosion/Irritation:</b>	Not anticipated to be a skin irritant based upon component data.
<b>Skin Sensitization:</b>	Non-sensitizer, based upon component data.

<b>Chronic/Subchronic Toxicity:</b>	No data available
<b>Mutagenicity:</b>	No data available
<b>Reproductive Toxicity:</b>	No data available
<b>Neurotoxicity:</b>	No data available
<b>Target Organs:</b>	Skin

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**Aspiration Hazard:** Not anticipated to be an aspiration hazard.  
**Carcinogenicity:** The EPA considers bifenthrin to be a possible human carcinogen based upon animal studies.

Chemical Name	ACGIH	IARC	NTP	OSHA
No components listed				

**SECTION 12: ECOLOGICAL INFORMATION****Environmental Hazards Statement from FIFRA Regulated Pesticide Label:**

This pesticide is extremely toxic to fish and aquatic invertebrates. Do not apply directly to water, to areas where surface water is present, or to intertidal areas below the mean high water mark. Drift and runoff from treated areas may be hazardous to aquatic organisms in neighboring areas. Do not contaminate water when disposing of equipment washwaters. Care should be used when spraying to avoid fish and reptile pets in/around ornamental ponds.

This product is highly toxic to bees exposed to direct treatment or residues on blooming crops or weeds. Do not apply this product or allow to drift to blooming crops if bees are visiting the treatment area.

**ECOTOXICITY DATA:** The data presented below is for bifenthrin technical.

**Fish Toxicity:** Rainbow trout: 96 hr LC<sub>50</sub> = 0.00015 ppm  
 Bluegill sunfish: 96 hr LC<sub>50</sub> = 0.00035 ppm

**Aquatic Invertebrate Toxicity:** No data available

**Aquatic Plant Toxicity:** No data available

**Avian Toxicity:** Bobwhite quail: Oral LD<sub>50</sub> = 1,800 mg/kg  
 Mallard duck: Oral LD<sub>50</sub> = 2,150 mg/kg

**Honeybee Toxicity:** Highly toxic

**ENVIRONMENTAL EFFECTS:**

**Persistence and Degradability:** No data available

**Bioaccumulation:** No data available

**Mobility:** No data available

**Other Adverse Effects:** No data available

**SECTION 13: DISPOSAL CONSIDERATIONS**

**Waste Disposal:** **Refer to the pesticide label for full information on disposal.** Pesticide wastes are toxic. Improper disposal of unused pesticide, spray mixture, or rinse water is a violation of Federal law. If these wastes cannot be used according to label instructions, contact your State Pesticide or Environmental Control Agency or the Hazardous Waste representative at the nearest EPA Regional Office for guidance in proper disposal methods.

**Container Disposal:** **Refer to the pesticide label for full information on disposal.** When possible, triple rinse the container and offer for recycling if available.

**RCRA Characteristics:** It is the responsibility of the individual disposing of this product to determine the RCRA classification and hazard status of the waste.

**SECTION 14: TRANSPORTATION INFORMATION**

**DOT (Ground):** Not regulated  
**IMDG (Sea):** UN3082, Environmentally hazardous substance, liquid, n.o.s. (Bifenthrin), 9, PGIII  
**IATA (Air):** UN3082, Environmentally hazardous substance, liquid, n.o.s. (Bifenthrin), 9, PGIII

**SECTION 15: REGULATORY INFORMATION**

**Labeling Requirements Under FIFRA:** This chemical is a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets and for workplace labels of non-pesticide chemicals. Following is the hazard information as required on the pesticide label:

**CAUTION**

Harmful if swallowed, inhaled, or absorbed through skin. Avoid contact with skin, eyes or clothing. Avoid breathing spray mist. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet. Remove contaminated clothing and wash before reuse.

**TSCA Inventory:** This product is exempt from TSCA inventory listing requirements as it is solely for FIFRA regulated use.

**SARA Title III Information:**

**Section 302 – Extremely hazardous substances:** None  
**Section 311/312 – Hazard Categories:** Acute (Immediate); Chronic (Delayed)  
**Section 313 –** This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372:

Chemical Name	CAS Number	Weight %	SARA 313 – Threshold Values (lbs)
Bifenthrin	82657-04-3	7.9%	10,000

**CERCLA –** This product contains the following chemicals which have a reportable quantity (RQ) under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA):

Chemical Name	CAS Number	RQ	Quantity of Finished Product
None listed			

**CALIFORNIA PROPOSITION 65:**

Chemical Name	CAS Number	Prop 65 Category(ies)
None listed		

**U.S. STATE RIGHT-TO-KNOW REGULATIONS:**

Chemical Name	New Jersey	Massachusetts	Pennsylvania
Bifenthrin	X		

**SECTION 16: OTHER INFORMATION**

<b>NFPA</b>	<b>Health Hazards</b> 1	<b>Flammability</b> 1	<b>Instability</b> 0	<b>Special Hazards</b> – None
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**Disclaimer:** Control Solutions, Inc. believes the information presented herein is accurate and correct as of the document date. The presented information is based upon available data from reliable sources. Control Solutions, Inc. makes no warranty, express or implied, regarding the accuracy of the data or the results obtained from the use of this product. Nothing herein may be construed as recommending any practice or any product in violation of any law or regulations. The user is solely responsible for determining the suitability of any material or product for a specific purpose and for adopting any appropriate safety precautions. We disclaim all liability for injury or damage stemming from any improper use of the material or product described herein.

**Revision Date:** October 20, 2015  
**Document Superseded:** April 6, 2015  
**Revision Note:**

**QUALI-PRO**<sup>®</sup>

GROUP 4 INSECTICIDE

# IMIDACLOPRID 2F

## Turf & Ornamental Insecticide



### Turf and Ornamental and Nursery and Greenhouse Uses

- Foliar and Systemic Insect Control for use on Turfgrass including Sod Farms, Landscape Ornamentals, Fruit and Nut Trees and Interior Plantscapes
- Foliar and Systemic Insect Control for use in Greenhouses, and Nurseries on Ornamentals, Fruit and Nut Trees and Vegetable Plants

**ACTIVE INGREDIENT:** % BY WT.

Imidacloprid: 1-[(6-Chloro-3-pyridinyl)methyl]

-N-nitro-2-imidazolidinimine ..... 21.8%

**OTHER INGREDIENTS:** ..... 78.2%

**TOTAL:** ..... 100.0%

Contains 2 pounds of imidacloprid per gallon.

Flowable insecticide.

Shake well before using.

### KEEP OUT OF REACH OF CHILDREN CAUTION/PRECAUCION

PRECAUCION AL USUARIO: Si usted no puede leer o entender ingles, no use este producto hasta que la etiqueta le haya sido explicada ampliamente. (TO THE USER: If you cannot read or understand English, do not use this product until the label has been fully explained to you.)

EPA Reg. No. 53883-514  
EPA Est No. 53883-TX-002

**CONTENTS:**  
1 GALLON



**Manufactured for:**  
Control Solutions, Inc.  
5903 Genoa Red Bluff Road  
Pasadena, TX 77507

EPA 120313/Rev A

<b>FIRST AID</b>	
<b>IF SWALLOWED:</b>	<ul style="list-style-type: none"> <li>• Call a poison control center or doctor immediately for treatment advice.</li> <li>• Have person sip a glass of water if able to swallow.</li> <li>• Do not induce vomiting unless told to do so by a poison control center or doctor.</li> <li>• Do not give anything by mouth to an unconscious person.</li> </ul>
<b>IF INHALED:</b>	<ul style="list-style-type: none"> <li>• Move person to fresh air.</li> <li>• If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible.</li> <li>• Call a poison control center or doctor for further treatment advice.</li> </ul>
<b>IF ON SKIN OR CLOTHING:</b>	<ul style="list-style-type: none"> <li>• Take off contaminated clothing</li> <li>• Rinse skin immediately with plenty of soap and water for 15 to 20 minutes.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
<b>IF IN EYES:</b>	<ul style="list-style-type: none"> <li>• Hold eye open and rinse slowly and gently with water for 15 to 20 minutes.</li> <li>• Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
<b>HOT LINE NUMBER:</b> In case of emergency, contact SafetyCall at 1-866-897-8050. Have the product container or label with you when calling a poison control center or doctor or going for treatment.	
<b>NOTE TO PHYSICIAN:</b> No specific antidote is available. Treat patient symptomatically.	

**PRECAUTIONARY STATEMENTS  
HAZARDS TO HUMANS AND DOMESTIC ANIMALS  
CAUTION**

Harmful if swallowed, inhaled, or absorbed through skin. Avoid contact with skin eyes, or clothing. Avoid breathing spray mist. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, or using tobacco. Remove contaminated clothing and wash clothing before reuse.

Keep children or pets away from treated area until dry.

**PERSONAL PROTECTIVE EQUIPMENT (PPE)**

Some materials that are chemical-resistant to this product are listed below. If you want more options, follow the instructions for Category A on an EPA chemical-resistance category selection chart.

Follow manufacturer's instructions for cleaning/ maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

**Applicators and other handlers must wear:**

**Worker Protection Standard Uses:**

Applicators and other handlers (mixers and loaders) who handle this product for uses covered by the Worker Protection Standard (40 CFR Part 170) – such as sod farms, must wear:

- Long-sleeved shirt and long pants
- Chemical-resistant gloves made of any waterproof material such as barrier laminate, butyl rubber, nitrile rubber, neoprene rubber, natural rubber, polyethylene, polyvinylchloride (PVC) or viton. If you want more options, follow the instructions for Category A on an EPA chemical resistance category selection chart.
- Shoes plus socks

**Non- Worker Protection Standard Uses:**

Applicators and other handlers must wear:

- Shirt and pants
- Gloves
- Shoes plus socks

## **ENGINEERING CONTROLS STATEMENTS**

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240(4)(4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

## **USER SAFETY RECOMMENDATIONS**

**Users should:**

- Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet.
- Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. Wash thoroughly and change into clean clothing. Wash contaminated clothing before reuse.

## **ENVIRONMENTAL HAZARDS**

This product is highly toxic to aquatic invertebrates. Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters or rinsate.

This product is highly toxic to bees exposed to direct treatment or residues on blooming crops/plants or weeds. Do not apply this product or allow it to drift to blooming crops/plants or weeds if bees are foraging.

This chemical demonstrates the properties and characteristics associated with chemicals detected in groundwater. The use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in groundwater contamination.

Apply this product only as specified on this label. Extreme care must be taken to avoid runoff. Apply only to soil or other fill substrate that will accept the solution at the specified rate. Do not treat soil that is water-saturated or frozen or in any conditions where run-off or movement from the treatment area (site) is likely to occur.

## PROTECTION OF POLLINATORS



**APPLICATION RESTRICTIONS** EXIST FOR THIS PRODUCT BECAUSE OF RISK TO BEES AND OTHER INSECT POLLINATORS. FOLLOW APPLICATION RESTRICTIONS FOUND IN THE DIRECTIONS FOR USE TO PROTECT POLLINATORS.



Look for the bee hazard icon in the Directions for Use for each application site for specific use restrictions and instructions to protect bees and other insect pollinators.

**This product can kill bees and other insect pollinators.**

Bees and other insect pollinators will forage on plants when they flower, shed pollen, or produce nectar.

Bees and other insect pollinators can be exposed to this pesticide from:

- o Direct contact during foliar applications, or contact with residues on plant surfaces after foliar applications
- o Ingestion of residues in nectar and pollen when the pesticide is applied as a seed treatment, soil, tree injection, as well as foliar applications.

When Using This Product Take Steps To:

- o Minimize exposure of this product to bees and other insect pollinators when they are foraging on pollinator attractive plants around the application site.
- o Minimize drift of this product on to beehives or to off-site pollinator attractive habitat. Drift of this product onto beehives or off-site to pollinator attractive habitat can result in bee kills.

Information on protecting bees and other insect pollinators may be found at the Pesticide Environmental Stewardship website at: <http://pesticidestewardship.org/PollinatorProtection/Pages/default.aspx>.

Pesticide incidents (for example, bee kills) should immediately be reported to the state/tribal lead agency. For contact information for your state, go to: [www.aapco.org/officials.html](http://www.aapco.org/officials.html). Pesticide incidents should also be reported to the National Pesticide Information Center at: [www.npic.orst.edu](http://www.npic.orst.edu) or directly to EPA at: [beekill@epa.gov](mailto:beekill@epa.gov)

## DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

**See individual sites for specific pollinator protection application restrictions. If none exist under the specific site, for foliar applications, follow these application directions for food/feed crops and commercially grown ornamentals that are attractive to pollinators, and for non-agricultural uses:**



### FOR FOOD/FEEED CROPS AND COMMERCIALY GROWN ORNAMENTALS NOT UNDER CONTRACT FOR POLLINATION SERVICES BUT ARE ATTRACTIVE TO POLLINATORS

Do not apply this product while bees are foraging. Do not apply this product until flowering is complete and all petals have fallen unless one of the following conditions is met:

- The application is made to the target site after sunset
- The application is made to the target site when temperatures are below 55°F
- The application is made in accordance with a government-initiated public health response
- The application is made in accordance with an active state-administered apiary registry program where beekeepers are notified no less than 48-hours prior to the time of the planned application so that the bees can be removed, covered or otherwise protected prior to spraying
- The application is made due to an imminent threat of significant crop loss, and a documented determination consistent with an IPM plan or predetermined economic threshold is met. Every effort should be made to notify beekeepers no less than 48-hours prior to the time of the planned application so that the bees can be removed, covered or otherwise protected prior to spraying.



### Non-Agricultural Products:

Do not apply QUALI-PRO IMIDACLOPRID 2F TURF & ORNAMENTAL INSECTICIDE while bees are foraging. Do not apply QUALI-PRO IMIDACLOPRID 2F TURF & ORNAMENTAL INSECTICIDE to plants that are flowering. Only apply after all flower petals have fallen off.

Read entire label before using this product. This label must be in the possession of the user at the time of pesticide application.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

#### **AGRICULTURAL USE REQUIREMENTS**

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR Part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE) and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

**Do not enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 12 hours.**

**Exception:** If the product is applied by drenching, the Worker Protection Standard, under certain circumstances, allows workers to enter the treated area if there will be no contact with anything that has been treated.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water is:

- Coveralls
- Chemical-resistant gloves made of any waterproof material such as barrier laminate, butyl rubber, nitrile rubber, neoprene rubber, natural rubber, polyethylene, polyvinylchloride (PVC) or viton. If you want more options, follow the instructions for category A on an EPA chemical resistance category selection chart.
- Shoes plus socks

#### **NON-AGRICULTURAL USE REQUIREMENTS**

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses.

Keep children and pets off treated area until dry.

#### **STATE SPECIFIC RESTRICTIONS**

The state of Arizona has not approved this product for use on agricultural sites. Do not use this product on uses considered by the Arizona statutes to be agricultural uses.

## **APPLICATION ON TURFGRASS**

QUALI-PRO IMIDACLOPRID 2F TURF & ORNAMENTAL INSECTICIDE may be used to control listed insect pests on turfgrass in residential lawns, business and office complexes, shopping complexes, multi-family residential complexes, golf courses, airports, cemeteries, parks, playgrounds, athletic fields and sod farms.

QUALI-PRO IMIDACLOPRID 2F TURF & ORNAMENTAL INSECTICIDE controls listed soil inhabiting pests such as Northern & Southern masked chafers, *Cyclocephala borealis*, *C. immaculata*, and/or *C. lurida*; Asiatic garden beetle, *Maladera castanea*; European chafer, *Rhizotrogus majalis*; Green June beetle, *Cotinis nitida*; May or June beetle, *Phyllophaga* spp.; Japanese beetle, *Popillia japonica*; Oriental beetle, *Anomala orientalis*; Billbugs *Spherophorus* spp.; Annual bluegrass weevil, *Hyperodes* spp.; Black turfgrass ateniens, *Ataenius spretulus* and *Aphodius* spp.; European Crane Fly, *Tipula paludosa*; and mole crickets, *scapteriscus* spp. QUALI-PRO IMIDACLOPRID 2F TURF & ORNAMENTAL INSECTICIDE can also be used for suppression of cutworms and chinch bugs.

For optimum control, make applications preceding or during the egg laying period of the target pest. The active ingredient in QUALI-PRO IMIDACLOPRID 2F TURF & ORNAMENTAL INSECTICIDE has enough residual activity so that applications can be made preceding the egg laying activity. Application timing can be based on historical monitoring of the site, previous records or experiences, current season adult trapping or other methods. Most favorable control will be achieved when applications are made prior to egg hatch of the target pests. Follow applications with sufficient irrigation or rainfall to move the active ingredient through the thatch.

**RESTRICTIONS:** Do not make applications when turfgrass areas are waterlogged or the soil is saturated with water. Sufficient distribution of the active ingredient cannot be achieved under these conditions. The treated turf area must be in such a condition that the rainfall or irrigation will penetrate vertically in the soil profile.

Do not exceed a total of 1.6 pt (0.4 lb of active ingredient)/A per year.

## **APPLICATION EQUIPMENT FOR USE ON TURFGRASS**

Apply QUALI-PRO IMIDACLOPRID 2F TURF & ORNAMENTAL INSECTICIDE in sufficient water to provide adequate distribution in the treated area. The use of accurately calibrated equipment normally used for the application of turfgrass insecticides is required. Use equipment which will produce a uniform, coarse droplet spray, using a low pressure setting to eliminate off target drift. Check calibration periodically to ensure that equipment is working properly.

**RESTRICTION:** Do not apply through any irrigation system.

## APPLICATIONS

### TURF GRASSES

PEST	RATE	APPLICATION INSTRUCTIONS
<b>Larvae of:</b> Annual bluegrass weevil Asiatic garden beetle Billbug Black turfgrass atanius Cutworms (suppression) European chafer European crane fly Green June Beetle Japanese beetle Northern Masked chafer Oriental beetle <i>Phyllophaga</i> spp. Southern masked chafer	1.25 to 1.6 pt/A or 0.46 to 0.6 fl. oz. (14 to 17 mL) per 1000 sq. ft.	For best control of grubs, billbugs, annual bluegrass weevil, and European Crane Fly, apply prior to egg hatch of the target pest. Read <b>APPLICATION EQUIPMENT</b> section of this label.
Chinch bugs (suppression) Mole crickets	1.6 pt /A or 0.6 fl. oz. (17 mL) per 1000 sq. ft.	For suppression of chinch bugs, apply before hatching of the first instar nymphs.  To control mole crickets apply before or during the peak egg hatch period. Use a curative insecticide in addition to QUALI-PRO IMIDACLOPRID 2F TURF & ORNAMENTAL INSECTICIDE when adults or large nymphs are present and actively tunneling. Follow label instructions for other insecticides when tank-mixing.
Consult your local turf, state Agricultural Experiment Station, or State Extension Service Specialists for more specific information regarding timing of application.		
Irrigation or rainfall must occur within 24 hours after application to move the active ingredient through the thatch. Do not mow turf or lawn area until after sufficient irrigation or rainfall has occurred so that uniformity of application will not be affected.		
<b>RESTRICTION:</b> <ul style="list-style-type: none"> <li>• Do not apply more than 1.6 pt (0.4 lb of active ingredient) /A per year.</li> <li>• Do not apply this product in a way that will contact people or pets.</li> <li>• Do not allow children or pets to enter treated areas until sprays have dried.</li> <li>• Do not allow this product to contact plants in bloom if bees are foraging in the treatment area.</li> </ul>		

## **APPLICATION TO ORNAMENTALS**

QUALI-PRO IMIDACLOPRID 2F TURF & ORNAMENTAL INSECTICIDE is for use on ornamentals in commercial and residential landscapes and interior plantscapes. QUALI-PRO IMIDACLOPRID 2F TURF & ORNAMENTAL INSECTICIDE is a systemic product and will be taken up into the plant system from root uptake. The product must be placed where the growing portion of the target plant can absorb the active ingredient. The addition of a nitrogen containing fertilizer, where applicable, into the solution may enhance the uptake of the active ingredient. Application can be made by foliar application or soil applications including soil injection, drenches, and broadcast sprays. Foliar applications offer locally systemic activity against insect pests.

When making soil applications to plants with woody stems, systemic activity will be delayed until the active ingredient is taken up throughout the plant. In some cases, this translocation delay could take 60 days or longer. For this reason, apply prior to anticipated pest infestation to achieve optimum levels of control.

### **RESTRICTIONS:**

- For outdoor applications, do not exceed a total of 1.6 pt (0.4 lb of active ingredient) /A per year.
- Not for use on grass grown for seed or on commercial fruit and nut trees.
- Do not apply this product, by any application method, to linden, basswood, or other *Tilia* species.

### **Ant Management Programs**

Use QUALI-PRO IMIDACLOPRID 2F TURF & ORNAMENTAL INSECTICIDE to control aphids, scale insects, mealybugs and other sucking pests on ornamentals to limit the honeydew available as a food source for ant populations. QUALI-PRO IMIDACLOPRID 2F TURF & ORNAMENTAL INSECTICIDE applications can be then supplemented with residual sprays, bait placements or other ant control tactics to further reduce the pest population.

### **APPLICATION EQUIPMENT FOR FOLIAR APPLICATIONS**

QUALI-PRO IMIDACLOPRID 2F TURF & ORNAMENTAL INSECTICIDE mixes readily with water and may be used in many types of application equipment. Mix product with the required amount of water and apply as desired dependent upon the selected use pattern.

When making foliar applications on hard to wet foliage such as holly, pine or ivy, the addition of a spreader/sticker is recommended. If concentrate or mist type spray equipment is used, an equivalent amount of product should be used on the area sprayed as would be used in a dilute application.

QUALI-PRO IMIDACLOPRID 2F TURF & ORNAMENTAL INSECTICIDE has been found to be compatible with commonly used fungicides, miticides, liquid fertilizers, and other commonly used insecticides. Check physical compatibility using the correct proportion of products in a small jar test if local experience is unavailable.

### **RESTRICTION:**

- Do not apply through any irrigation system.
- Do not apply this product in a way that will contact people or pets.
- Do not allow children or pets to enter treated areas until sprays have dried.

### APPLICATIONS

#### FOR USE ONLY IN AND AROUND THE PERIMETER OF INDUSTRIAL AND COMMERCIAL BUILDINGS AND RESIDENTIAL AREAS

CROP	PEST	RATE	APPLICATION INSTRUCTIONS
Trees Shrubs Evergreens Flowers Foliage plants Groundcovers Interior plantscapes	Adelgids Aphids Japanese beetles Lace bugs Leaf beetles (including elm and viburnum leaf beetles) Leafhoppers (including glassy-winged sharpshooter) Mealybugs Psyllids Sawfly Larvae Thrips (suppression) Whiteflies	1.5 fl. oz. (45 mL) per 100 gal of water	<b>Foliar Applications:</b> Begin applications before the onset of high pest populations and reapply as needed.
	White grub larvae (such as Japanese beetle larvae, Chafers, <i>Phyllophaga</i> spp., Asiatic garden beetle, Oriental beetle)	0.46 to 0.6 fl. oz. (14 to 17 mL) per 1000 sq. ft.	<b>Broadcast Applications:</b> Use enough water to mix the product and thoroughly apply to the treatment area. Do not use less than 2 gallons of water per 1000 sq ft. Irrigate after application to incorporate QUALI-PRO IMIDACLOPRID 2F TURF & ORNAMENTAL INSECTICIDE into the upper soil layer.  For additional use directions, refer to the <b>FLOWERS and GROUND COVERS</b> section of this label.

**SOIL INJECTION\* AND SOIL DRENCH APPLICATIONS IN AND AROUND THE PERIMETER OF INDUSTRIAL AND COMMERCIAL BUILDINGS AND RESIDENTIAL AREAS, AND STATE, NATIONAL AND PRIVATE WOODED AND FORESTED AREAS**

\*No Soil injection Applications Allowed in Nassau or Suffolk Counties of New York.

PEST	CROP/RATE	APPLICATION INSTRUCTIONS	REMARKS
<p>Adelgids Aphids Armored scales (suppression) Black vine weevil larvae Eucalyptus longhorned borer Flatheaded borer (including bronze, alder and emerald ash) Japanese beetles Lace bugs Leaf beetles (including elm and viburnum leaf beetles) Leafhoppers (including glassy-winged sharpshooter) Leafminers Mealybugs Pine tip moth larvae Psyllids Roundheaded borers (including Asian longhorned beetles) Royal palm bugs Sawfly larvae Soft scales Thrips (suppression) White grub larvae Whiteflies</p>	<p><b>TREES</b></p> <p>Use the following rates as a function of tree Diameter at Breast Height (D.B.H.):</p> <p>Apply 0.1 to 0.4 fl. oz. (3 to 12 mL) per inch of trunk diameter (D.B.H.)</p> <p>You may use the higher rate (0.3 – 0.4 fl. oz.) only for trees greater than 15 D.B.H. to control the following pests: Asian longhorned beetle, Emerald Ash Borer, Eucalyptus longhorned borer, Bronze birch borer, Alder borer</p> <p><b>RESTRICTION:</b></p> <p>Do not exceed a total of 1.6 pt (0.4 lb of active ingredient) /A per year.</p> <p>Diameter at Breast Height (D.B.H.) = is measured at 4.5 feet from the ground.</p>	<p><b>SOIL INJECTION:</b></p> <p><b>Grid System:</b> Space holes in a grid pattern on 2.5 foot centers extending to the drip line of the tree.</p> <p><b>Circle System:</b> Apply in holes evenly spaced in circles (use more than one circle dependent upon the size of the tree) beneath the drip line of the tree extending in from that line.</p> <p><b>Basal System:</b> Space injection holes evenly around the base of the tree trunk no more than 6 to 12 inches out from the base.</p> <p><b>Soil Drench:</b> Apply uniformly as a drench around the base of the tree in not less than 10 gallons of water per 1000 square feet. Direct application to the root area. Remove plastic or any other barrier that will stop solution from reaching the root zone.</p>	<p>Use enough water to mix the product and inject an equal amount of solution in each hole. Use low pressure and sufficient solution for distribution of the liquid into the treatment area. Keep the treated area moist for 7 to 10 days.</p> <p>Do not use less than 4 holes per tree.</p> <p><b>For Control of Specified Borers:</b> Trees with existing insect damage and stress may not recover after treatment with QUALI-PRO IMIDACLOPRID 2F TURF &amp; ORNAMENTAL INSECTICIDE.</p>

(continued)

PEST	CROP/RATE	APPLICATION INSTRUCTIONS	REMARKS
	<p><b>SHRUBS</b></p> <p>0.1 to 0.2 fl. oz. (3 to 6 mL) per foot of shrub height</p>	<p><b>Soil Injection:</b> Apply at the specified dosage to each plant.</p> <p><b>Soil Drench:</b> Apply uniformly as a drench around the base of the tree in not less than 10 gallons of water per 1000 square feet. Direct application to the root area. Remove plastic or any other barrier that will stop solution from reaching the root zone.</p>	<p>Use enough water to mix the product and inject an equal amount of solution in each hole. Use low pressure and sufficient solution for distribution of the liquid into the treatment area. Keep the treated area moist for 7 to 10 days.</p> <p>Do not use less than 4 holes per shrub.</p>
	<p><b>FLOWERS AND GROUNDCOVERS</b></p> <p>0.46 to 0.6 fl. oz. (14 to 17 mL) per 1000 sq. ft.</p>	<p>Apply as a broadcast treatment before or after planting, prior to bloom or after all flower petals have fallen off for established plants. Mix into soil. On established plants, irrigate thoroughly after application.</p>	

**FOLIAR APPLICATIONS FOR USE ONLY IN AND ON RESIDENTIAL AREAS**

CROP	PEST	RATES	APPLICATION INSTRUCTIONS
<p><b>POME FRUITS</b>                      Apple                      Crabapple                      Loquat                      Mayhaw                      Pear                      Pear (oriental)                      Quince</p>	<p>Aphids (except Wooly apple aphid)                      Leafhoppers (including glassy-winged sharpshooter)                      Leafminer                      Mealybugs<sup>1</sup>                      San Jose scale<sup>1</sup></p>	<p>1.5 fl. oz. (45 mL)                      per 100 gal                      or                      6.0 fl. oz./A<sup>3</sup></p>	<p>Apply specified dosage as foliar spray as needed after petal-fall is complete.</p> <p>For control of rosy apple aphid, apply prior to leafrolling caused by the pest.</p> <p>For first generation leafminer control, make first application as soon as petal-fall is complete. Greatest leafminer control will result from the earliest possible application. For second and succeeding generations of leafminer, optimal control is obtained from applications made early in the adult flight against egg and early instar larvae. A second application may be required 10 days later if severe pressure continues or if generations are overlapping. A single application may result in suppression only. QUALI-PRO IMIDACLOPRID 2F TURF &amp; ORNAMENTAL INSECTICIDE will not control late stage larvae.</p> <p>For San Jose Scale, time applications to the crawler stage. Treat each generation.</p> <p>For late season (preharvest) control of leafhopper species, apply QUALI-PRO IMIDACLOPRID 2F TURF &amp; ORNAMENTAL INSECTICIDE while most leafhoppers are in the nymphal stage.</p> <p>For control of mealybug, insure good spray coverage of the trunk and scaffolding limbs or other resting sites of the mealybug.</p> <p><b>RESTRICTIONS:</b></p> <ul style="list-style-type: none"> <li>• Do not apply more than 6.0 fl. oz./A in a single application.</li> <li>• Do not make more than 5 applications /A per year.</li> <li>• Do not apply more than 1.6 pt (0.4 lb of active ingredient) per year.</li> <li>• Allow 10 or more days between applications. Allow at least 7 days between last application and harvest.</li> </ul>

*(continued)*

**FOLIAR APPLICATIONS FOR USE ONLY IN AND ON RESIDENTIAL AREAS** (continued)

CROP	PEST	RATES	APPLICATION INSTRUCTIONS
Pecan <sup>2</sup>	Yellow pecan aphid Black margined aphid Pecan leaf phylloxera Pecan spittlebug Pecan stem phylloxera	1.5 fl. oz. (45 mL) per 100 gal or 6.0 fl. oz./A <sup>3</sup>	Make foliar applications as pests begin to build before populations become extreme. Two applications at a 10 to 14 day interval may be required to achieve control. Scout and re-treat if needed.  Thorough uniform coverage of foliage is necessary for optimal control. Addition of an organosilicone-based spray adjuvant at a rate not to exceed the adjuvant manufacturer's use rate may improve coverage.  <b>RESTRICTIONS:</b> <ul style="list-style-type: none"> <li>Do not apply more than a total of 18.0 fl. oz. of QUALI-PRO IMIDACLOPRID 2F TURF &amp; ORNAMENTAL INSECTICIDE /A per year. Do not make more than 3 applications.</li> <li>Allow 10 or more days between applications. Allow at least 7 days between last application and harvest.</li> </ul>
<p><sup>1</sup> Not for use in California for control on pears.  <sup>2</sup> Use on pecans not permitted in California unless directed by state-specific 24(c) supplemental labeling.  <sup>3</sup> The amount of QUALI-PRO IMIDACLOPRID 2F TURF &amp; ORNAMENTAL INSECTICIDE required /A will depend on tree size and volume of foliage present. The rate /A is based on a standard of 400 gallons of dilute spray solution /A for large trees.</p>			

**FOLIAR APPLICATION FOR USE ONLY IN AND ON INDUSTRIAL AND COMMERCIAL BUILDINGS AND RESIDENTIAL AREAS**

CROP	PEST	RATE	APPLICATION INSTRUCTIONS
Grapes	Leafhoppers (including glassy-winged sharpshooter) Mealybugs	1.5 fl. oz. (45 mL) per 100 gal or 3.0 fl. oz/A (90 mL/A)	Apply specified dosage as a foliar spray using 200 gallons of water /A.  <b>RESTRICTIONS:</b> <ul style="list-style-type: none"> <li>Do not apply more than a total of 6.0 ounces of QUALI-PRO IMIDACLOPRID 2F TURF &amp; ORNAMENTAL INSECTICIDE /A per year.</li> <li>Allow at least 14 days between applications. Applications may be applied up to and including day of harvest. Pre-Harvest Interval 0 days.</li> </ul>

### **Restrictions**

- Keep children and pets off treated area until dry.
- Do not graze treated areas or use clippings from treated areas for feed or forage.
- Do not allow runoff or puddling of irrigation water following application. Do not apply QUALI-PRO IMIDACLOPRID 2F TURF & ORNAMENTAL INSECTICIDE to areas which are water logged or saturated, which will not allow penetration into the root zone of the plant.
- Do not apply more than 1.6 pt (0.4 lb of active ingredient) /A per year.

### **APPLICATION IN GREENHOUSES, NURSERIES, ORNAMENTALS, FRUIT AND NUT TREES AND VEGETABLE PLANTS**

#### **APPLICATION TO ORNAMENTALS AND VEGETABLE PLANTS**

QUALI-PRO IMIDACLOPRID 2F TURF & ORNAMENTAL INSECTICIDE may be used to control listed insect pests on ornamental and vegetable plants in nurseries and greenhouses. Insect protection is achieved because QUALI-PRO IMIDACLOPRID 2F TURF & ORNAMENTAL INSECTICIDE is a systemic product and the active ingredient moves upward into the plant system. Apply QUALI-PRO IMIDACLOPRID 2F TURF & ORNAMENTAL INSECTICIDE to the growing part of the plant for more absorption of the active ingredient. Nitrogen containing fertilizer may be added to the solution to aid in the uptake of the active ingredient where applicable. Apply QUALI-PRO IMIDACLOPRID 2F TURF & ORNAMENTAL INSECTICIDE as a foliar spray or by soil applications such as soil injection, drenches, chemigation and broadcast sprays.

Soil applications to plants with woody stems will require applications of QUALI-PRO IMIDACLOPRID 2F TURF & ORNAMENTAL INSECTICIDE before expected pest infestations due to the delay in the uptake of the active ingredient and the time until the product is taken up throughout the plant.

**Restriction:** For outdoor applications, do not exceed a total of 1.6 pt (0.4 lb of active ingredient) /A per year.

**Bark Media:** The length of protection after treatment with QUALI-PRO IMIDACLOPRID 2F TURF & ORNAMENTAL INSECTICIDE may be shortened if the media has 30% or more bark content.

#### **APPLICATION EQUIPMENT FOR ORNAMENTALS AND VEGETABLE PLANTS**

QUALI-PRO IMIDACLOPRID 2F TURF & ORNAMENTAL INSECTICIDE mixes with water and may be applied with different types of application equipment. After mixing with the correct amount of water, follow the application directions for the selected use pattern.

For applications on hard to wet foliage such as holly, pine or ivy, the use of a spreader/ sticker is recommended. For application by concentrate or mist type spray equipment, use the same amount as would be used in a dilute application.

QUALI-PRO IMIDACLOPRID 2F TURF & ORNAMENTAL INSECTICIDE is compatible with frequently used fungicides, miticides, liquid fertilizers. Compatibility may be tested in a small jar by using the correct proportion of products if compatibility information is not available.

## **APPLICATION THROUGH IRRIGATION SYSTEMS**

QUALI-PRO IMIDACLOPRID 2F TURF & ORNAMENTAL INSECTICIDE may be applied alone or as a tank mixture with other chemicals or pesticides registered for application through irrigation systems. The normal dilution ratio is 1:100 to 1:200 depending on the system. Always meter the product into the irrigation water during the first part of the irrigation cycle. The product may be mixed separately prior to injection. Agitation may be necessary if the mixture is allowed to stand more than 24 hours.

Remove scale, pesticide residue and other foreign matter from the tank and entire irrigation system.

Apply QUALI-PRO IMIDACLOPRID 2F TURF & ORNAMENTAL INSECTICIDE only through micro irrigation (individual spaghetti tubes), drip irrigation, overhead irrigation, ebb and flood, or hand-held or motorized calibrated irrigation equipment.

Do not apply this product through any other type of irrigation system. Crop injury or lack of effectiveness can result from non uniform distribution of treated water.

If you have any questions about calibration, contact your State Extension Service specialist, equipment manufacturers or other experts in this area.

Do not connect an irrigation system (including greenhouse systems) used for pesticide application to a public water system unless the pesticide label-prescribed safety devices for public water systems are in place.

A person knowledgeable of the chemigation system and responsible for its operation or a person who is under the supervision of the responsible person, shall shut the system down and make necessary adjustments should the need arise.

## **SAFETY DEVICES FOR IRRIGATION SYSTEMS CONNECTED TO PUBLIC WATER SUPPLIES:**

If the source of water for your irrigation system is a public water supply, follow the instructions below:

1. Public water system means a system for the provision to the public of piped water for human consumption if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year.
2. Chemigation systems connected to public water systems must contain a functional, reduced-pressure zone, backflow preventer (RPZ) or the functional equivalent in the water supply line upstream from the point of pesticide introduction. As an option to the RPZ, water from the public water system should be discharged into a reservoir tank prior to pesticide introduction. There shall be a complete physical break (air gap) between the outlet end of the fill pipe and the top or overflow rim of the reservoir tank of at least twice the inside diameter of the fill pipe.
3. The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.

4. The pesticide injection pipeline must contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
5. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops, or in cases where there is no water pump, when the water pressure decreases to the point where pesticide distribution is adversely affected.
6. Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
7. Do not apply when wind speed favors drift beyond the area intended for treatment.

**SAFETY DEVICES FOR IRRIGATION SYSTEMS NOT CONNECTED TO A PUBLIC WATER SUPPLY:**

1. The system must contain a functional check valve, vacuum relief valve and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
2. The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
3. The pesticide injection pipeline must also contain a functional normally closed solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
4. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
5. The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where the pesticide distribution is adversely affected.
6. Systems must use a metering pump such as a positive displacement injection pump (e.g. diaphragm pump) effectively designed and constructed of material that is compatible with pesticides and capable of being fitted with a system interlock.
7. Do not apply when wind speed favors drift beyond the area intended for treatment.

## **APPLICATION TO GRASSY AREAS IN NURSERIES**

QUALI-PRO IMIDACLOPRID 2F TURF & ORNAMENTAL INSECTICIDE may be used on nursery grass in areas such as under or around field or container grown plants, on roadways or other grassy areas in or around nurseries.

QUALI-PRO IMIDACLOPRID 2F TURF & ORNAMENTAL INSECTICIDE controls listed soil inhabiting pests of grassy areas of nurseries, such as Northern and Southern masked chafers, *Cyclocephala borealis*, *C. immaculata*, and/or *C. lurida*; Asiatic garden beetle, *Maladera castanea*; European chafer, *Rhizotoxus majalis*; Green June beetle, *Cotinis nitida*; May or June beetle, *Phyllophaga* spp.; Japanese beetle, *Popillia japonica*; Oriental beetle, *Anomala orientalis*; Billbugs, *Spherophorus* spp.; Annual bluegrass weevil, *Hyperodes* spp.; Black turfgrass atenius, *Ataenius spretulus* and *Aphodius* spp. and mole crickets, *Scapteriscus* spp. QUALI-PRO IMIDACLOPRID 2F TURF & ORNAMENTAL INSECTICIDE can also be used for suppression of cutworms and chinch bugs.

For optimum control, make applications preceding or during the egg laying period of the target pest. The active ingredient in QUALI-PRO IMIDACLOPRID 2F TURF & ORNAMENTAL INSECTICIDE has enough residual activity so that applications can be made preceding the egg laying activity. Application timing can be based on historical monitoring of the site, previous records or experiences, current season adult trapping or other methods. Most favorable control will be achieved when applications are made prior to egg hatch of the target pests. Follow application with sufficient irrigation or rainfall to move the active ingredient through the thatch.

### **RESTRICTIONS**

- Do not make applications when grassy areas are waterlogged or the soil is saturated with water. Sufficient distribution of the active ingredient cannot be achieved under these conditions. The treated grassy area must be in such a condition that the rainfall or irrigation will penetrate vertically in the soil profile.
- Do not apply more than a total of 1.6 pt (0.4 lb of active ingredient) /A per year.

### **APPLICATION EQUIPMENT FOR USE ON GRASSY AREAS IN NURSERIES**

Apply QUALI-PRO IMIDACLOPRID 2F TURF & ORNAMENTAL INSECTICIDE in enough water to provide sufficient distribution in the treated area. Use accurately calibrated equipment typically used for the application of soil insecticides which will produce a uniform, course droplet spray, using a low pressure setting to eliminate off target drift. Check calibration periodically to ensure that equipment is working properly.

## APPLICATION SITES

### GRASSY AREAS OF FIELD AND FOREST NURSERIES

PEST	RATES	APPLICATION INSTRUCTIONS
<b>Larvae of:</b> Annual bluegrass weevil Asiatic garden beetle Billbugs Black turfgrass atenius <i>Phyllophaga</i> spp. Cutworms (suppression) European chafer Green June Beetle Japanese beetle Northern masked chafer Oriental beetle Southern masked chafer	19.2 to 25.6 fl. oz. /A or 0.45 to 0.6 fl. oz. (13 to 17 mL) per 1,000 sq. ft.	For best control of grubs, billbugs and annual bluegrass weevil, make application prior to egg hatch of the target pest.  Make sure to read <b>APPLICATION EQUIPMENT</b> section of this label.  For suppression of chinch bugs, make application prior to the hatching of the first instar nymphs.  For control of mole crickets make application before or during the peak egg hatch period. When adults or large nymphs are present and actively tunneling, QUALI-PRO IMIDACLOPRID 2F TURF & ORNAMENTAL INSECTICIDE application should be accompanied by a curative insecticide. Follow label instructions for other insecticides when tank-mixing.
Chinch bugs (suppression) Mole crickets	25.6 fl. oz./A or (17 mL) per 1,000 sq. ft.	Consult your local turf, State Agricultural Experiment Station, or State Extension Service Specialist for more specific information regarding timing of application. Irrigation or rainfall must occur within 24 hours after application to move the active ingredient through the thatch. Do not mow grass area until after adequate irrigation or rainfall has occurred so that evenness of application will not be affected.  <b>RESTRICTION:</b> <ul style="list-style-type: none"> <li>· Do not apply more than 1.6 pt (0.4 lb of active ingredient) /A per year.</li> <li>· Do not apply this product in a way that will contact people or pets.</li> <li>· Do not allow children or pets to enter treated areas until sprays have dried.</li> <li>· Do not allow this product to contact plants in bloom if bees are foraging in the treatment area.</li> </ul>

## ORNAMENTALS

### FOLIAR AND SYSTEMIC APPLICATION IN OR ON FIELD-GROWN NURSERY AND CONTAINER STOCK, GREENHOUSE ORNAMENTALS, AND ORNAMENTALS GROWN IN FLAT BENCHES OR BEDS

PEST	CROP	RATES	APPLICATION INSTRUCTIONS
Adelgids Aphids Japanese beetles (adults) Lacebugs Leaf beetles (including elm and viburnum leaf beetles) Leafhoppers (including glassy-winged sharpshooter) Leafminers Mealybugs Sawfly larvae Thrips (suppression) Whiteflies	Trees (including non-bearing fruit and nut), Shrubs Evergreens Flowers Ground covers Vegetable plants*	1.7 fl. oz. (50 mL) per 100 gal. of water	<p><b>Foliar Applications:</b> Start treatments before high pest pressure is observed and reapply as needed.</p> <p>For resistance management purposes, do not make a QUALI-PRO IMIDACLOPRID 2F TURF &amp; ORNAMENTAL INSECTICIDE foliar application following a soil application in the same crop.</p> <p><b>RESTRICTIONS</b></p> <ul style="list-style-type: none"> <li>• For use on vegetable plants intended for resale only including: Broccoli, Chinese Broccoli, Broccoli Raab, Brussels Sprouts, Cabbage, Chinese Cabbage, Cauliflower, Collards, Eggplant, Ground Cherry, Kale, Kohlrabi, Lettuce, Mustard Greens, Pepinos, Peppers, Potatoes, Rape Greens, Sorghum, Sugarbeets, Tomatillo, and Tomato.</li> <li>• Do not apply more than 1.6 pt (0.4 lb of active ingredient) /A per year. Minimum interval between applications: 5 days.</li> </ul>
White grub larvae (such as Japanese beetle larvae, Chafers, <i>Phyllophaga</i> spp., Asiatic garden beetle, Oriental beetle)		0.45 to 0.6 fl. oz. (13 to 17 mL) per 1,000 sq. ft.	<p><b>Broadcast Applications:</b> Mix required amount of product in enough water to uniformly and exactly cover the treatment area. Do not use less than 2 gallons of water per 1000 sq. ft. Irrigate to integrate QUALI-PRO IMIDACLOPRID 2F TURF &amp; ORNAMENTAL INSECTICIDE into the upper soil level.</p> <p>Refer to <b>REMARKS</b> section for use directions specific for <b>FLOWERS AND GROUND COVERS</b> concerning additional use directions.</p> <p><b>RESTRICTION:</b> Do not apply more than 1.6 pt (0.4 lb of active ingredient) /A per year. Minimum interval between applications: 5 days.</p>

\* For use on vegetable plants intended for resale only including: Broccoli, Chinese Broccoli, Broccoli Raab, Brussels Sprouts, Cabbage, Chinese Cabbage, Cauliflower, Collards, Eggplant, Ground Cherry, Kale, Kohlrabi, Lettuce, Mustard Greens, Pepinos, Peppers, Potatoes, Rape Greens, Sorghum, Sugarbeets, Tomatillo, and Tomato.

**SOIL INJECTION, SOIL DRENCH AND BROADCAST APPLICATIONS IN NURSERY AND GREENHOUSE**

PEST	CROP/RATES	APPLICATION INSTRUCTIONS
Adelgids Aphids Armored scales Black vine weevil larvae Eucalyptus longhorned borers Flatheaded borers (including bronze birch and alder borers) Japanese beetles (adults) Lacebugs Leaf beetles (including elm and viburnum leaf beetles) Leafhoppers (including glassy-winged sharpshooter) Leafminers Mealybugs Pine Tip moth larvae Psyllids Royal palm bugs Sawfly larvae Soft scales Thrips (suppression) White grub larvae Whiteflies	<p style="text-align: center;"><b>TREES</b></p> Apply 0.1 to 0.2 fl oz (3 to 6 mL) per inch of trunk diameter.  Diameter at Breast Height (D.B.H.) is measured at 4.5 feet from the ground.	<p><b>Soil Injections:</b>  <b>Grid System:</b> Space holes on 2.5 foot centers, in a grid pattern, extending to the drip line of the tree.  <b>Circle System:</b> Apply in holes evenly spaced in circles, (use more than one circle dependent upon the size of the tree) beneath the drip line of the tree extending in from that line.  <b>Basal System:</b> Space injection holes evenly around the base of the tree trunk no more than 6 to 12 inches out from the base.</p> <p>Mix required dosage in sufficient water to inject an equal amount of solution in each hole. Maintain a low pressure and use sufficient solution for distribution of the liquid into the treatment zone. Keep the treated area moist for 7 to 10 days. Do not use less than 4 holes per tree.</p> <p><b>Soil Drench:</b> Uniformly apply the dosage in no less than 10 gallons of water per 1000 square feet as a drench around the base of the tree, directed to the root zone. Remove plastic or any other barrier that will stop solution from reaching the root zone.</p> <p><b>For Control of Specified Borers:</b> Application to trees already heavily infested may not prevent the eventual loss of the trees due to existing pest damage and tree stress.</p> <p><b>RESTRICTIONS</b></p> <ul style="list-style-type: none"> <li>• <b>No Soil Injection Application Allowed in Nassau or Suffolk Counties of New York.</b></li> <li>• Do not apply more than 1.6 pt (0.4 lb of active ingredient) /A per year.</li> </ul>

*(continued)*

PEST	CROP/RATES	APPLICATION INSTRUCTIONS
	<p><b>SHRUBS</b> 0.1 to 0.2 fl. oz. (13 to 17 mL) per foot of shrub height</p>	<p><b>Soil Injection:</b> Apply to individual plants using dosage indicated. Mix required dosage in sufficient water to inject an equal amount of solution in each hole. Maintain a low pressure and use sufficient solution for distribution of the liquid into the treatment zone. Keep the treated area moist for 7 to 10 days. Do not use less than 4 holes per shrub.</p> <p><b>Soil Drench:</b> Uniformly apply the dosage in no less than 10 gallons of water per 1,000 square feet as a drench around the base of the tree, directed to the root zone. Remove plastic or any other barrier that will stop solution from reaching the root zone.</p> <p><b>RESTRICTIONS</b></p> <ul style="list-style-type: none"> <li>• <b>No Soil Injection Application Allowed in Nassau or Suffolk Counties of New York.</b></li> <li>• Do not apply more than 1.6 pt (0.4 lb of active ingredient) /A per year.</li> </ul>
	<p><b>FLOWERS AND GROUND COVERS</b> 0.45 to 0.6 fl. oz. (13 to 17 mL) per 1,000 sq. ft.</p>	<p>Apply as a broadcast treatment before or after planting, prior to bloom or after all flower petals have fallen off for established plants. After application to established plants, irrigate thoroughly.</p> <p><b>RESTRICTION:</b> Do not apply more than 1.6 pt (0.4 lb of active ingredient) /A per year.</p>

#### **EBB & FLOOD APPLICATION**

Prior to treatment, to ensure accurate uptake by the plants, at least 10 plants must be brought up to a known field capacity and allowed to dry out for one or two days. Once dry, re-wet these plants to determine how much water on average each plant will absorb to bring it back at field capacity. Use the volume absorbed per plant (keeping pot sizes uniform) multiplied by the number of pots being treated. Add to this volume a required minimum to flood your smallest treatment area. This should minimize the return back to the storage tank. Re-use the returned volume with subsequent irrigation or nutrients on the same plants.

PEST	POT SIZE (inches)	Herbaceous species including vegetable plants* (1 or 2 plants per pot)	Woody perennials, Herbaceous species including vegetable plants* (3 or more plants per pot)	APPLICATION INSTRUCTIONS
		ML per 100 Plants	ML per 100 Plants	
Adelgids	2	1.6 mL	2.5 mL	<p><sup>1</sup> <b>Fungus gnat larvae:</b> Control in the soil by drench or incorporation. QUALI-PRO IMIDACLOPRID 2F TURF &amp; ORNAMENTAL INSECTICIDE will not control adult Fungus Gnats.</p> <p><sup>2</sup> <b>Root Mealybug:</b> To obtain control, thoroughly drench the containerized media but do not allow leaching from the bottom of the container. Use the following rate of 1.7 fl oz (50 mL) in 150 gallons of water.</p> <p><sup>3</sup> <b>Citrus Root Weevil:</b> For use on non-bearing citrus nursery stock.</p> <p><sup>4</sup> <b>Thrips:</b> For suppression on foliage only. Thrips in buds and flowers will not be suppressed.</p> <p>Foliar insect control is accomplished by the uptake of QUALI-PRO IMIDACLOPRID 2F TURF &amp; ORNAMENTAL INSECTICIDE from a healthy root system. This allows the active ingredient to move up into the plant.</p> <p><b>RESTRICTIONS</b></p> <ul style="list-style-type: none"> <li>• For use on vegetable plants intended for resale only including: Broccoli, Chinese Broccoli, Broccoli Raab, Brussels Sprouts, Cabbage, Chinese Cabbage, Cauliflower, Collards, Eggplant, Ground Cherry, Kale, Kohlrabi, Lettuce, Mustard Greens, Pepinos, Peppers, Potatoes, Rape Greens, Sorghum, Sugarbeets, Tomatillo, and Tomato.</li> <li>• Do not apply more than 1.6 pt (0.4 lb of active ingredient) /A per year.</li> </ul>
Aphids	2	1.6 mL	2.5 mL	
Armored scales	3	2.5 mL	3.7 mL	
Fungus Gnats (larvae only) <sup>1</sup>	3	2.5 mL	3.7 mL	
Japanese beetles (adults)	4	3.3 mL	5 mL	
Lacebugs	4	3.3 mL	5 mL	
Leaf beetles (including elm and viburnum leaf beetles)	5	4.2 mL	6.3 mL	
Leafhoppers (including glassy-winged sharpshooter)	6	5 mL	7.7 mL	
Leafminers	7	5.9 mL	9.1 mL	
Mealybugs	7	5.9 mL	9.1 mL	
Psyllids	8	6.6 mL	10 mL	
Root mealybugs <sup>2</sup>	8	6.6 mL	10 mL	
Root Weevil Complex (such as Apopka Weevil, Black Vine Weevil, Citrus Weevil <sup>3</sup> )	9	7.4 mL	11.1 mL	
Soft scales	9	7.4 mL	11.1 mL	
Thrips (suppression) <sup>4</sup>	10	8.3 mL	12.5 mL	
Whiteflies	11	9 mL	14.3 mL	
White grub larvae (such as Japanese Beetle, Masked Chafers, European Chafer, Oriental Beetle, Asiatic Garden Beetle)	12	10 mL	16.7 mL	

## DRENCH AND IRRIGATION APPLICATIONS

For use only on greenhouse and nursery ornamentals, vegetable plants\*, and interiorscape plants using soil drenches, micro irrigation, drip irrigation, overhead irrigation, ebb and flood irrigation, or hand-held or motorized calibrated irrigation equipment.

PEST	POT SIZE (inches)	Herbaceous species including vegetable plants* (1 or 2 plants per pot)	Woody perennials, Herbaceous species including vegetable plants* (3 or more plants per pot)	APPLICATION INSTRUCTIONS
		No. pots treated with 1.7 fl. oz. (50 mL)	No. pots treated with 1.7 fl. oz. (50 mL)	
Adelgids	2	3,000	2,000	Thoroughly wet most of the potting medium but do not allow runoff or leaching from the bottom of the container.
Aphids				
Fungus Gnats (larvae only) <sup>1</sup>	3	2,000	1,350	Follow the application with moderate irrigation. During the next 10 days, carefully irrigate to avoid the loss of the active ingredient due to leaching. <sup>1</sup> <b>Fungus gnat larvae:</b> Control in the soil by drench or incorporation. QUALI-PRO IMIDACLOPRID 2F TURF & ORNAMENTAL INSECTICIDE will not control adult Fungus Gnats. <sup>2</sup> <b>Root Mealybug:</b> To obtain control, thoroughly drench the containerized media but do not allow leaching from the bottom of the container. Use the following rate of 1.7 fl oz (50 mL) in 150 gallons of water. <sup>3</sup> <b>Citrus Root Weevil:</b> For use on non-bearing citrus nursery stock. <sup>4</sup> <b>Thrips:</b> For suppression on foliage only. Thrips in buds and flowers will not be suppressed.  Foliar insect control is accomplished by the uptake of QUALI-PRO IMIDACLOPRID 2F TURF & ORNAMENTAL INSECTICIDE from a healthy root system. This allows the active ingredient to move up into the plant.
Japanese beetles (adults)	4	1,500	1,000	
Lacebugs				
Leaf beetles (including elm and viburnum leaf beetles)	5	1,200	800	
	6	1,000	650	
Leafhoppers (including glassy-winged sharpshooter)	7	850	550	
Leafminers	8	750	500	
Mealybugs				
Psyllids	9	675	450	
Root mealybugs <sup>2</sup>				
Root Weevil Complex (such as Apopka Weevil, Black Vine Weevil, Citrus Weevil <sup>3</sup> )	10	600	400	
	11	550	350	
Soft scales				
Thrips (suppression) <sup>4</sup>	12	500	300	
Whiteflies				
White grub larvae (such as Japanese Beetle, Masked Chafers, European Chafers, Oriental Beetle, Asiatic Garden Beetle)				

(continued)

**DRENCH AND IRRIGATION APPLICATIONS** *(Continued)*

For use only on greenhouse and nursery ornamentals, vegetable plants\*, and interiorscape plants using soil drenches, micro irrigation, drip irrigation, overhead irrigation, ebb and flood irrigation, or hand-held or motorized calibrated irrigation equipment. *(continued)*

PEST	POT SIZE (inches)	Herbaceous species including vegetable plants* (1 or 2 plants per pot)	Woody perennials, Herbaceous species including vegetable plants* (3 or more plants per pot)	APPLICATION INSTRUCTIONS
		No. pots treated with 1.7 fl. oz. (50 mL)	No. pots treated with 1.7 fl. oz. (50 mL)	
	Ornamental and vegetable plants* grown in flats, benches, or beds		1.7 fl. oz. (50 mL) per 3,000 sq. ft.	<p>Mix the appropriate amount of QUALI-PRO IMIDACLOPRID 2F TURF &amp; ORNAMENTAL INSECTICIDE in sufficient water to evenly cover the treatment area.</p> <p><b>RESTRICTION:</b> Do not use less than 2 gallons of mixture per 1000 sq. ft.</p> <p>Apply as a broadcast treatment. Before planting, mix into the potting medium or apply after to established plants. Lightly irrigate after application to established plants for best control.</p> <p><b>RESTRICTION:</b> Do not allow leaching or runoff for 10 days after application.</p>
<p>* For use on vegetable plants intended for resale only including: Broccoli, Chinese Broccoli, Broccoli Raab, Brussels Sprouts, Cabbage, Chinese Cabbage, Cauliflower, Collards, Eggplant, Ground Cherry, Kale, Kohlrabi, Lettuce, Mustard Greens, Pepinos, Peppers, Potatoes, Rape Greens, Sorghum, Sugarbeets, Tomatillo, and Tomato.</p>				

*(continued)*

**DRENCH AND IRRIGATION APPLICATIONS** (Continued)

PEST	Containerized Plants		APPLICATION INSTRUCTIONS
	Container Size	No. pots treated with 1.7 fl. oz. (50 mL)	
Adelgids	1 gallon	340 to 244	<p>Apply in sufficient water to wet the potting medium. For best control, make applications prior to egg hatch of the target pest. Irrigate moderately after application to move the active ingredient into the root zone.</p> <p>To prevent leaching, use 1.7 fl. oz. (50 mL) of QUALI-PRO IMIDACLOPRID 2F TURF &amp; ORNAMENTAL INSECTICIDE in the appropriate amount of water to treat the number of pots based on the pot size as stated in the table.</p> <p>Foliar insect control is accomplished by the uptake of QUALI-PRO IMIDACLOPRID 2F TURF &amp; ORNAMENTAL INSECTICIDE from a healthy root system. This allows the active ingredient to move up into the plant.</p> <p><sup>1</sup> <b>Fungus gnat larvae:</b> Control in the soil by drench or incorporation. QUALI-PRO IMIDACLOPRID 2F TURF &amp; ORNAMENTAL INSECTICIDE will not control adult Fungus Gnats.</p> <p><sup>2</sup> <b>Root Mealybug:</b> To obtain control, thoroughly drench the containerized media but do not allow leaching from the bottom of the container. Use the following rate of 1.7 fl oz (50 mL) in 150 gallons of water.</p> <p><sup>3</sup> <b>Citrus Root Weevil:</b> For use on non-bearing citrus nursery stock.</p> <p><sup>4</sup> <b>Thrips:</b> For suppression on foliage only. Thrips in buds and flowers will not be suppressed.</p>
Aphids			
Fungus Gnats (larvae only) <sup>1</sup>	2 gallon	280 to 210	
Japanese beetles (adults)	3 gallon	220 to 165	
Lacebugs			
Leaf beetles (including elm and viburnum leaf beetles)	5 gallon	160 to 110	
	7 gallon	100 to 75	
Leafhoppers (including glassy-winged sharpshooter)	10 gallon	60 to 45	
Leafminers	15 gallon	40 to 30	
Mealybugs			
Psyllids	20 gallon	20 to 15	
Root mealybugs <sup>2</sup>			
Root Weevil Complex (such as Apopka Weevil, Black Vine Weevil, Citrus Weevil <sup>3</sup> )			
Soft scales			
Thrips (suppression) <sup>4</sup>			
Whiteflies			
White grub larvae (such as Japanese Beetle, Masked Chafers, European Chafer, Oriental Beetle, Asiatic Garden Beetle)			

(continued)

PEST	Containerized Plants		APPLICATION INSTRUCTIONS
	Container Size	No. pots treated with 1.7 fl. oz. (50 mL)	
<b>Field and Forest Nurseries</b>			
White grub larvae (such as Japanese Beetle, Masked Chafers, European Chafer, Oriental Beetle, Asiatic Garden Beetle)	1.7 fl. oz. (50 mL) per 1,000 ft. of row or 3,000 sq. ft.		Before application, mow the vegetation in the treatment area to a height of 3 inches or less. Mow to the lowest height possible. Applications must be made May through July. Treatment must be followed by rainfall or irrigation. Do not use less than 2 gallons of spray volume per 1000 square feet. Apply as a uniform band on either side of the row using a band width six (6) inches wider than the actual root ball diameter to be dug. Do not overlap bands in adjacent rows. For grub control in areas of turf, apply as a broadcast application using 1.35 to 1.7 fl oz (40 to 50 mL) per 3000 sq. ft.

#### RESTRICTIONS

Do not graze treated areas or use clippings for treated areas for feed or forage. Do not allow runoff or puddling of irrigation water following application.

Do not apply QUALI-PRO IMIDACLOPRID 2F TURF & ORNAMENTAL INSECTICIDE to soils which are water logged or saturated, which will not allow penetration into the root zone of the plants.

Do not allow leachate run out for the first 10 days after application, in order to retain the product and facilitate full plant uptake of the active ingredient.

For outdoor ornamentals, do not apply more than a total of 1.6 pt (0.4 lb of active ingredient imidacloprid) /A per year.

Food Crops: Treated areas may be replanted with any crop specified on an imidacloprid label, or with any crop for which a tolerance exists for the active ingredient.

For crops not listed on an imidacloprid label, or for crops for which no tolerances for the active ingredient have been established, a 12 month plant-back interval must be observed.

## STORAGE AND DISPOSAL

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

**PESTICIDE STORAGE:** Store in a cool, dry place and in such a manner as to prevent cross contamination with other pesticides, fertilizers, food and feed. Store in original container and out of reach of children, preferably in a locked storage area. Store upright at room temperature. Avoid exposure to extreme temperatures. In case of spillage or leakages, soak up with an absorbent material such as sand, sawdust, earth, Fuller's earth, etc. Dispose of with chemical waste.

**PESTICIDE DISPOSAL:** Open dumping is prohibited. Pesticide wastes are toxic. Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency or the hazardous waste representative at the nearest EPA Regional Office for guidance.

### CONTAINER HANDLING:

**Rigid, Nonrefillable containers small enough to shake (i.e. with capacities equal to less than five gallons). Nonrefillable container.** Do not reuse or refill this container. Triple rinse or pressure rinse container (or equivalent) promptly after emptying.

Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling or reconditioning if available, or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities.

Pressure rinse as follows: Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or a mix tank or collect rinsate at about 40 PSI for at least 30 seconds. Drain for 10 seconds after the flow begins to drip. Once container is rinsed, offer for recycling if available, or puncture and dispose of in a sanitary landfill.

**Rigid, Nonrefillable containers that are too large to shake (i.e. with capacities greater than 5 gallons or 50 lbs).**

**Nonrefillable container.** Do not reuse or refill this container. Triple rinse or pressure rinse container (or equivalent) promptly after emptying.

Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times. Offer for recycling or reconditioning if available, or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities.

*(continued)*

## **STORAGE AND DISPOSAL** *(continued)*

Pressure rinse as follows: Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or a mix tank or collect rinsate at about 40 PSI for at least 30 seconds. Drain for 10 seconds after the flow begins to drip. Once container is rinsed, offer for recycling if available, or puncture and dispose of in a sanitary landfill.

## LIMITATION OF WARRANTY AND LIABILITY

Read the entire directions for use, conditions of warranties and limitations of liability before using this product. If terms are not acceptable, return the unopened product container at once.

By using this product, user or buyer accepts the following **CONDITIONS, DISCLAIMER OF WARRANTIES, and LIMITATIONS OF LIABILITY.**

**CONDITIONS:** The directions for use of this product are believed to be adequate and must be followed carefully. However, it is impossible to eliminate all risks associated with the use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of such factors as weather conditions, presence of other materials, or the manner of use or application, all of which are beyond the control of Control Solutions, Inc. All such risks shall be assumed by the user or buyer.

**DISCLAIMER OF WARRANTIES:** To the extent consistent with applicable law, Control Solutions, Inc. makes no other warranties, express or implied, of merchantability or of fitness for a particular purpose or otherwise, that extend beyond the statements made on this label. No agent of Control Solutions, Inc. is authorized to make any warranties beyond those contained herein or to modify the warranties contained herein. To the extent consistent with applicable law, Control Solutions, Inc. disclaims any liability whatsoever for special, incidental or consequential damages resulting from the use or handling of this product.

**LIMITATIONS OF LIABILITY:** To the extent consistent with applicable law, the exclusive remedy of the user or buyer for any and all losses, injuries or damages resulting from the use or handling of this product, whether in contract, warranty, tort, negligence, strict liability or otherwise, shall not exceed the purchase price paid or at Control Solutions, Inc. election, the replacement of product.





**QUALI-PRO**<sup>®</sup>

# IMIDACLOPRID 2F

## Turf & Ornamental Insecticide



### Turf and Ornamental and Nursery and Greenhouse Uses

- Foliar and Systemic Insect Control for use on Turfgrass including Sod Farms, Landscape Ornamentals, Fruit and Nut Trees and Interior Plantscapes
- Foliar and Systemic Insect Control for use in Greenhouses, and Nurseries on Ornamentals, Fruit and Nut Trees and Vegetable Plants

ACTIVE INGREDIENT:	% BY WT.
Imidacloprid: 1-[(6-Chloro-3-pyridinyl)methyl]-N-nitro-2-imidazolidinimine .....	21.8%
OTHER INGREDIENTS: .....	78.2%
TOTAL: .....	100.0%

Contains 2 pounds of imidacloprid per gallon.  
Flowable insecticide.  
Shake well before using.

**CONTENTS:**  
**1 GALLON**

### KEEP OUT OF REACH OF CHILDREN CAUTION/PRECAUCION

PRECAUCION AL USUARIO: Si usted no puede leer o entender ingles, no use este producto hasta que la etiqueta le haya sido explicada ampliamente. (TO THE USER: If you cannot read or understand English, do not use this product until the label has been fully explained to you.)

EPA Reg. No. 53883-514  
EPA Est No. 53883-TX-002

**Manufactured for:**  
Control Solutions, Inc.  
5903 Genoa Red Bluff Road  
Pasadena, TX 77507

EPA 120313/Rev A



# SAFETY DATA SHEET

## Quali-Pro Imidacloprid 2F Turf and Ornamental Insecticide

### SECTION 1: IDENTIFICATION

**Product Name:** Quali-Pro Imidacloprid 2F Turf and Ornamental Insecticide  
**EPA Registration No.:** 53883-514  
**Recommended Use:** Insecticide; See product label for a complete list of uses and use sites.  
**Restrictions on Use:** See product label for any restrictions on the use of this product.  
**Chemical Family:** Neonicotinoid  
**Chemical Name of Active Ingredient(s):** Imidacloprid: 1.1-((6-chloro-3-pyridinyl)methyl)-N-nitro-2-imidazolidinimine  
**Manufactured for:** Control Solutions, Inc.  
5903 Genoa-Red Bluff  
Pasadena, TX 77507

**FOR FIRE, SPILL, AND/OR LEAK EMERGENCIES CONTACT: [CHEMTREC 1-800-424-9300](tel:1-800-424-9300)**

**FOR MEDICAL EMERGENCIES AND HEALTH AND SAFETY INQUIRIES CONTACT: [Safety Call 1-866-897-8050](tel:1-866-897-8050)**

### SECTION 2: HAZARD(S) IDENTIFICATION

**EMERGENCY OVERVIEW:** Eggshell white liquid with a mild odor.

**OSHA HCS CLASSIFICATION (29 CFR 1910.1200)**

Acute Oral Toxicity	Category 4
Acute Inhalation Toxicity	Category 4

**Signal Word:** WARNING



**Hazard Statement(s):** Harmful if swallowed  
Harmful if inhaled

**Precautionary Statement(s):**

**Prevention:** Avoid breathing spray/mist.  
Use only outdoors or in a well-ventilated area.  
Wash hands, face, and any exposed skin thoroughly after handling.  
Do not eat, drink, or smoke when using this product.

**Response:** IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a poison center/doctor if you feel unwell.  
IF SWALLOWED: Call a poison/doctor if you feel unwell. Rinse mouth

**Storage:** See section 7 for storage information.

**Disposal:** Dispose of contents/container in accordance with Federal, state, and local laws and regulations.

# Quali-Pro Imidacloprid 2F Turf and Ornamental Insecticide

## SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS Number	Weight %
Imidacloprid	138261-41-3	21.8%
Propylene glycol	57-55-6	4.0 – 7.0%

\*Ingredients not listed or listed with a weight % range are considered a trade secret and are withheld under 29 CFR 1910.1200(i).

## SECTION 4: FIRST AID MEASURES

<b>IF IN EYES:</b>	Hold eye open and rinse slowly and gently with water for 15 to 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.
<b>IF ON SKIN:</b>	Take off contaminated clothing. Rinse skin immediately with plenty of water for 15 to 20 minutes. Call a poison control center or doctor for treatment advice.
<b>IF INHALED:</b>	Move person to fresh air. If person is not breathing, call 911 or an ambulance; then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or doctor for further treatment advice.
<b>IF INGESTED:</b>	Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give anything by mouth to an unconscious person.

**Note to Physician:** No specific antidote is available. Treat patient symptomatically.

**Most important symptoms/effects, acute and delayed:** May cause mild eye irritation.

## SECTION 5: FIRE-FIGHTING MEASURES

<b>Suitable Extinguishing Media:</b>	Foam, dry chemical, carbon dioxide or water spray
<b>Unsuitable Extinguishing Media:</b>	Water jet
<b>Hazardous Combustion Products:</b>	Thermal decomposition may produce toxic oxides of carbon and nitrogen. Hydrogen chloride and hydrogen cyanide may also be released.
<b>Special Protective Equipment &amp; Precautions:</b>	Evacuate area and fight fire upwind from a safe distance to avoid hazardous vapors and decomposition products. Foam and/or dry chemical are preferred to minimize environmental contamination. If water is used, dike and collect water to prevent run-off. Wear self-contained breathing apparatus and full fire-fighting turn-out gear (Bunker gear).
<b>Unusual Fire &amp; Explosion Hazards:</b>	None known

## SECTION 6: ACCIDENTAL RELEASE MEASURES

<b>Personal Precautions:</b>	See Section 8 for personal protection equipment.
<b>Environmental Precautions:</b>	Keep spilled material and any rinsate from contaminating soil or from entering sewage and drainage systems and bodies of water.
<b>Methods for Containment:</b>	Isolate the spill area. Keep unnecessary and unprotected personnel from entering. Absorb small spills with sand, vermiculite or other inert absorbent. Dike large spills using absorbent or impervious material such as clay or sand.

# Quali-Pro Imidacloprid 2F Turf and Ornamental Insecticide

Revision Date: March 1, 2022

Recover and contain as much free liquid as possible for reuse. Allow absorbed material to solidify and scrape up for disposal.

**Methods for Clean-up:** Place contaminated material in appropriate container for disposal. After removal, flush contaminated area thoroughly with water. Pick up wash liquid with additional absorbent and place in a disposable container. Do not put spilled material back in the original container.

**Other Information:** None known

## SECTION 7: HANDLING AND STORAGE

**Handling:** RECOMMENDATIONS ARE INTENDED FOR MANUFACTURING, PACKAGING AND COMMERCIAL BLENDING WORKERS. PESTICIDE APPLICATORS AND WORKERS must refer to the product label and Directions for Use attached to the product for Agricultural Use Requirements in accordance with the EPA Worker Protection Standard 40 CFR part 170. Handle and open container in a manner as to prevent spillage. Do not eat, drink or smoke while handling this product. Immediately wash off accidental splashes of the concentrate or spray mixture from skin, clothing and out of eyes.

**Storage:** See pesticide label for full information on product storage. Do not contaminate water, food or feed by storage of this product. Store away from sources of heat, out of direct sunlight and away from incompatible materials. Pesticides should be stored in secured areas away from children and animals.

**Storage Temperature (Min/Max):** Not determined

**Product Incompatibilities:** Strong oxidizers

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Users of a pesticide product must refer to the product label for personal protective equipment requirements.

### Exposure Guidelines:

COMPONENT	OSHA PEL	ACGIH TLV	NIOSH REL
No components listed			

**Engineering Controls:** Provide general or local exhaust ventilation systems to maintain airborne concentrations below OSHA PELs or other specified exposure limits. Local exhaust ventilation is preferred.

**Respiratory Protection:** In areas of poor ventilation, use a NIOSH approved respirator with cartridges/canisters approved for pesticides.

**Eye Protection:** Chemical goggles or safety glasses and full-face shield.

**Protective Gloves:** Chemical-resistant gloves such as barrier laminate, butyl rubber, nitrile, neoprene rubber, polyvinyl chloride (PVC) or Viton.

**Other Protective Clothing:** Long-sleeved shirt, long pants and chemical resistant footwear plus socks.

**General Safety Measures:** Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet. Remove clothing immediately after handling this product. Wash outside of gloves before removing. Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them. Follow manufacturer's instructions for cleaning and maintaining PPE. If no such instructions for

# Quali-Pro Imidacloprid 2F Turf and Ornamental Insecticide

Revision Date: March 1, 2022

washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

<b>Appearance:</b>	Eggshell white liquid	<b>Upper/Lower Flammability Limits:</b>	Not determined
<b>Odor:</b>	Mild	<b>Vapor Pressure:</b>	Not determined
<b>Odor Threshold:</b>	Not determined	<b>Vapor Density:</b>	Not determined
<b>pH (1% dispersion):</b>	6.5 – 7.5	<b>Relative Density (@24°C):</b>	1.1384 (typical)
<b>Melting /Freezing Point:</b>	Not determined	<b>Solubility:</b>	Not determined
<b>Boiling Point/Range:</b>	Not determined	<b>Partition Coefficient:</b>	Not determined
<b>Flash Point:</b>	Not applicable	<b>Auto-ignition Temperature:</b>	Not determined
<b>Evaporation Rate:</b>	Not determined	<b>Decomposition Temperature:</b>	Not determined
<b>Flammability:</b>	Not applicable	<b>Viscosity (@25°C):</b>	450 cps at 600 rpm

## SECTION 10: STABILITY AND REACTIVITY

<b>Reactivity:</b>	No hazardous chemical reactions known.
<b>Chemical Stability:</b>	Stable under normal storage and handling conditions.
<b>Possibility of Hazardous Reactions:</b>	No potential for hazardous reactions known.
<b>Conditions to Avoid:</b>	Extreme temperatures
<b>Incompatible Materials:</b>	None known
<b>Hazardous Decomposition Products:</b>	Thermal decomposition may produce toxic oxides of carbon and nitrogen. Hydrogen chloride and hydrogen cyanide may also be released.

## SECTION 11: TOXICOLOGICAL INFORMATION

<b>Likely Routes of Exposure:</b>	Eye contact, Skin contact, Inhalation, Ingestion
<b>Symptoms of Exposure:</b>	None known
<b>Oral LD<sub>50</sub>:</b>	>1,190 mg/kg
<b>Dermal LD<sub>50</sub>:</b>	>5,000 mg/kg
<b>Inhalation LC<sub>50</sub>:</b>	>3.452 mg/L (4-hour)
<b>Eye Irritation/Damage:</b>	Non-irritating
<b>Skin Corrosion/Irritation:</b>	Non-irritating
<b>Skin Sensitization:</b>	Not a skin sensitizer

**Chronic/Subchronic Toxicity:** Imidacloprid Technical: 2-year feeding study in rats resulted in an NOEL of 100 ppm; 1-year feeding study in dogs resulted in an NOEL of 1,250 ppm.

**Mutagenicity:** Imidacloprid Technical: In a battery of 23 laboratory mutagenicity assays, imidacloprid tested negative for mutagenic effects in all but two of the assays. It did test positive for causing changes in chromosomes in human lymphocytes, as well as testing positive for genotoxicity in Chinese hamster ovary cells. Taken collectively, the data demonstrate that imidacloprid is not mutagenic.

**Reproductive Toxicity:** Imidacloprid Technical: NOEL 100 ppm (8 mg/kg/day)(rat)

**Neurotoxicity:** No data available

**Target Organs:** Imidacloprid Technical: Thyroid lesions at very high doses in rats.

**Aspiration Hazard:** Not anticipated to be an aspiration hazard.

# Quali-Pro Imidacloprid 2F Turf and Ornamental Insecticide

**Carcinogenicity:** Imidacloprid Technical: There were no carcinogenic effects in a 2-year carcinogenicity study in rats fed up to 1,800 ppm imidacloprid.

Chemical Name	ACGIH	IARC	NTP	OSHA
No components listed				

## SECTION 12: ECOLOGICAL INFORMATION

### Environmental Hazards Statement from FIFRA Regulated Pesticide Label:

This product is highly toxic to aquatic invertebrates. Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high-water mark. Do not contaminate water when disposing of equipment washwaters or rinsate.

This product is highly toxic to bees exposed to direct treatment or residues on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops or weeds if bees are visiting the treatment area.

This chemical demonstrates the properties and characteristics associated with chemicals detected in groundwater. The use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in groundwater contamination.

Apply this product only as specified on this label. Extreme care must be taken to avoid runoff. Apply only to soil or other fill substrate that will accept the solution at the specified rate. Do not treat soil that is water-saturated or frozen or in any conditions where run-off or movement from the treatment area (site) is likely to occur.

### ECOTOXICITY DATA:

Data presented below is on the imidacloprid technical product.

**Fish Toxicity:**

Rainbow trout: 96-hour LC<sub>50</sub> = 211 mg/L

**Aquatic Invertebrate Toxicity:**

*Daphnia magna*: 96-hour EC<sub>50</sub> = 85 mg/L

**Aquatic Plant Toxicity:**

*Desmodemus subspicatus*: 72 hr EC<sub>50</sub> >10 mg/L

**Avian Toxicity:**

No data available

**Honeybee Toxicity:**

0.008 µg/bee (contact)

### ENVIRONMENTAL EFFECTS:

**Persistence and Degradability:** No data available

**Bioaccumulation:** No data available

**Mobility:** No data available

**Other Adverse Effects:** No data available

## SECTION 13: DISPOSAL CONSIDERATIONS

**Waste Disposal:** **Refer to the pesticide label for full information on disposal.** Pesticide wastes are toxic. Improper disposal of unused pesticide, spray mixture, or rinse water is a violation of Federal law. If these wastes cannot be used according to label instructions, contact your State Pesticide or Environmental Control Agency or the Hazardous Waste representative at the nearest EPA Regional Office for guidance in proper disposal methods.

**Container Disposal:** **Refer to the pesticide label for full information on disposal.** When possible, triple rinse the container and offer for recycling if available.

# Quali-Pro Imidacloprid 2F Turf and Ornamental Insecticide

**RCRA Characteristics:** It is the responsibility of the individual disposing of this product to determine the RCRA classification and hazard status of the waste.

## SECTION 14: TRANSPORTATION INFORMATION

**DOT (Ground):** Not regulated  
**IMDG (Sea):** This product may meet the definition of a marine pollutant.  
**IATA (Air):** Not regulated

## SECTION 15: REGULATORY INFORMATION

**Labeling Requirements Under FIFRA:** This chemical is a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets and for workplace labels of non-pesticide chemicals. Following is the hazard information as required on the pesticide label:

### CAUTION

Harmful if swallowed, inhaled, or absorbed through skin. Avoid contact with skin eyes, or clothing. Avoid breathing spray mist. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, or using tobacco. Remove contaminated clothing and wash clothing before reuse. Keep children or pets away from treated area until dry.

**TSCA Inventory:** This product is exempt from TSCA inventory listing requirements as it is solely for FIFRA regulated use.

### SARA Title III Information:

**Section 302 – Extremely hazardous substances:** None

**Section 311/312 – Hazard Categories:** Acute (Immediate)

**Section 313** – This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372:

Chemical Name	CAS Number	Weight %
None listed		

**CERCLA** – This product contains the following chemicals which have a reportable quantity (RQ) under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA):

Chemical Name	CAS Number	RQ	Quantity of Finished Product
None listed			

### CALIFORNIA PROPOSITION 65:

Chemical Name	CAS Number	Prop 65 Category(ies)
None listed		

### U.S. STATE RIGHT-TO-KNOW REGULATIONS:

Chemical Name	New Jersey	Massachusetts	Pennsylvania

# Quali-Pro Imidacloprid 2F Turf and Ornamental Insecticide

Propylene glycol	X		X
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## SECTION 16: OTHER INFORMATION

<b>NFPA</b>	<b>Health Hazards</b> 1	<b>Flammability</b> 1	<b>Instability</b> 0	<b>Special Hazards</b> – None
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**Disclaimer:** Control Solutions, Inc. believes the information presented herein is accurate and correct as of the document date. The presented information is based upon available data from reliable sources. Control Solutions, Inc. makes no warranty, express or implied, regarding the accuracy of the data or the results obtained from the use of this product. Nothing herein may be construed as recommending any practice or any product in violation of any law or regulations. The user is solely responsible for determining the suitability of any material or product for a specific purpose and for adopting any appropriate safety precautions. We disclaim all liability for injury or damage stemming from any improper use of the material or product described herein.

**Revision Date:** March 1, 2022  
**Document Superseded:** November 20, 2015 (EPA Reg. No. 66222-203)  
**Revision Note:** Product transferred. Updated format.

# QUALI-PRO<sup>®</sup>

# Ipro 2



A FUNGICIDE  
FOR THE PREVENTION AND CONTROL OF CERTAIN  
DISEASES OF TURFGRASS AND ORNAMENTALS

ACTIVE INGREDIENT:	% BY WT.
Iprodione: 3-(3,5-dichlorophenyl)-N-(1-methylethyl)-2,4-dioxo-1-imidazolidinecarboxamide)* .....	23.0%
OTHER INGREDIENTS: .....	77.0%
TOTAL: .....	100.0%

\*Equivalent to 2 pounds Iprodione per gallon.

**KEEP OUT OF  
REACH OF CHILDREN  
CAUTION**

See additional precautionary statements  
and directions for use inside booklet.

EPA Reg. No. 53883-380  
EPA Est. No. 53883-TX-002

**NET CONTENTS: 2.5 GALLONS**



Manufactured by:  
**Control  
Solutions Inc.**  
5903 Genoa-Red Bluff  
Pasadena, TX 77507



0 72693 40030 6

## FIRST AID

<b>IF SWALLOWED:</b>	<ul style="list-style-type: none"><li>• Call a poison control center or doctor immediately for treatment advice.</li><li>• Do not give any liquid to the person.</li><li>• Do not induce vomiting unless told to by the poison control center or doctor.</li><li>• Do not give anything to an unconscious person.</li></ul>
<b>IF ON SKIN OR CLOTHING:</b>	<ul style="list-style-type: none"><li>• Take off contaminated clothing.</li><li>• Rinse skin immediately with plenty of water for 15-20 minutes.</li><li>• Call a poison control center or doctor for treatment advice.</li></ul>
<b>IF INHALED:</b>	<ul style="list-style-type: none"><li>• Move person to fresh air.</li><li>• If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible.</li><li>• Call a poison control center or doctor for further treatment advice.</li></ul>
<b>IF IN EYES:</b>	<ul style="list-style-type: none"><li>• Hold eye open and rinse slowly and gently with water for 15-20 minutes.</li><li>• Remove contact lenses, if present, after the first 5 minutes, then continue rinsing.</li><li>• Call a poison control center or doctor for treatment advice.</li></ul>

## HOT LINE NUMBER

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. For information on this product, contact the National Pesticide Information Center, 1-800-858-7378, Monday-Friday, 8:00 AM-12:00 PM PST. You may also contact the National Poison Control Center, 1-800-222-1222, day or night, for emergency medical treatment information or SafetyCall at 1-866-897-8050. **FOR CHEMICAL EMERGENCY:** Spill, leak, fire, exposure, or accident call CHEMTREC 1-800-424-9300.

## PRECAUTIONARY STATEMENTS HAZARDS TO HUMANS AND DOMESTIC ANIMALS

### CAUTION

Harmful if swallowed, absorbed through skin, or inhaled. Avoid contact with skin, eyes, or clothing. Avoid breathing spray mist.

### PERSONAL PROTECTIVE EQUIPMENT (PPE)

Mixers, loaders, others exposed to the concentrate, cleaners/repairers of equipment, and applicators applying as a dip treatment must wear long-sleeve shirt and long pants, chemical resistant gloves (barrier laminate, nitrile rubber (≥ 14 mils), neoprene rubber (≥ 14 mils), or viton (≥ 14 mils)), chemical-resistant apron, and chemical-resistant footwear plus socks.

Applicators using hand held equipment must wear coveralls over long-sleeve shirt and long pants, chemical-resistant gloves (barrier laminate, nitrile rubber (≥ 14 mils), neoprene rubber (≥ 14 mils), or viton (≥ 14 mils)), chemical-resistant footwear plus socks, chemical-resistant headgear for overhead exposures, and a dust/mist filtering respirator (MSHA/NIOSH approval number prefix TC-21C), or a NIOSH approved respirator with any R, P or HE filter.

Applicators using aircraft or mechanical ground equipment (groundboom, airblast, etc.), and flaggers for aerial applications must wear long-sleeve shirt and long pants, and shoes plus socks.

Applicators using truck-mounted equipment with a handgun at the end of a hose (i.e., for commercial turfgrass or ornamental applications) and all other handlers not specified above must wear long-sleeve shirt and long pants, chemical-resistant gloves (barrier laminate, nitrile rubber (≥ 14 mils), neoprene rubber (≥ 14 mils), or viton (≥ 14 mils)), and shoes plus socks.

Follow manufacturer's instructions for cleaning/maintaining personal protective equipment (PPE). If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry. Discard clothing or other materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them.

### ENGINEERING CONTROLS

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240 (d)(4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

## USER SAFETY RECOMMENDATIONS

### Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.
- Remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

## ENVIRONMENTAL HAZARDS

This chemical can contaminate surface water through aerial and ground spray applications. Under some conditions, it may also have a high potential for runoff into surface water after application. These include poorly draining or wet soils with readily visible slopes toward adjacent surface waters, frequently flooded areas, areas overlaying extremely shallow ground water, areas with in-field canals or ditches that drain to surface water, areas not separated from adjacent surface waters with vegetated filter strips, and areas overlaying tile drainage systems that drain to surface water.

This pesticide is toxic to invertebrates. Do not apply directly to water or to areas where surface water is present or to intertidal areas below the mean high-water mark. Drift and runoff may be hazardous to aquatic organisms in neighboring areas. Do not contaminate water when disposing of equipment washwater or rinsate.

## Physical or Chemical Hazards

Hazardous chemical reaction may occur.

Do not use with, mix or store near any oxidizing or reducing agents.

## DIRECTIONS FOR USE

It is a violation of Federal Law to use this product in a manner inconsistent with its labeling.

Read entire label before using this product.

Do not apply this product in a way that will contact workers or other persons, either directly or indirectly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

## AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR Part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE) and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval of 12

hours for ornamental uses. The restricted entry interval for all other WPS uses is 24 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil or water, is:

- Coveralls
- Chemical-resistant gloves: barrier laminate, nitrile rubber (≥ 14 mils), neoprene rubber (≥ 14 mils), or viton (≥ 14 mils)
- Shoes plus socks

## NON-AGRICULTURAL USE REQUIREMENTS

The requirements in this box apply to ornamental and turf uses (golf courses, landscape and institutional areas) of this product that are NOT within the scope of the Worker Protection Standard (WPS) for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries or greenhouses.

Do not enter or allow others to enter the treated area until sprays have dried.

## PRODUCT USE DIRECTIONS

**Quali-Pro IPRO 2** is a fungicide used for control of spring, summer, fall and winter diseases on non-residential turf located on golf courses, sod farms and institutional areas where fine turf is grown, and on non-residential ornamental flowers and foliage plants grown in field and landscape nurseries or greenhouses, and in conifer nurseries.

Follow all directions, recommendations and precautions and limitations on this label to obtain optimum disease control and to prevent crop injury.

### Restrictions – Turf & Ornamental Uses

- Use of this product at residential sites is prohibited.
- Do not apply this product when the wind direction is toward aquatic areas. Refer to the **Spray Drift** management section of this label.
- Except for use on golf courses, if applying this product adjacent to a water body such as a lake, reservoir, river, permanent stream, marsh or natural pond, estuary, or commercial fish pond, there must be at least a 25-foot vegetative buffer strip between the water body and the point of application.

### TURF

Applied according to good turf management practices, **Quali-Pro IPRO 2** is an effective tool in controlling spring, summer and fall diseases and in controlling certain winter diseases.

**Mixing and Application Instructions:** Use the following tables to determine specific application rates depending on the disease. Prepare only the amount of spray mixture required for a single day's (12 hours) application to avoid decomposition of the product. Add the required amount of **Quali-Pro IPRO 2** to 0.5 to 10 gal water per 1,000 sq. ft. Agitate the spray mixture during mixing and application in a properly calibrated sprayer. Apply when disease first appears or when disease development can be expected. Apply to ensure uniform coverage of the turf but do not drench.

Use the higher rate and/or shorter spray interval between applications for severe disease conditions. The lower rates and longer intervals between applications are specified for light to moderate disease pressure.

**Restrictions:**

- Do not apply to turf cut higher than 1” on golf holes where water bodies are present.
- Except for use on golf courses, if applying this product adjacent to a water body such as a lake, reservoir, river, permanent stream, marsh or natural pond, estuary, or commercial fish pond, there must be at least a 25-foot vegetative buffer strip between the water body and the point of application.
- Do not mow or irrigate treated areas until the grass is completely dry, which typically takes 24 hours post-treatment.
- Do not mix with any sticker, extender, or wetting agents.
- Do not apply more than 35 fl. oz. product/1,000 sq. ft. per year (24 lbs. a.i./acre).
- Do not apply more than 6 applications per year.
- Do not allow animals to graze on treated turf and do not feed clippings from treated turf to livestock or poultry.

**TURF DIRECTIONS FOR USE – Spring, Summer and Fall Diseases**

DISEASE	PRODUCT APPLICATION RATE (FL. OZ. PER 1,000 SQ.FT.)	APPLICATION INSTRUCTIONS	RESTRICTIONS AND COMMENTS
Anthraxnose <i>(Colletotrichum)</i>	4 to 8	Apply <b>Quali-Pro IPRO 2</b> as a tank mix with registered azoxystrobin or fosetylal products, or other fungicides which control anthracnose.	For suppression only.
Corticium Red Thread <i>(Laetisaria fuciformis)</i>	4	Apply as a preventative every 14 days up to 6 applications per year.	
Curvularia <i>(Curvularia sp.)</i> ,	4 to 8	Apply as a preventative every 14 days up to 6 applications per year.	For use on Bermuda Grass only
Dollar Spot <i>(Lanzia spp. and Moellerodiscus spp.)</i> Brown Patch <i>(Rhizoctonia solani)</i> Leaf Spot such as <i>Helminthosporium</i> Leaf Spot caused by <i>(Drechslera spp.)</i>	3 to 4  [Dollar Spot control on Fairways: 2 to 4]	<b>Greens and Tees:</b> Make repeat applications at 14 to 21 day intervals up to 6 applications per year. <b>Fairways and Other Turf Areas:</b> Make repeat applications at 14 to 28 day intervals up to 6 applications per year.	
Fusarium Blight <i>(Fusarium spp.)</i> Necrotic Ring Spot * <i>(Leptosphaeria korrae)</i>	8	Apply as a preventative foliar spray when conditions first favor disease development. Apply repeat applications at 28-day intervals, but do not exceed the maximum rate of 35 fl. oz. per 1000 sq. ft.	* Not registered for use in California.
Fusarium Patch <i>(Microdochium nivale)</i>	4 to 8	Make additional applications at 14 to 21 day intervals up to 6 applications per year.	For application in the Pacific Northwest Only – West of the Cascade Mountains
Large Patch <i>(Rhizoctonia solani)</i>	4	Make first application in fall when conditions are favorable for disease development but no symptoms are visible. Apply in the spring as needed on 14-21 day spray intervals up to 6 applications per year.	Not registered for use in California.

**TURF DIRECTIONS FOR USE – Winter Diseases**

DISEASE	PRODUCT APPLICATION RATE (FL. OZ. PER 1,000 SQ.FT.)	APPLICATION INSTRUCTIONS	RESTRICTIONS AND COMMENTS
Gray Snow Mold <i>(Typhula spp.)</i> Pink Snow Mold <i>(Fusarium nivale)</i>	4 to 8	Make an application prior to the first permanent snow cover. A second application may be made during a mid-winter thaw.	See additional directions below for use of tank mixes of <b>Quali-Pro IPRO 2</b> plus other fungicides for control of this disease.

## TANK MIXES

**Additional Disease Control: Quali-Pro IPRO 2** is compatible with most commonly used registered fungicides containing flutolanil, azoxystrobin and trifloxystrobin. These tank-mixes are useful for control of additional diseases in turf. Follow the label directions and use precautions for all tank-mix partners and ensure that the use of that fungicide is registered for use on turf. Verify the compatibility of the tank mix partner with **Quali-Pro IPRO 2** before making an application.

When applied as a tank-mix, follow the most restrictive directions and restrictions of all tank mix partner labels.

**Broad Spectrum Disease Control and Resistance Management:** Apply **Quali-Pro IPRO 2** with the registered thiophanate-methyl fungicide product, Quali-Pro® TM 4.5 Flowable, for broad spectrum turf disease control. This tank mixture aids in resistance management practices required for other fungicides susceptible to resistance. Apply 3 fl. oz. per 1,000 sq. ft. of **Quali-Pro IPRO 2** with Quali-Pro® TM 4.5 Flowable according to the following table:

Disease Pressure	Low	Medium (for more dollar spot and brown patch)	High
Amount of thiophanate-methyl in tank mix	1.0 fl. oz./1000 sq. ft.	1.0 fl. oz./1000 sq. ft.	2.0 fl. oz./1000 sq. ft.

**Summer Stress Complex/Summer Decline:** Tank-mix applications of 4 to 8 oz. per 1,000 sq. ft. of Quali-Pro Fosetyl-Al 80 WDG Fungicide with 3 to 4 fl. oz. per 1,000 sq. ft. **Quali-Pro IPRO 2** to help manage these diseases.

### ORNAMENTALS - FIELD, LANDSCAPE AND GREENHOUSE ORNAMENTALS AND CONIFER NURSERIES

Applied according to the label directions below, **Quali-Pro IPRO 2** may be applied either as a foliar spray, as a soil drench, or as a dip application to ornamental flowers and foliage to control certain diseases.

**Restrictions:**

- Not for residential use.
- When applying this product adjacent to a water body (lakes, reservoirs, rivers, permanent streams, marshes or natural ponds, estuaries, or commercial fishpond), there must be at least a 25-foot vegetative buffer strip between the water body and the point of application.

**Mixing and Application Instructions:** Use the tables below to determine the specific application rates of **Quali-Pro IPRO 2**. Prepare only the amount of spray mixture required for a single day's (12 hours) application to avoid decomposition of the product. Add the required amount of **Quali-Pro IPRO 2** to water. Agitate the spray mixture during mixing and application in a properly calibrated sprayer. Apply when disease first appears or when disease development can be expected. Follow additional directions, below, for foliar, drench or dip applications.

**List of Diseases:**

1.	Aerial Web Blight	<i>Rhizoctonia sp.</i>
2.	Alternaria Leaf Blight	<i>Alternaria euphorbiae</i>
3.	Alternaria Leaf Spot	<i>Alternaria panax</i> , <i>Alternaria tenuissima</i>
4.	Botrytis Blight	<i>Botrytis sp.</i>
5.	Fusarium Leaf Spot	<i>Fusarium moniliforme</i>
6.	Helminthosporium Leaf Spot	<i>Helminthosporium sp.</i>
7.	Rhizoctonia stem and root rot	<i>Rhizoctonia sp.</i>
8.	Ink Spot	<i>Drechslera iridis</i>
9.	Tulip Fire	<i>Botrytis tulipae</i>
10.	Alternaria Leaf Blight	<i>Alternaria zinniae</i>
11.	Ray Blight	<i>Ascochyta chrysanthami</i>
12.	Fusarium Corm rot	<i>Fusarium oxysporum</i>
13.	Daffodil Leaf Scorch	<i>Stagnospora curtissi</i>
14.	Blossom Blight	<i>Monilinia fructicola</i>
15.	Botrytis Storage Rot	<i>Botrytis sp.</i>
16.	Cylindrocladium Blight and Wilt	<i>Cylindrocladium scoparium</i>

**TABLE 1****List of Ornamentals:**

**Quali-Pro IPRO 2** may be used on the following ornamentals. Although **Quali-Pro IPRO 2** has been tested for plant tolerance and found to be acceptable for the specific genera and species listed on this label, it is impossible to test every species or variety of ornamental plant grown under different conditions for its tolerance to **Quali-Pro IPRO 2** Fungicide. The user should test a few plants using the specified rates if they are not listed on this label and evaluate for possible phytotoxicity before using **Quali-Pro IPRO 2** on a large scale.

Ageratum (1 to 7)	Dieffenbachia (1 to 7)	Peach (ornamental) (1 to 7)
Ajuga (1 to 7)	Dizygotheca (1 to 7)	Peperomia (1 to 7)
Almond (ornamental) (1 to 7)	Dogwood (1 to 7)	Periwinkle (1 to 7)
Alyssum (1 to 7)	Dracena (1 to 7)	Philodendron (1 to 7)
Andromeda (1 to 7)	English Ivy (1 to 7)	Philox (1 to 7)
Aphelandra (1 to 7)	Episcia (1 to 7)	Pilea (1 to 7)
Artemisia (1 to 7)	Euonymous (1 to 7)	Pine (1 to 7)
Aster (1 to 7)	Ficus (1 to 7)	Pitosporum (1 to 7)
Azalea (1 to 7, 16)	Forsythia (1 to 7)	Plum (ornamental) (1 to 7, 14)
Boxwood (1 to 7)	Gazania (1 to 7)	Poinsettia (1 to 7)
Cactus (1 to 7)	Geranium (1 to 7)	Poppy (1 to 7)
Calendula (1 to 7)	Gladolus (1 to 7, 12)	Pothos, (excluding soil drench application for <i>Rhizoctonia</i> stem and root rot) (1 to 6)
Carnation (1 to 7)	Gloxinia (1 to 7)	Primrose (1 to 7)
Cherry (ornamental) (1 to 7)	Gypsophila (1 to 7)	Privet (1 to 7)
Chrysanthemum (1 to 7, 11)	Hawthorn (1 to 7)	Protea (1 to 7)
Cineraria (1 to 7)	Holly (1 to 7)	Pyracantha (1 to 7)
Cistena Plum (1 to 7, 14)	Hoya (1 to 7)	Rhododendron (1 to 7, 16)
Coleus (1 to 7)	Hydrangea (1 to 7)	Rose Tree of China (1 to 7)
Columbine (1 to 7)	Impatiens, (excluding soil drench application for <i>Rhizoctonia</i> stem and root rot) (1 to 7)	Rose (1 to 7, 15)
Coral Bells ( <i>Heuchera</i> ) (1 to 7)	Iris (1 to 8)	Salvia (1 to 7)
Crape Myrtle (1 to 7)	Juniper (1 to 7)	Schefflera (1 to 7)
Crassula (1 to 7)	Kalanchoe (1 to 7)	Snapdragon (1 to 7)
Croton (1 to 7)	Lilies (1 to 7)	Statice (1 to 7)
Cyclamen (1 to 7)	Lipstick Vine ( <i>Aeschynanthus</i> ) (1 to 7)	Tree Ivy (1 to 7)
Daffodils (1 to 7, 13)	Marigold (1 to 7)	Tulip (1 to 7, 9)
Dahlia (1 to 7)	Monarda (Bee Balm) (1 to 7)	Viburnum (1 to 7)
Delphinium (1 to 7)	Pachysandra (1 to 7)	Violet (1 to 7)
Deutzia (1 to 7)	Palm (1 to 7)	Zinnia (1 to 7, 10)
Dianthus (1 to 7)	Pansy (1 to 7)	

**Foliar Applications:** Make applications of **Quali-Pro IPRO 2** when disease develops or if conditions are favorable for disease development. Foliar applications may be made to all ornamentals listed in Table 1.

DISEASE	APPLICATION RATE OF QUALI-PRO IPRO 2 (QT. PER ACRE)	APPLICATION INSTRUCTIONS	RESTRICTIONS
Aerial Web Blight <i>(Rhizoctonia sp.)</i>	1.0 to 2.5	Apply <b>Quali-Pro IPRO 2</b> as a foliar spray in sufficient water to ensure thorough coverage of the plant foliage.	Do not apply <b>Quali-Pro IPRO 2</b> on <b>Spathiphyllum</b> (Peace lily or White Anthurium).
Alternaria Leaf Blight <i>(Alternaria euphorbiae)</i>		Make repeat applications as needed every 7 to 14 days.	Do not apply more than 2.5 qts. product/acre (1.3 lbs. a.i./acre) per application.
Alternaria Leaf Spot <i>(Alternaria panax)</i> <i>(Alternaria tenissima)</i>		Under severe disease pressure, use the highest rate listed and/or the shortest interval between applications.	Do not make more than 4 applications per crop per year.
Botrytis Blight <i>(Botrytis sp.)</i>		When disease pressure is light to moderate, use the lower rates and longer spray intervals.	
Fusarium Leaf Spot <i>(Fusarium moniliforme)</i>			
Helminthosporium Leaf Spot <i>(Helminthosporium sp.)</i>			

**Drench Applications:** Use **Quali-Pro IPRO 2** as a soil drench at seeding and/or after transplanting to control **Rhizoctonia**. Drench applications may be made to all ornamentals listed in Table 1 except Impatiens and Pothos.

DISEASE	APPLICATION RATE OF QUALI-PRO IPRO 2 (AMOUNT PER 100 GAL)	APPLICATION INSTRUCTIONS	RESTRICTIONS
Stem and Root Rot <i>(Rhizoctonia spp.)</i>	13 fl. oz.	Apply <b>Quali-Pro IPRO 2</b> using 1 to 2 pints of the drench solution per sq. ft. of soil. Make repeat applications as needed every 14 days. Use the highest rate listed for severe disease pressure and the lower rate for light to moderate disease pressure.	Do not exceed a total of 35 fluid oz. product/1000 sq. ft. (24 lb AI per acre) per year. Do not make more than 6 applications per year. <b>NOTE:</b> Do not use <b>Quali-Pro IPRO 2</b> as a drench on Impatiens and Pothos. Do not use <b>Quali-Pro IPRO 2</b> on <b>Spathiphyllum</b> (Peace lily or White Anthurium).

#### **FOR DISEASES SPECIFIC TO CERTAIN ORNAMENTALS**

**Foliar Applications:** Make applications of **Quali-Pro IPRO 2** when disease develops or if conditions are favorable for disease development.

DISEASE	ORNAMENTALS	APPLICATION RATE OF QUALI-PRO IPRO 2 (QT. PER ACRE)	APPLICATION INSTRUCTIONS
Alternaria Leaf Blight ( <i>Alternaria zinniae</i> )	For use on Zinnia	1.0 to 2.5	Apply <b>Quali-Pro IPRO 2</b> as a foliar spray in sufficient water to ensure thorough coverage of the plant foliage. Make repeat applications as needed every 7 to 14 days.  Under severe disease pressure, use the highest rate listed and/or the shortest interval between applications.  When disease pressure is light to moderate, use the lower rates and longer spray intervals.
Ink Spot ( <i>Drechslera iridis</i> )	For use on Iris		
Ray Blight ( <i>Ascochyta chrysanthami</i> )	For use on Chrysanthemum		
Tulip Fire ( <i>Botrytis tulipae</i> )	For use on Tulips		
Daffodil Leaf Scorch ( <i>Stagnospora curtissi</i> )	For use on Daffodils		
Blossom Blight ( <i>Monilinia fructicola</i> )	For use on Cistena Plum		
<b>Restrictions:</b>			
<ul style="list-style-type: none"> <li>• Do not apply more than 2.5 qts. product/acre (1.3 lbs. a.i./acre) per application.</li> <li>• Do not make more than 4 applications per crop per year.</li> </ul>			

**Dip Applications:** Apply **Quali-Pro IPRO 2** as a dip to control diseases of the ornamentals listed in the table below.

DISEASE	ORNAMENTALS	APPLICATION RATE OF QUALI-PRO IPRO 2 (QT. PER 100 GAL.)	APPLICATION INSTRUCTIONS
Botrytis Storage Rot ( <i>Botrytis</i> sp.)	For use on Roses	1.0	Dip the rose plant roots for 5 minutes prior to cold storage.
<i>Cylindrocladium</i> Blight and Wilt ( <i>Cylindrocladium scoparium</i> )	For use on Azalea and Rhododendron	1.0	Dip cuttings of azaleas and rhododendron for 5 minutes before planting.
Fusarium Corm Rot ( <i>Fusarium oxysporum</i> )	For use on Gladiolus	2.0	Dip the gladiolus corms for 5 minutes prior to storage.

### TANK MIXES

**Additional Disease Control:** Other diseases that may infect ornamentals can be treated with tank mixes of **Quali-Pro IPRO 2** with other commonly used fungicides. *Pythium* and *Phytophthora* are controlled by tank-mixes of **Quali-Pro IPRO 2** with any fosetyl-al- or azoxystrobin containing pesticide registered for use on ornamentals. Refer to the label of the tank-mix partner for a full list of diseases controlled, application rates and directions for use. Verify the compatibility of the tank mix partner with **Quali-Pro IPRO 2** before making an application.

When applied as a tank mix, follow all restrictions noted above for ornamental uses when **Quali-Pro IPRO 2** is used alone.

### DIRECTIONS THROUGH SPRINKLER IRRIGATION SYSTEMS

Do not use through sprinkler irrigation systems in California.

Apply this product only through sprinkler irrigation systems including center pivot.

Do not apply this product through any other type of irrigation system.

**SPRAY PREPARATION:** Remove scale, pesticide residues, and other foreign matter from the chemical tank and entire injector system. Flush with clean water.

**APPLICATION INSTRUCTIONS:** First prepare a suspension of **Quali-Pro IPRO 2** in a mix tank. Fill tank with ½ to ¾ the desired amount of water. Start mechanical or hydraulic agitation. Add the required amount of **Quali-Pro IPRO 2** and then the remaining volume of water. (Suspension concentrations using the appropriate dosage per acre specified on this label of **Quali-Pro IPRO 2** per 1 to 4 gallons of water). Then set sprinkler to deliver 0.1 to 0.3 inch of water per acre. Start sprinkler and uniformly inject the suspension of **Quali-Pro IPRO 2** into the irrigation water line so as to deliver the desired rate per acre. The suspension of **Quali-Pro IPRO 2** should be injected with a positive displacement pump into the main line ahead of a right angle turn to insure adequate mixing. If you should have any other questions about calibration, you should contact State Extension Service specialists, equipment manufacturers or other experts.

**Note:** When treatment with **Quali-Pro IPRO 2** has been completed, further field irrigation over the treated area should be avoided for 24 to 48 hours to prevent washing the chemical off the crop.

## DIRECTIONS FOR APPLICATIONS THROUGH SPRINKLER IRRIGATION SYSTEMS

Maintain continuous agitation in mix tank during mixing and application to assure a uniform suspension.

Greater accuracy in calibration and distribution will be achieved by injecting a larger volume of a more dilute solution per unit time. The system must contain a functional check valve, vacuum relief valve, and low-pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow. The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump. The pesticide injection pipeline must also contain a functional, normally closed solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shutdown. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops. The irrigation line or water pump must include a functional pressure switch, which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected. Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with system interlock.

Do not apply when wind speed favors drift, when system connection or fittings leak, when nozzles do not provide uniform distribution or when lines containing the product must be dismantled and drained.

Crop injury or lack of effectiveness may result from non-uniform distribution of treated water. Allow sufficient time for pesticide to be flushed through all lines and all nozzles before turning off irrigation water. A person knowledgeable of the chemigation system and responsible for its operation must shut the system down and make necessary adjustments should the need arise.

Do not connect an irrigation system (including greenhouse systems) used for pesticide application to a public water system unless the label-prescribed safety devices for public water supplies are in place.

## SPRAY DRIFT

Avoiding spray drift at the application site is the responsibility of the applicator. The interaction of many equipment-and-weather-related factors determines the potential for spray drift. The applicator and the grower are responsible for considering all these factors when making decision. The following drift management requirements must be followed to avoid off-target drift movement from aerial applications to agricultural field crops. These requirements do not apply to forestry applications, public health uses or to applications using dry formulation.

1. The distance of the outer most nozzles on the boom must not exceed the length of the wingspan or rotor.
2. Nozzles must always point backward parallel with the air stream and never be pointed downwards more than 45 degrees.

When states have more stringent regulations, they must be observed. The applicator should be familiar with and take into account the information covered in the Aerial Drift Reduction Advisory Information, below.

### Aerial Drift Reduction Advisory Information

**Information on Droplet Size:** The most effective way to reduce drift potential is to apply large droplets. The best drift management strategy is to apply the largest droplets that provide sufficient coverage and control. Applying larger droplets reduces drift potential, but will not prevent drift if applications are made improperly, or under unfavorable environmental conditions (see Wind, Temperature and Humidity, and Temperature Inversions below).

#### Controlling Droplet Size:

- Volume – Use high flow rate nozzles to apply the highest practical spray volume. Nozzles with higher rated flows produce larger droplets.
- Pressure – Do not exceed the nozzle manufacturer's recommended pressures. For many nozzle types lower pressure produces larger droplets. When higher flow rates are needed, use higher flow rate nozzles instead of increasing pressure.
- Number of Nozzles – Use the minimum number of nozzles that provide uniform coverage.
- Nozzle Orientation – Orienting nozzles so that the spray is released parallel to the airstream produces larger droplets than other orientations and is the recommended practice. Significant deflection from horizontal will reduce droplet size and increase drift potential.
- Nozzle Type – Use a nozzle type that is designed for the intended application. With most nozzle types, narrower spray angles produce larger droplets. Consider using low-drift nozzles. Solid stream nozzles oriented straight back produce the largest droplets and the lowest drift.

**Boom Length:** For some use patterns, reducing the effective boom length to less than 3/4 of the wingspan or rotor length may further reduce drift without reducing swath width.

**Application Height:** Applications should not be made at a height greater than 10 feet above the top of the largest plants unless a greater height is required for aircraft safety. Making applications at the lowest height that is safe reduces exposure of droplets to evaporation and wind.

**Swath Adjustment:** When applications are made with a crosswind, the swath will be displaced downwind. Therefore, on the up and downwind edges of the field, the applicator must compensate for this displacement by adjusting the path of the aircraft upwind. Swath adjustment distance should increase with increasing drift potential (higher wind, smaller drops, etc.).

**Wind:** Drift potential is lowest between wind speeds of 2 - 10 mph. However, many factors, including droplet size and equipment type, determine drift potential at any given speed. Application should be avoided below 2 mph due to variable wind direction and high inversion potential. **NOTE:** Local terrain can influence wind patterns. Every applicator should be familiar with local wind patterns and how they affect spray drift.

**Temperature and Humidity:** When making applications in low relative humidity, set up equipment to produce larger droplets to compensate for evaporation. Droplet evaporation is most severe when conditions are both hot and dry.

**Temperature Inversions:** Applications should not occur during a temperature inversion because drift potential is high. Temperature inversions restrict vertical air mixing, which causes small-suspended droplets to remain in a concentrated cloud. This cloud can move in unpredictable directions due to the light variable winds common during inversions. Temperature inversions are characterized by increasing temperatures with altitude and are common on nights with limited cloud cover and light to no wind. They begin to form as the sun sets and often continue into the morning. Their presence can be indicated by ground fog; however, if fog is not present, inversions can also be identified by the movement of smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing.

**Sensitive Areas:** This pesticide should only be applied when the potential for drift to adjacent sensitive areas (e.g., residential areas, bodies of water, known habitats for threatened or endangered species, non-target crops) is minimal (e.g., when wind is blowing away from the sensitive areas).

## STORAGE AND DISPOSAL

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

**STORAGE:** Store only in original container.

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

**CONTAINER HANDLING:**

**Nonrefillable Container (five gallons or less):** Nonrefillable container. Do not reuse or refill this container. Offer for recycling, if available. Clean container promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container ¼ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

**Nonrefillable Container (greater than five gallons):** Nonrefillable container. Do not reuse or refill this container. Offer for recycling, if available. Clean container promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container ¼ full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times.

**Refillable Container:** Refillable container. Refill this container with iprodione only. Do not reuse this container for any other purpose. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller. To clean the container before final disposal, empty the remaining contents from this container into application equipment or mix tank. Fill the container about 10 percent full with water. Agitate vigorously or recirculate water with the pump for 2 minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times.

## LIMITATION OF WARRANTY AND LIABILITY

Read the entire direction for use, conditions of warranties and limitations of liability before using this product. If terms are not acceptable, return the unopened product container at once. By using this product, user or buyer accepts the following **CONDITIONS, DISCLAIMER OF WARRANTIES, and LIMITATIONS OF LIABILITY.**

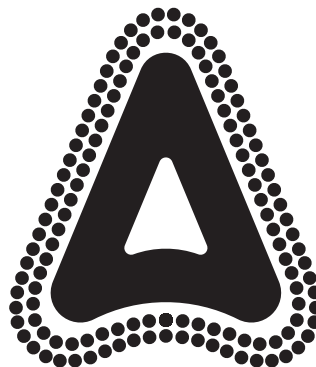
**CONDITIONS:** The directions for use of this product are believed to be adequate and must be followed carefully. However, it is impossible to eliminate all risk associated with the use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of such factors as weather conditions, presence of other materials, or the manner of use or application, all of which are beyond the control of Control Solutions, Inc. To the extent consistent with applicable law, all such risks shall be assumed by the user or buyer.

**DISCLAIMER OF WARRANTIES:** To the extent consistent with applicable law, Control Solutions, Inc. makes no other warranties, express or implied, of merchantability or of fitness for a particular purpose or otherwise, that extend beyond the statements made on this label. No agent of Control Solutions, Inc. is authorized to make any warranties beyond those contained herein or to modify the warranties contained herein. To the extent consistent with applicable law, Control Solutions, Inc. disclaims any liability whatsoever for special, incidental or consequential damages resulting from the use or handling of this product.

**LIMITATIONS OF LIABILITY:** To the extent consistent with applicable law, the exclusive remedy of the user or buyer for any and all losses, injuries or damages resulting from the use or handling of this product, whether in contract, warranty, tort, negligence, strict liability or otherwise, shall not exceed the purchase price paid or at Control Solutions, Inc. election, the replacement of product.

Quali-Pro® is a registered trademark of ADAMA Group Company

**QUALI-PRO**<sup>®</sup>



**Ipro 2**

**A FUNGICIDE  
FOR THE PREVENTION AND CONTROL OF CERTAIN  
DISEASES OF TURFGRASS AND ORNAMENTALS**

<b>ACTIVE INGREDIENT:</b>	<b>% BY WT.</b>
Iprodione: 3-(3,5-dichlorophenyl)-N-(1-methylethyl)-2,4-dioxo-1-imidazolidinecarboxamide)* .....	<b>23.0%</b>
<b>OTHER INGREDIENTS:</b> .....	<b>77.0%</b>
<b>TOTAL:</b> .....	<b>100.0%</b>

\*Equivalent to 2 pounds Iprodione per gallon.

**KEEP OUT OF  
REACH OF CHILDREN  
CAUTION**

See additional precautionary statements  
and directions for use inside booklet.

EPA Reg. No. 53883-380  
EPA Est. No. 53883-TX-002

**NET CONTENTS: 2.5 GALLONS**



Manufactured by:

**Control  
Solutions Inc.**

5903 Genoa-Red Bluff  
Pasadena, TX 77507



# SAFETY DATA SHEET

## Quali-Pro Ipro 2

### SECTION 1: IDENTIFICATION

**Product Name:** Quali-Pro Ipro 2  
**EPA Registration No.:** 53883-380  
**Recommended Use:** Fungicide; See product label for a complete list of uses and use sites.  
**Restrictions on Use:** See product label for any restrictions on the use of this product.  
**Chemical Family:** Dicarboximide  
**Chemical Name of Active Ingredient(s):** Iprodione: 3-(3,5-dichlorophenyl)-N-(1-methylethyl)-2,4-dioxo-1-imidazolidinecarboxamide  
**Manufactured for:** Control Solutions, Inc.  
5903 Genoa-Red Bluff  
Pasadena, TX 77507

**FOR FIRE, SPILL, AND/OR LEAK EMERGENCIES CONTACT: CHEMTREC 1-800-424-9300**

**FOR MEDICAL EMERGENCIES AND HEALTH AND SAFETY INQUIRIES CONTACT: Safety Call 1-866-897-8050**

### SECTION 2: HAZARD(S) IDENTIFICATION

**EMERGENCY OVERVIEW:** Opaque liquid with a slight odor.

**OSHA HCS CLASSIFICATION (29 CFR 1910.1200)**

This product does not meet the regulatory definition of a hazardous chemical under 29 CFR 1910.1200. However, good industrial hygiene practices should be used in the manufacture and handling of the product.

**Signal Word:** CAUTION FIFRA labeling signal word

**Hazard Statement(s):** None required

**Precautionary Statement(s):**

**Prevention:** No statement required. See section 8 for personal protective equipment.

**Response:** No statement required. See section 4 for first aid.

**Storage:** No statement required. See section 7 for storage information.

**Disposal:** No statement required. See section 13 for disposal information.

The following percentage of the mixture consists of components with unknown hazards regarding the acute toxicity:

0.2%	Acute oral toxicity
2.75%	Acute dermal toxicity
8.78%	Acute Inhalation toxicity
0.2%	Eye irritation
0.2%	Skin irritation
0.2%	Skin Sensitization

### SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS Number	Weight %
Iprodione	36734-19-7	23.8%
Propylene glycol	57-55-6	3.0 – 7.0%

\*Ingredients not listed or listed with a weight % range are considered a trade secret and are withheld under 29 CFR 1910.1200(i).

SECTION 4: FIRST AID MEASURES	
<b>IF IN EYES:</b>	Hold eye open and rinse slowly and gently with water for 15 to 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.
<b>IF ON SKIN:</b>	Take off contaminated clothing. Rinse skin immediately with plenty of water for 15 to 20 minutes. Call a poison control center or doctor for treatment advice.
<b>IF INHALED:</b>	Move person to fresh air. If person is not breathing, call 911 or an ambulance; then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or doctor for further treatment advice.
<b>IF INGESTED:</b>	Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give anything by mouth to an unconscious person.

**Most important symptoms/effects, acute and delayed:** None known

SECTION 5: FIRE-FIGHTING MEASURES
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**Suitable Extinguishing Media:** Foam, dry chemical, carbon dioxide or water spray

**Unsuitable Extinguishing Media:** Water jet

**Hazardous Combustion Products:** Thermal decomposition may produce toxic carbon and nitrogen oxides as well as hydrogen chloride.

**Special Protective Equipment & Precautions:** Evacuate area and fight fire upwind from a safe distance to avoid hazardous vapors and decomposition products. Foam and/or dry chemical are preferred to minimize environmental contamination. If water is used, dike and collect water to prevent run-off. Wear self-contained breathing apparatus and full fire-fighting turn-out gear (Bunker gear).

**Unusual Fire & Explosion Hazards:** None known

SECTION 6: ACCIDENTAL RELEASE MEASURES
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**Personal Precautions:** See Section 8 for personal protection equipment.

**Environmental Precautions:** Keep spilled material and any rinsate from contaminating soil or from entering sewage and drainage systems and bodies of water.

**Methods for Containment:** Isolate the spill area. Keep unnecessary and unprotected personnel from entering. Absorb small spills with sand, vermiculite or other inert absorbent. Dike large spills using absorbent or impervious material such as clay or sand. Recover and contain as much free liquid as possible for reuse. Allow absorbed material to solidify and scrape up for disposal.

**Methods for Clean-up:** Place contaminated material in appropriate container for disposal. After removal, flush contaminated area thoroughly with water. Pick up wash liquid with additional absorbent and place in a disposable container. Do not put spilled material back in the original container. Clean area carefully as product contains petroleum distillates and may cause a slipping hazard.

**Other Information:** None known

**SECTION 7: HANDLING AND STORAGE**

**Handling:** RECOMMENDATIONS ARE INTENDED FOR MANUFACTURING, PACKAGING AND COMMERCIAL BLENDING WORKERS. PESTICIDE APPLICATORS AND WORKERS must refer to the product label and Directions for Use attached to the product for Agricultural Use Requirements in accordance with the EPA Worker Protection Standard 40 CFR part 170. Handle and open container in a manner as to prevent spillage. Do not eat, drink or smoke while handling this product. Immediately wash off accidental splashes of the concentrate or spray mixture from skin, clothing and out of eyes.

**Storage:** See pesticide label for full information on product storage. Do not contaminate water, food or feed by storage of this product. Store away from sources of heat, out of direct sunlight and away from incompatible materials. Pesticides should be stored in secured areas away from children and animals.

**Storage Temperature (Min/Max):** Not determined but avoid extreme temperatures.

**Product Incompatibilities:** Avoid contact with strong oxidizers.

**SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**

Users of a pesticide product must refer to the product label for personal protective equipment requirements.

**Exposure Guidelines:**

COMPONENT	OSHA PEL	ACGIH TLV	NIOSH REL
No components listed			

**Engineering Controls:** Provide general or local exhaust ventilation systems to maintain airborne concentrations below OSHA PELs or other specified exposure limits. Local exhaust ventilation is preferred.

**Respiratory Protection:** In areas of poor ventilation, use a NIOSH approved respirator with cartridges/canisters approved for pesticides.

**Eye Protection:** Chemical goggles or safety glasses and full-face shield.

**Protective Gloves:** Chemical-resistant gloves such as barrier laminate, butyl rubber, nitrile, neoprene rubber, polyvinyl chloride (PVC) or Viton.

**Other Protective Clothing:** Long-sleeved shirt, long pants and chemical resistant footwear plus socks.

**General Safety Measures:** Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet. Remove clothing immediately after handling this product. Wash outside of gloves before removing. Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product’s concentrate. Do not reuse them. Follow manufacturer’s instructions for cleaning and maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

**SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES**

<b>Appearance:</b>	Opaque liquid	<b>Upper/Lower Flammability Limits:</b>	Not determined
<b>Odor:</b>	Slight odor	<b>Vapor Pressure:</b>	Not determined
<b>Odor Threshold:</b>	Not determined	<b>Vapor Density:</b>	Not determined
<b>pH (1% dispersion):</b>	5.5 – 6.5	<b>Relative Density (@24°C):</b>	1.075 (typical)
<b>Melting /Freezing Point:</b>	Not determined	<b>Solubility in Water:</b>	Not determined
<b>Boiling Point/Range:</b>	Not determined	<b>Partition Coefficient:</b>	Not determined
<b>Flash Point:</b>	Not applicable	<b>Auto-ignition Temperature:</b>	Not determined
<b>Evaporation Rate:</b>	Not determined	<b>Decomposition Temperature:</b>	Not determined
<b>Flammability:</b>	Not applicable	<b>Viscosity:</b>	465.218 cSt @ 20°C

**SECTION 10: STABILITY AND REACTIVITY**

<b>Reactivity:</b>	No hazardous chemical reactions known.
<b>Chemical Stability:</b>	Stable under normal storage and handling conditions.
<b>Possibility of Hazardous Reactions:</b>	No potential for hazardous reactions known.
<b>Conditions to Avoid:</b>	Extreme temperatures
<b>Incompatible Materials:</b>	Strong oxidizers
<b>Hazardous Decomposition Products:</b>	Thermal decomposition may produce toxic carbon and nitrogen oxides as well as hydrogen chloride.

**SECTION 11: TOXICOLOGICAL INFORMATION**

<b>Likely Routes of Exposure:</b>	Eye contact, Skin contact, Inhalation, Ingestion
<b>Symptoms of Exposure:</b>	No overt symptoms.
<b>Oral LD<sub>50</sub>:</b>	4,551 mg/kg (Estimated based upon component data)
<b>Dermal LD<sub>50</sub>:</b>	4,277 mg/kg (Estimated based upon component data)
<b>Inhalation LC<sub>50</sub>:</b>	>5.0 mg/L (Estimated based upon component data)
<b>Eye Irritation/Damage:</b>	Not anticipated to be an eye irritant based upon component data.
<b>Skin Corrosion/Irritation:</b>	Not anticipated to be a skin irritant based upon component data.
<b>Skin Sensitization:</b>	Non-sensitizer, based upon component data.
<b>Chronic/Subchronic Toxicity:</b>	No data available
<b>Mutagenicity:</b>	No data available
<b>Reproductive Toxicity:</b>	No data available
<b>Neurotoxicity:</b>	No data available
<b>Target Organs:</b>	Iprodione has shown effects on the adrenal gland in studies on rats.
<b>Aspiration Hazard:</b>	Not anticipated to be an aspiration hazard.
<b>Carcinogenicity:</b>	See below.

Chemical Name	ACGIH	IARC	NTP	OSHA
No components listed				

**SECTION 12: ECOLOGICAL INFORMATION****Environmental Hazards Statement from FIFRA Regulated Pesticide Label:**

This chemical can contaminate surface water through aerial and ground spray applications. Under some conditions, it may also have a high potential for runoff into surface water after application. These include poorly draining or wet soils with readily visible slopes toward adjacent surface waters, frequently flooded areas, areas overlaying extremely shallow ground water, areas with in-field canals or ditches that drain to surface water, areas not separated from adjacent surface waters with vegetated filter strips, and areas overlaying tile drainage systems that drain to surface water.

This pesticide is toxic to invertebrates. Do not apply directly to water or to areas where surface water is present or to intertidal areas below the mean high-water mark. Drift and runoff may be hazardous to aquatic organisms in neighboring areas. Do not contaminate water when disposing of equipment washwater or rinsate.

**ECOTOXICITY DATA:**

The data presented below is for iprodione technical.

**Fish Toxicity:**

Rainbow trout: 96 hr LC<sub>50</sub> = 4.1 mg/L

**Aquatic Invertebrate Toxicity:**

*Daphnia magna*: 48 hr EC<sub>50</sub> = 0.25 mg/L

**Aquatic Plant Toxicity:**

*Scenedesmus subspicatus*: 72 hr IC<sub>50</sub> = 15.3 mg/L

**Avian Toxicity:**

No data available

**Honeybee Toxicity:**

No data available

**ENVIRONMENTAL EFFECTS:**

**Persistence and Degradability:** No data available

**Bioaccumulation:** No data available

**Mobility:** No data available

**Other Adverse Effects:** No data available

**SECTION 13: DISPOSAL CONSIDERATIONS**

**Waste Disposal:** **Refer to the pesticide label for full information on disposal.** Pesticide wastes are toxic. Improper disposal of unused pesticide, spray mixture, or rinse water is a violation of Federal law. If these wastes cannot be used according to label instructions, contact your State Pesticide or Environmental Control Agency or the Hazardous Waste representative at the nearest EPA Regional Office for guidance in proper disposal methods.

**Container Disposal:** **Refer to the pesticide label for full information on disposal.** When possible, triple rinse the container and offer for recycling if available.

**RCRA Characteristics:** It is the responsibility of the individual disposing of this product to determine the RCRA classification and hazard status of the waste.

**SECTION 14: TRANSPORTATION INFORMATION**

**DOT (Ground):** Not regulated  
**IMDG (Sea):** UN3082, Environmentally hazardous substance, liquid, n.o.s. (Iprodione), 9, PGIII  
**IATA (Air):** UN3082, Environmentally hazardous substance, liquid, n.o.s. (Iprodione), 9, PGIII

**SECTION 15: REGULATORY INFORMATION**

**Labeling Requirements Under FIFRA:** This chemical is a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets and for workplace labels of non-pesticide chemicals. Following is the hazard information as required on the pesticide label:

**CAUTION**

Harmful if swallowed, absorbed through skin, or inhaled. Avoid contact with skin, eyes, or clothing. Avoid breathing spray mist.

**TSCA Inventory:** This product is exempt from TSCA inventory listing requirements as it is solely for FIFRA regulated use.

**SARA Title III Information:**

**Section 302 – Extremely hazardous substances:** None  
**Section 311/312 – Hazard Categories:** Acute (Immediate)  
**Section 313 –** This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372:

Chemical Name	CAS Number	Weight %
None listed		

**CERCLA –** This product contains the following chemicals which have a reportable quantity (RQ) under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA):

Chemical Name	CAS Number	RQ	Quantity of Finished Product
None listed			

**CALIFORNIA PROPOSITION 65:**

Chemical Name	CAS Number	Prop 65 Category(ies)
Iprodione	36734-19-7	Cancer

**U.S. STATE RIGHT-TO-KNOW REGULATIONS:**

Chemical Name	New Jersey	Massachusetts	Pennsylvania
Propylene glycol	X		X

**SECTION 16: OTHER INFORMATION**

<b>NFPA</b>	<b>Health Hazards 2</b>	<b>Flammability 1</b>	<b>Instability 0</b>	<b>Special Hazards – None</b>
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**Disclaimer:** Control Solutions, Inc. believes the information presented herein is accurate and correct as of the document date. The presented information is based upon available data from reliable sources. Control Solutions, Inc. makes no warranty, express or implied, regarding the accuracy of the data or the results obtained from the use of this product. Nothing herein may be construed as recommending any practice or any product in violation of any law or regulations. The user is solely responsible for determining the suitability of any material or product for a specific purpose and for adopting any appropriate safety precautions. We disclaim all liability for injury or damage stemming from any improper use of the material or product described herein.

**Revision Date:** January 19, 2016  
**Document Superseded:** N/A – New document  
**Revision Note:**

# QUALI-PRO

# PAC-LOW SC



**ACTIVE INGREDIENT:**

Paclobotrazol ( $\pm$ )-(R\*, R\*)-beta-  
[(4-chlorophenyl) methyl]-alpha-  
(1,1-dimethylethyl) - 1H-1,2,4-triazole-1-ethanol...22.9%

OTHER INGREDIENTS: ..... 77.1%

TOTAL: ..... 100.0%

Contains 2 lbs. of active ingredient per gallon.

EPA Reg. No. 53883-519

EPA Est. No. 53883-TX-002

**NET CONTENTS:**

**1 GALLON**



8 10084 59034 8

**KEEP OUT OF  
REACH OF CHILDREN  
CAUTION**

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle. (If you **DO NOT** understand the label, find someone to explain it to you in detail.)

See side side panel(s) for First Aid,  
Precautionary Statements, Directions for Use  
and Storage and Disposal.



ADAMA

Manufactured for:

**Control  
Solutions Inc.**

5903 Genoa-Red Bluff, Pasadena, TX 77507

A member of Adama  
Consumer and Professional Solutions

EPA 061522

## FIRST AID

<b>IF SWALLOWED:</b>	<ul style="list-style-type: none"><li>• Call a poison control center or doctor immediately for treatment advice.</li><li>• Have person sip a glass of water if able to swallow.</li><li>• <b>DO NOT</b> induce vomiting unless told to do so by the poison control center or doctor.</li><li>• <b>DO NOT</b> give anything by mouth to an unconscious person.</li></ul>
<b>IF ON SKIN OR CLOTHING:</b>	<ul style="list-style-type: none"><li>• Take off contaminated clothing.</li><li>• Rinse skin immediately with plenty of water for 15-20 minutes.</li><li>• Call a poison control center or doctor for treatment advice.</li></ul>
<b>IF INHALED:</b>	<ul style="list-style-type: none"><li>• Move person to fresh air.</li><li>• If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible.</li><li>• Call a poison control center or doctor for treatment advice.</li></ul>
<b>IF IN EYES:</b>	<ul style="list-style-type: none"><li>• Hold eye open and rinse slowly and gently with water for 15-20 minutes.</li><li>• Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.</li><li>• Call a poison control center or doctor for treatment advice.</li></ul>
<b>HOT LINE NUMBER:</b> Have the product container or label with you when calling a poison control center or doctor or going for treatment. You may also contact SafetyCall® (866) 897-8050 for emergency medical treatment information.	

## PRECAUTIONARY STATEMENTS HAZARDS TO HUMANS AND DOMESTIC ANIMALS

**CAUTION.** Harmful if swallowed or absorbed through skin. Causes moderate eye-irritation. Avoid contact with skin, eyes, or clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet. Remove and wash contaminated clothing before reuse.

### Personal Protective Equipment (PPE)

Some materials that are chemical-resistant to this product are listed below.

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Chemical-resistant gloves such as barrier laminate, butyl rubber > 14 mils, nitrile rubber > 14 mils, or Viton® > 14 mils
- Shoes plus socks

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

### User Safety Recommendations

#### Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE/clothing immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

### ENVIRONMENTAL HAZARDS

**DO NOT** apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean high water mark. **DO NOT** contaminate water by cleaning of equipment or disposal of equipment washwaters or rinsate.

## PHYSICAL AND CHEMICAL HAZARDS

**DO NOT** use or store near heat or open flame. **DO NOT** mix or allow coming in contact with oxidizing agents. hazardous chemical reaction may occur.

## DIRECTIONS FOR USE

It is a violation of federal law to use this product in a manner inconsistent with its labeling.

FAILURE TO FOLLOW THE USE DIRECTIONS AND PRECAUTIONS ON THIS LABEL MAY RESULT IN PLANT INJURY OR POOR DISEASE CONTROL.

**DO NOT** apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

## AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR Part 170. This standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on the label about personal protective equipment (PPE), restricted-entry interval, and notification to workers. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

**DO NOT enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 12 hours.**

For early entry into treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil or water wear:

- Coveralls
- Chemical-resistant gloves made of barrier laminate, butyl rubber > 14 mils nitrile rubber > 14 mils, or Viton® > 14 mils
- Shoes plus socks

## TURF DIRECTIONS FOR USE

This product is a plant growth regulator for non-residential turfgrass that slows grass growth for up to two months after application. The frequency of mowing can be reduced by up to 50% during the period of effective retardation. Use of this product on fine turf should be accompanied by moderate-to-high fertility to maintain turfgrass appearance and reduce discoloration. Growth and development of some grasses (e.g. *Poa annua*) can be significantly reduced, leading to selective control after prolonged use in mixed populations.

### What Applications of this product to Turfgrasses Provide

- Slowed vertical growth and reduced mowing for 6 to 8 weeks on established hybrid bermudagrass, bentgrass and perennial ryegrass fairways, tees and roughs, and on St. Augustinegrass and Kentucky bluegrass/perennial ryegrass turf areas (use reduced rates on bentgrass and overseeded bermudagrass greens).
- Improved and extended fertilizer performance for up to 12 weeks when combined with a nitrogen fertilizer while improving turfgrass quality versus fertilizer alone.
- Reduced potential for scalping of all turfgrass areas.
- Better ball playability on hybrid bermudagrass due to increased turf density and tighter-knit turf areas.
- Suppression of *Poa annua* by reducing its growth and competitive ability.

### When to Use for Growth Suppression of Warm-Season Grasses

Use anytime when established hybrid bermudagrass and St. Augustinegrass are green, actively growing and have recovered from dormancy (filled in fully following winter).

### When to Use for Growth Suppression of Cool-Season Grasses

Apply in spring after green-up and after turf has been mowed once or twice. Apply at least 1 month before onset of high air temperatures. In late summer/early fall, apply at least 1 month before anticipated first killing frost.

### When to Use for *Poa annua* Suppression

Apply when the *Poa annua* is actively growing. In moderate climates the application timing may be fall through late spring. In northern climates, spring and fall timings are recommended. In climates with a prolonged winter dormancy, fall applications can be made up to one month prior to anticipated first killing frost. Repeat application should be made as part of a *Poa annua* suppression program.

### When to Use for Color and Quality Enhancement of Winter Overseeded Turf and *Poa annua* Suppression

Apply anytime after overseeded turf has successfully established itself (cool-season turf species should be near 85% of turf composition). **DO NOT** apply after March 15 to putting greens to avoid delay in bermudagrass green-up. Moderate soil moisture conditions should be present before and after application to achieve best regulating effect.

## USE DIRECTIONS

Apply treatment solution uniformly to turf. **DO NOT** use on residential turf. For best results, apply 0.25 inch of water within 24 hours after application to remove product from foliage and onto soil surface.

After this product application, water-in within 24 hours to limit surface movement, but not to the point of runoff. To prevent product runoff, time applications to allow for watering-in and maximum absorption into treated turf prior to a rain event. **DO NOT** apply this product to turf within rights-of-ways.

Apply with standard pressurized spray application equipment with by-pass or mechanical agitation using strainer screens of 50 (or coarser) mesh. Product should be added during filling of applicator tank. When tank is allowed to stand, vigorous agitation should be used to assure material suspension before application.

Apply this product to turf in sufficient amount of water (minimum 1 gallon treatment solution per 1,000 sq. ft. = 43.5 gals./acre) to ensure uniform coverage. For best results, use 2 to 3 gallons of water per 1,000 sq. ft. A color agent or other marking device is advised to avoid skipping and/or overlapping.

### Treatment Coverage Chart<sup>1</sup>

Rate of Active Ingredient per Acre	Fluid Ounces of Product per Acre
0.10 lbs. a.i.	6.4 oz.
0.16 lbs. a.i.	10.0 oz.
0.25 lbs. a.i.	16.0 oz.
0.50 lbs. a.i.	32.0 oz.
0.75 lbs. a.i.	48.0 oz.

<sup>1</sup>Product should be mixed with minimum 1 gal water/1,000 sq. ft. Use 2 to 3 gals/1,000 sq. ft. for best results.

### Specific Rates

Warm Season Grasses	Cool Season Grasses <sup>1</sup> (except putting greens)	Bentgrass Putting Greens	Overseeded Bermudagrass
0.50 lbs a.i./A (sandy soils)	0.25 to 0.50 lbs. a.i./A	0.10 to 0.25 lbs. a.i./A	0.10 to 0.16 lbs. a.i./A
0.75 lbs a.i./A (clay soils)			

<sup>1</sup>Reduce application rate by 50% if *Poa annua* is a significant portion of turfgrass population (greater than 50%).

Apply 0.5 to 0.9 lbs. nitrogen/1,000 sq. ft. of a non-burning fertilizer product on warm and cool season grasses. Apply 0.25 to 0.5 lbs. nitrogen/1,000 sq. ft. on bentgrass greens and overseeded bermudagrass.

#### Results to Expect from Application of this product

When applied as directed, vertical growth of turf will be slowed within 3-10 days, resulting in reduced mowing frequency for a 6- to 8-week period. Following applications, turf will gradually undergo increased greening and density, which may persist up to 12 weeks.

Following application of product, weed populations should not be any greater than on untreated turf, although weed visibility may be higher on regulated turf.

Growth and competitive ability of *Poa annua* will be reduced within 1 to 2 weeks after application; regulation will last 3 to 8 weeks. Turfgrass shoots and leaves will become discolored for 3 to 8 weeks following onset of growth regulation. With proper fertilization, desired turfgrasses will be stimulated to crowd out weakened *Poa annua*.

As density of treated fairways increases due to altered growth habit, ball playability may improve, causing ball to sit higher on turf. This result is most evident on hybrid bermudagrass.

Seedhead formation will not be prevented. Seedheads should be mowed off as they grow above turf cutting height to maintain a desirable-looking turf.

Excessive irrigation and/or nitrogen fertilization may shorten period of growth regulation.

Regulator response will vary somewhat according to turf variety. For St. Augustinegrass, Bitter Blue will be the most responsive and Floratam the least responsive.

### HYBRID BERMUDAGRASS

Cultivar	Sensitivity/Activity	Period of Growth Regulation	Period of Color Response
Tifway I, II	Medium/Good	5 - 6 weeks	6 - 8 weeks
Tifgreen	High/Excellent	6 - 8 weeks	8 - 10 weeks
Ormond	High/Excellent	6 - 8 weeks	8 - 10 weeks

### ST. AUGUSTINEGRASS

Cultivar	Sensitivity/Activity	Period of Growth Regulation	Period of Color Response
Floratam	Low/Moderate	4 - 6 weeks	5 - 8 weeks
Floralawn	Low/Moderate	4 - 6 weeks	5 - 8 weeks
Floratine	Medium/Good	6 - 7 weeks	7 - 8 weeks
Raleigh, Texas	Medium/Good	6 - 7 weeks	7 - 8 weeks
Bitter Blue, Seville	High/Excellent	7 - 8 weeks	8 - 10 weeks

### **Program Scheduling**

If crabgrass or other annual grassy weeds have been a problem in the past, an application of the appropriate preemergence weed control product should be made before the use of this product. Space the applications of this product and oxadiazon-based preemergence products at least 4 weeks apart on putting greens.

If a weed, disease or insect problem occurs after application of this product, apply an appropriate control product at its recommended rate. This product is compatible with most existing control products. Use of this product in combination with fungicides containing propiconazole, fenarimol, triadimefon, and myclobutanil can result in increased growth inhibition of *Poa annua* on putting greens.

### **For Growth Regulation**

Repeat applications can be made within the same growing season as long as the turf is actively growing. Turfgrass species and growth rate will dictate rate and timing of applications. **DO NOT** apply more than 4 quarts per acre per year (2 lbs. a.i./A).

### **For *Poa annua* Suppression**

This product will suppress the growth and competitive ability of *Poa annua*. Apply when *Poa annua* is actively growing at 16 to 32 ounce per acre. Lower rates and more frequent applications can be made if *Poa annua* discoloration cannot be tolerated. However, only moderate *Poa annua* suppression may be achieved. **DO NOT** apply more than 4 quarts per acre per year (2 lbs. a.i./A).

### **For Color, Quality Enhancement, and *Poa annua* Suppression in Overseedings**

On bentgrass greens and overseeded bermudagrass, repeat applications can be made as long as the turf is actively growing. **DO NOT** apply more than 4 quarts per acre per year (2 lbs. a.i./A). Apply to overseeded turf when seed has established and turf composition is near 85% of the cool season species.

**DO NOT** apply to overseeded bermudagrass greens after March 15th to avoid delay of spring green-up of dwarf-type bermudagrass.

**DO NOT** aerify or topdress and drag greens with steel mats while under growth regulation.

**DO NOT** seed within 6 weeks prior to or 2 weeks after application of this product.

If Embark® is used for *Poa annua* seedhead control, apply this product at least 14 days after application of Embark.

### **USE RESTRICTIONS**

- **DO NOT** use on residential lawns.
- **DO NOT** use on bermudagrass putting greens except for winter overseeding enhancement use.
- **DO NOT** use on athletic fields under heavy traffic where maximum growth potential of turf is desired.
- **DO NOT** use on shrubs, flowers, fruits, or vegetable plants (applications to turf areas under trees will not affect/harm trees).
- **DO NOT** use during periods of extreme dry or cold weather conditions, or during heavy insect or disease activity.
- **DO NOT** apply product when soil is already saturated. Heavy rainfall or irrigation in the treated areas may cause active ingredient to move laterally on slopes and collect in low areas. These areas may undergo more severe growth control for a longer period of time.
- **DO NOT** use on areas containing greater than 70% *Poa annua*, since discoloration of *Poa annua* may be unacceptable.
- Delay treatment of newly-sodded or sprigged turf until grass has knitted down and rooted firmly.
- Delay sprigging for at least 4 weeks and sodding at least 2 weeks after application is made.
- **DO NOT** apply this product through any type of irrigation equipment.
- Withhold application on large turf areas that have been thinned from winter drainage, disease, or insects until desired fill-in is achieved.

- Assure that dosage rates are measured accurately since rates greater than those recommended may cause undesirable turf growth control and may discolor areas temporarily.
- Shake container thoroughly before use.
- For best residual activity, this product should be removed from leaf surfaces by irrigation or rainfall prior to mowing.
- Broadleaf weeds are not significantly affected by this product. To control the growth of weeds, treat with an appropriate herbicide when weeds are actively growing. Carefully follow label directions.
- **DO NOT** use on areas to be cultivated for food or feed crops or to be resown with grasses within two years of treatment.
- **DO NOT** apply more than 4 qts. per acre per year (2 lbs. a.i./A).
- **DO NOT** graze treated areas or harvest for forage or hay.

### **TREES DIRECTIONS FOR USE\*** **\*NOT FOR USE IN CALIFORNIA**

This product is a xylem mobile plant regulator that slows vegetative growth as well as creating other physiological effects by inhibiting gibberellin biosynthesis. This product reduces the above ground vegetative growth and changes specific morphological characteristics of the plant. This product is most effective when applied to the soil near the base of the tree either by soil injection or with basal soil drench.

This product can be used on listed trees found in such areas as urban environments, utility rights-of-way, residential areas and other non-crop areas.

Characteristics of results in the tree:

The activity of this product occurs following root uptake and xylem translocation throughout the tree canopy. This occurs within a few weeks, although maximum growth inhibition may not be fully visible for up to 18 months following application. Initial effects of this product may be observed as intense greening of the foliage with no phytotoxicity. Trees treated with this product will exhibit shorter internodes, a reduction in the diameter growth of the main stem wood, thicker leaf cuticles, and an increase in fine root growth in some species. Smaller leaf size and enhanced flowering may also be observed in some species.

#### **USE PRECAUTIONS**

- Apply at recommended rates and follow safety procedures.
- Trees not used for food production and that are not specifically listed on this label may be treated if all other label directions are followed.
- Local soil and environmental conditions can affect the degree and longevity of effect following application of this product. Follow label instructions to increase effectiveness depending on these factors.
- **DO NOT** reapply this product until symptoms from the previous applications begin to disappear, or within 3 years of the last application, whichever comes first.
- For hard-to-wet soils, the mobility of this product can be enhanced by using a nonionic, organosilicone surfactant.
- Trees growing in heavily compacted soils may need to be vertical mulched or soil aerated for this product to effectively promote root growth.
- Basal drench and soil injection application of this product may result in localized, temporary discoloration of turfgrass immediately adjacent to the treatment site.
- Avoid basal drench applications on slopes or other areas where this product or treated soil may be washed away from the base of the tree by rainfall or irrigation.
- Treatment of trees bordered by shrubs and/or herbaceous ornamentals may cause these plants to be affected if their roots extend into the treatment zone.
- **DO NOT** treat sugar maple trees or any other trees that are or could be tapped for sugar within one year of application.

- **DO NOT** treat nut or fruit trees that will be harvested within one year of application.
- **DO NOT** treat trees that are severely stressed or rapidly declining
- **DO NOT** apply this product through any type of irrigation system.

## **USE DIRECTIONS**

### **APPLICATION METHODS**

This product may be applied as a basal drench or by soil injection. Application should be made as close to the tree and the soil interface as possible to obtain the most consistent results. .

#### **Basal Drench**

Prior to application, make a 2" deep furrow around the base of the tree near the point of contact between the soil and the tree trunk. Apply the required dose [see Table 1 for rates based on tree size and species]. The diluted mixture of this product may be carefully poured into the furrow around the tree trunk (Figure 1) with a graduated container/jug or with a handheld hose connected to a truck-mounted tank/hydraulic sprayer. After applying, refill the furrow with untreated soil to avoid possible ground runoff.

#### **Soil Injection**

The diluted mixture of this product should be injected approximately 3-6 inches deep. Use injection equipment capable of delivery at 60-150 psi. Injection orifices should be oriented to release the diluted product horizontally at the point of injection. The required dose should be divided evenly among injection sites spaced as uniformly as possible around the tree trunk. The injection sites should be positioned to release the this product diluted mixture as close as possible to the point of contact between the soil and the tree beneath the soil so that the active ingredient may be readily absorbed by the tree (Figure 2). Injection sites should also be located next to buttress roots (Figure 2). For trees less than 6 inches DBH, use at least 4 evenly spaced injection sites per tree.

### **APPLICATION TIMING**

Applications can be made throughout the year, weather permitting, except when the soil is frozen or saturated with water. Note: this product is absorbed by plant roots and translocated to the growing tissues in response to evaporative water loss (transpiration). If applications are made after fall leaf drop, uptake of this product will not occur until development of new leaves in the spring and resumption of evaporative water loss.

### **MIXING PROCEDURES**

Refer to Table 1. When mixing large amounts of this product, use a suspension aid to improve suspension of the diluted mixture at a rate of approximately ½ pint to 2 pints per 100 gallons. To re-suspend a solution that has settled, use 1 to 2 pints of a suspension aid per 100 gallons. Follow all label directions and precautions on the product label of the suspension aid.

If applying mixture to compacted soils, high clay content soils, or other hard-to-wet soils, use a nonionic, organosilicone wetting agent (surfactant) to increase penetration of the soil. Mix approximately ½ ounce surfactant per 3 gallons or 1 pint surfactant per 100 gallons. Follow all label directions and precautions on the product label.

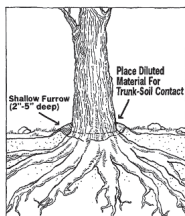


Figure 1. Placement of this product as a basal drench



Figure 2. Placement of this product as a soil injected treatment

**Table 1: Amount of this product and Minimum Water Required for Specific Trees and Tree Sizes**

DBH (in.)	Tree Species Group (See Table 2)											
	Group A		Group B		Group C		Group D		Group E		Group F	
	This product (ml)	Water* (ml)	This product (ml)	Water* (ml)	This product (ml)	Water* (ml)	This product (ml)	Water* (ml)	This product (ml)	Water* (ml)	This product (ml)	Water* (ml)
<b>4</b>	17	500	33	667	42	833	46	917	50	1,000	67	1,333
<b>5</b>	20	625	42	833	52	1,042	57	1,146	63	1,250	83	1,667
<b>6</b>	25	750	50	1,000	63	1,250	69	1,375	75	1,500	100	2,000
<b>7</b>	44	875	58	1,167	73	1,458	80	1,604	88	1,750	117	2,333
<b>8</b>	50	1,000	67	1,333	83	1,667	92	1,833	100	2,000	133	2,667
<b>9</b>	56	1,125	75	1,500	94	1,875	103	2,063	113	2,250	150	3,000
<b>10</b>	63	1,250	83	1,667	104	2,083	115	2,292	125	2,500	167	3,333
<b>11</b>	69	1,375	92	1,833	115	2,292	126	2,521	138	2,750	183	3,667
<b>12</b>	75	1,500	100	2,000	125	2,500	138	2,750	150	3,000	200	4,000
<b>13</b>	81	1,625	108	2,167	135	2,708	149	2,979	163	3,250	217	4,333
<b>14</b>	88	1,750	117	2,333	146	2,917	160	3,208	175	3,500	233	4,667
<b>15</b>	94	1,875	125	2,500	156	3,125	172	3,438	188	3,750	250	5,000
<b>16</b>	100	2,000	133	2,667	167	3,333	183	3,667	200	4,000	267	5,333
<b>17</b>	106	2,125	142	2,833	177	3,542	195	3,896	213	4,250	283	5,667
<b>18</b>	113	2,250	150	3,000	188	3,750	206	4,125	225	4,500	300	6,000
<b>19</b>	119	2,375	158	3,167	198	3,958	218	4,354	238	4,750	317	6,333
<b>20</b>	125	2,500	167	3,333	208	4,167	229	4,583	250	5,000	333	6,667
<b>21</b>	131	2,625	175	3,500	219	4,375	241	4,813	263	5,250	350	7,000
<b>22</b>	138	2,750	183	3,667	229	4,583	252	5,042	275	5,500	367	7,333
<b>23</b>	144	2,875	192	3,833	240	4,792	264	5,271	288	5,750	383	7,667
<b>24</b>	150	3,000	200	4,000	250	5,000	275	5,500	300	6,000	400	8,000
<b>25</b>	156	3,125	208	4,167	260	5,208	287	5,729	313	6,250	417	8,333

(continued)

DBH (in.)	Tree Species Group (See Table 2)											
	Group A		Group B		Group C		Group D		Group E		Group F	
	This product (ml)	Water* (ml)	This product (ml)	Water* (ml)	This product (ml)	Water* (ml)	This product (ml)	Water* (ml)	This product (ml)	Water* (ml)	This product (ml)	Water* (ml)
26	163	3,250	217	4,333	271	5,417	298	5,958	325	6,500	433	8,667
27	169	3,375	225	4,500	281	5,625	309	6,188	338	6,750	450	9,000
28	175	3,500	233	4,667	292	5,833	321	6,417	350	7,000	467	9,333
29	181	3,625	242	4,833	302	6,042	332	6,646	363	7,250	483	9,667
30	188	3,750	250	5,000	313	6,250	344	6,875	375	7,500	500	10,000
31	194	3,875	258	5,167	323	6,458	355	7,104	388	7,750	517	10,333
32	200	4,000	267	5,333	333	6,667	367	7,333	400	8,000	533	10,667
33	206	4,125	275	5,500	344	6,875	378	7,563	413	8,250	550	11,000
34	213	4,250	283	5,667	354	7,083	390	7,792	425	8,500	567	11,333
35	219	4,375	292	5,833	365	7,292	401	8,021	438	8,750	583	11,667
36	225	4,500	300	6,000	375	7,500	413	8,250	450	9,000	600	12,000
37	231	4,625	308	6,167	385	7,708	424	8,479	463	9,250	617	12,333
38	238	4,750	317	6,333	396	7,917	435	8,708	475	9,500	633	12,667
39	244	4,875	325	6,500	406	8,125	447	8,938	488	9,750	650	13,000
40	250	5,000	333	6,667	417	8,333	458	9,167	500	10,000	667	13,333
41	256	5,125	342	6,833	427	8,542	470	9,396	513	10,250	683	13,667
42	263	5,250	350	7,000	438	8,750	481	9,625	525	10,500	700	14,000
43	269	5,375	358	7,167	448	8,958	493	9,854	538	10,750	717	14,333
44	275	5,500	367	7,333	458	9,167	504	10,083	550	11,000	733	14,667
45	281	5,625	375	7,500	469	9,375	516	10,313	563	11,250	750	15,000
46	288	5,750	383	7,667	479	9,583	527	10,542	575	11,500	767	15,333
47	294	5,875	392	7,833	490	9,792	539	10,771	588	11,750	783	15,667
48	300	6,000	400	8,000	500	10,000	550	11,000	600	12,000	800	16,000
49	306	6,125	408	8,167	510	10,208	562	11,229	613	12,250	817	16,333
50	313	6,250	417	8,333	521	10,417	573	11,458	625	12,500	833	16,667

\*More water may be used than indicated on the table to deliver the desired rate of product. **DO NOT** use less water as distribution of the chemical in the tree can be compromised.

**Table 2: Tree Species for Each Group Corresponding to Application Rates in Table 1.**

<b>Group A</b>	<b>Group B</b>	<b>Group C</b>	<b>Group D</b>	<b>Group E</b>	<b>Group F</b>
Australian pine (NOT Austrian Pine)	Basswood	Australian bottle*	Ailanthus	Anaqua*	Alder
Dogwood	Cypress	Black gum	Buckeye	Baytree	Alder Arborvitae
Sweetgum (eastern US)	Elm - small (<10" DBH)	Box elder	Ironwood	Beech	Ash - All Species
Redbud	Elm - Siberian	California pepper*	Silver maple - large (>10"DBH)	Camphor	Aspen**
	Linden - all varieties	Elm - large (>10" DBH)		Cedar - Deodara	Banyan*
	Mountain ash	Horse chestnut		Chinaberry	Birch - All Species
	Norway maple - small (<10"DBH)	Live oak - small (<10"DBH)		Catalpa	Black olive
	Red maple - small (<10"DBH)	Norway maple - large (>10"DBH)		Ebony - Texas*	Bradford pear
	Sugar maple - small (<10"DBH)	Oleander*		Hickory	Cedar - All others (except Deodara)
	Sweetgum (western US)	Persimmon*		Holly - American	Cherry - black
	Tupelo	Red maple - large (>10"DBH)		Locust - Honey	Cottonwood**
		Rosewood		Mesquite*	Crabapple
		Silver maple - small (<10"DBH)		Mimosa*	Eucalyptus
		Sugar maple - large (>10"DBH)		Oak - Black	Fir
				Oak - Live - large (>10" DBH)	Hackberry
				Oak - Pin	Hawthorne
				Oak - Post	Hemlock
				Oak - Red	Jackaranda
				Oak - Sandshinnery	Juniper
				Oak - Water	Laurel
				Oak - Willow	Locust - Black
				Olive - Russian	Magnolia
				Paloverde*	Melaleuca*
				Paulownia	Mugo Pine
				Pecan*	Mulberry
				Raintree*	Oak - Laurel
				Saltcedar*	Oak - valley
				Sassafras	Osage orange
				Soapberry*	Palms*
				Sumac - African*	Pear - Bradford
				Walnut	Photinia
					Pines - All Species**
					Poplar - Lombardy, Tulip, Yellow**
					Redwood
					Spruce - All Species
					Sugarberry
					Sycamore**
					Tallow - Chinese
					Waxmyrtle -Pacific
					Tallowwood*
					Tamarisk*
					Willow
					Yew

\* These trees may exhibit variable results.

\*\*These trees have a limited response to this product and may need multiple consecutive years of treatment for acceptable growth control.

## STORAGE AND DISPOSAL

**DO NOT** contaminate water, food or feed by storage or disposal.

**PESTICIDE STORAGE:** Store in a tightly closed container in a cool, dry place. Store in original container and out of reach of children, preferably in a locked storage area.

**PESTICIDE DISPOSAL:** Pesticide spray mixture or rinsate that cannot be used should be disposed of in a landfill approved for pesticides. Improper disposal of excess pesticide spray mixture or rinsate is a violation of Federal law. If these wastes cannot be disposed of by the user according to label instructions, contact your State Pesticide or Environmental Control Agency or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

**CONTAINER HANDLING: Nonrefillable Container: DO NOT** reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. Triple Rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container ¼ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling if available or puncture and dispose of in a sanitary landfill, or by other procedures allowed by state and local authorities.

**NOTICE:** Read the entire Directions for Use and Conditions of Sale and Limitation of Warranty and Liability before buying or using this product. If the terms are not acceptable, return the product at once, unopened, and the purchase price will be refunded.

## WARRANTY STATEMENT

The Directions for Use of this product must be followed carefully. It is impossible to eliminate all risks inherently associated with the use of this product. Ineffectiveness or other unintended consequences may result because of such factors as manner of use or application, weather, presence of other materials or other influencing factors in the use of the product, which are beyond the control of Control Solutions, Inc. or Seller. All such risks shall be assumed by Buyer and User, and Buyer and User agree to hold Control Solutions, Inc. and Seller harmless for any claims relating to such factors.

To the extent consistent with applicable law, Control Solutions, Inc. warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated in the Directions for Use, subject to the inherent risks referred to above, when used in accordance with directions under normal use conditions. This warranty does not extend to the use of this product contrary to label instructions, or under abnormal conditions or under conditions not reasonably foreseeable to or beyond the control of Seller or Control Solutions, Inc., and Buyer and User assume the risk of any such use. CONTROL SOLUTIONS, INC. MAKES NO WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE NOR ANY OTHER EXPRESS OR IMPLIED WARRANTY EXCEPT AS STATED ABOVE.

To the extent consistent with applicable law, IT IS **CONTROL SOLUTIONS INC., AND SELLERS INTENTION THAT** in no event shall Control Solutions or Seller be liable for any incidental, consequential or special damages resulting from the use or handling of this product. **THE EXCLUSIVE REMEDY OF THE USER OR BUYER, AND THE EXCLUSIVE LIABILITY OF CONTROL SOLUTIONS, INC., AND SELLER FOR ANY AND ALL CLAIMS, LOSSES, INJURIES OR DAMAGES (INCLUDING CLAIMS BASED ON BREACH OF WARRANTY, CONTRACT, NEGLIGENCE, TORT, STRICT LIABILITY OR OTHERWISE) RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT, SHALL BE THE RETURN OF THE PURCHASE PRICE OF THE PRODUCT OR, AT THE ELECTION OF CONTROL SOLUTIONS, INC. OR SELLER, THE REPLACEMENT OF THE PRODUCT.**

To the extent consistent with applicable law, Control Solutions, Inc. and Seller offer this product, and Buyer and User accept it, subject to the foregoing Conditions of Sale and Limitation of Warranty and Liability, which may not be modified except by written agreement signed by a duly authorized representative of Control Solutions, Inc.

# PAC-LOW SC

## ACTIVE INGREDIENT:

Paclobutrazol (±)-(R\*, R\*)-beta-  
[[4-(chlorophenyl) methyl]-alpha-  
(1,1-dimethylethyl)- 1H-1,2,4-triazole-1-ethanol]..... 22.9%

**OTHER INGREDIENTS:** ..... 77.1%

**TOTAL:** ..... 100.0%

Contains 2 lbs. of active ingredient per gallon.

## KEEP OUT OF REACH OF CHILDREN CAUTION

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle. (If you **DO NOT** understand the label, find someone to explain it to you in detail.)

FIRST AID	
<b>IF SWALLOWED:</b>	<ul style="list-style-type: none"><li>• Call a poison control center or doctor immediately for treatment advice.</li><li>• Have person sip a glass of water if able to swallow.</li><li>• <b>DO NOT</b> induce vomiting unless told to do so by the poison control center or doctor.</li><li>• <b>DO NOT</b> give anything by mouth to an unconscious person.</li></ul>
<b>IF ON SKIN OR CLOTHING:</b>	<ul style="list-style-type: none"><li>• Take off contaminated clothing.</li><li>• Rinse skin immediately with plenty of water for 15-20 minutes.</li><li>• Call a poison control center or doctor for treatment advice.</li></ul>
<b>IF INHALED:</b>	<ul style="list-style-type: none"><li>• Move person to fresh air.</li><li>• If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible.</li><li>• Call a poison control center or doctor for treatment advice.</li></ul>
<b>IF IN EYES:</b>	<ul style="list-style-type: none"><li>• Hold eye open and rinse slowly and gently with water for 15-20 minutes.</li><li>• Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.</li><li>• Call a poison control center or doctor for treatment advice.</li></ul>
<b>HOT LINE NUMBER:</b> Have the product container or label with you when calling a poison control center or doctor or going for treatment. You may also contact SafetyCall® (866) 897-8050 for emergency medical treatment information.	

## PRECAUTIONARY STATEMENTS

### HAZARDS TO HUMANS AND DOMESTIC ANIMALS

**CAUTION.** Harmful if swallowed or absorbed through skin. Causes moderate eye irritation. Avoid contact with skin, eyes, or clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet. Remove and wash contaminated clothing before reuse.

**ENVIRONMENTAL HAZARDS: DO NOT** apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean high water mark. **DO NOT** contaminate water by cleaning of equipment or disposal of equipment washwaters or rinsate.

**PHYSICAL OR CHEMICAL HAZARDS: DO NOT** use or store near heat or open flame. **DO NOT** mix or allow coming in contact with oxidizing agents, hazardous chemical reaction may occur.

**DIRECTIONS FOR USE:** It is a violation of federal law to use this product in a manner inconsistent with its labeling, FAILURE TO FOLLOW THE USE DIRECTIONS AND PRECAUTIONS ON THIS LABEL MAY RESULT IN PLANT INJURY OR POOR DISEASE CONTROL. **DO NOT** apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

## STORAGE AND DISPOSAL

**DO NOT** contaminate water, food or feed by storage or disposal.

**PESTICIDE STORAGE:** Store in a tightly closed container in a cool, dry place. Store in original container and out of reach of children, preferably in a locked storage area. **PESTICIDE DISPOSAL:**

Pesticide spray mixture or rinsate that cannot be used should be disposed of in a landfill approved for pesticides. Improper disposal of excess pesticide spray mixture or rinsate is a violation of Federal law. If these wastes cannot be disposed of by the use according to label instructions, contact your State Pesticide or Environmental Control Agency or the Hazardous Waste representative at the nearest EPA Regional Office for guidance. **CONTAINER HANDLING:**

**Nonrefillable Container: DO NOT** reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. Triple Rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container ¼ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling if available or puncture and dispose of in a sanitary landfill, or by other procedures allowed by state and local authorities.

See side panel(s) for First Aid, Precautionary Statements, Directions for Use and Storage and Disposal.

EPA Reg. No. 53883-519

EPA Est. No. 53883-TX-002

**NET CONTENTS:** 1 GALLON

Manufactured for:

**Control Solutions Inc.**

5903 Genoa-Red Bluff, Pasadena, TX 77507

EPA 061522



# SAFETY DATA SHEET

## Pac-Low SC

### 1. IDENTIFICATION

**PRODUCT NAME:** Pac-low SC  
**DESCRIPTION:** Plant Growth Regulator  
**EPA Reg. No.:** 53883-519

**COMPANY IDENTIFICATION:**  
**Control Solutions, Inc.**  
5903 Genoa Red Bluff  
Pasadena, TX 77536

### 2. HAZARD IDENTIFICATION

#### WARNING

Suspected of damaging fertility of the unborn child (H361)  
Harmful if inhaled (H322)



#### HAZARD CLASSIFICATION

**Health Hazards**  
Reproductive Toxicity  
Acute Toxicity, inhalation

**Category**  
2  
4

**Other Hazards**  
None

**Category**  
-

**Environmental Hazards**  
None

**Category**  
-

#### HAZARDS NOT REQUIRING CLASSIFICATION

Do not use or store near heat or open flame. Do not mix or allow coming in contact with oxidizing agents. hazardous chemical reaction may occur.

#### PRECAUTIONARY STATEMENTS

Obtain, read, and follow all safety instructions before use. Wear protective gloves/ protective clothing. Avoid breathing mist/vapors/spray. Use only outdoors or in a well-ventilated area. (P203+P280+P261+P271)

IF exposed or concerned, get medical advice. (P318)

**IF INHALED:** Remove person to fresh air and keep comfortable for breathing. Get medical help. (P304+P340+P317)

Store Locked up. (P405)

Dispose of contents / container in accordance with local regulations. Refer to the product label for specific disposal instructions. (P501)

### 3. COMPOSITION / INFORMATION ON INGREDIENTS

Common Name	Chemical Name	CAS #	Composition
Paclobotrazol	1H-1,2,4-Triazole-1-ethanol, .beta.-[(4-chlorophenyl)methyl]-.alpha.-(1,1-dimethylethyl)-, (.alpha.R,.beta.R)-rel-	76738-62-0	22.9%
Propylene glycol	1,2-Propanediol	57-55-6	≤7.0%

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

### 4. FIRST AID MEASURES

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. For emergency medical assistance, call SafetyCall@: **1-844-685-9173**. For chemical emergency: spill, leak, fire, exposure or accident, call CHEMTREC: **1-800-424-9300**.

**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 treatment advice.



## 5. FIREFIGHTING MEASURES

**Flash Point:** Not available.

**Fire and Explosion Hazards:** Do not use or store near heat or open flame.

**Extinguishing Medium:** Water fog, dry chemical, foam or carbon dioxide (CO<sub>2</sub>). If water is used to fight fire, dike and collect runoff.

**Fire Fighting Equipment:** Firefighters should be equipped with self-contained positive pressure breathing apparatus and full bunker gear.

**Fire Fighting Instructions:** Evacuate area of all unnecessary personnel and fight fire from a safe distance upwind. Contain contaminated water / firefighting water; do not allow to enter drains or waterways. Use foam or dry chemical fire extinguishing systems to prevent environmental damage from excessive water runoff. Decontaminate fire fighting gear and personal protective equipment before reuse.

**Hazardous Combustion Products:** During a fire, irritating and possibly toxic gases may be generated by thermal decomposition or combustion.

**NFPA Ratings:** Health – 1 / Flammability – 1 / Reactivity - 0

## 6. ACCIDENTAL RELEASE MEASURES

**Personal Precautions:** Isolate area and keep unnecessary and unprotected personnel from entering. Wear suitable personal protective clothing and equipment as described in Section 8 of this document.

**Environmental Precautions:** Prevent material from entering public sewer systems or any waterways. Do not flush to drain. Large spills to soil or similar surfaces may necessitate removal of topsoil. The affected area should be removed and placed in an appropriate container for disposal.

**Spill Cleanup:** Dike spill using suitable absorbent or impervious materials such as sand or clay. Collect and contain contaminated absorbent and place in an appropriate container for disposal. Pump any free liquid into an appropriate closed container and decontaminate tools and equipment following cleanup. Collect washings for disposal.

## 7. HANDLING AND STORAGE

**Handling:** Avoid contact with skin, eyes, or clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet. Remove and wash contaminated clothing before reuse.

**Storage:** Store in a tightly closed container in a cool, dry place. Store in original container and out of reach of children, preferably in a locked storage area.

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

### Control Parameters:

Chemical Name	OSHA PEL	ACGIH TLV	Other	Source
Paclobutrazol	Not Established	Not Established	10 mg/m <sup>3</sup> TWA	AHA
Propylene glycol	Not Established	Not Established	5.0 mg/m <sup>3</sup> TWA	Syngenta

**Engineering Controls:** Facilities storing or utilizing this material should be equipped with an eyewash station and a safety shower.

**Protective Clothing:** Applicators, and other handlers must wear long-sleeved shirt and long pants, chemical-resistant gloves such as barriers laminate, butyl rubber ≥ 14, nitrile rubber ≥ 14 mils, or Viton® ≥ 14 mils and shoes plus socks.

**General:** Follow manufacturer's instructions for cleaning / maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.



# SAFETY DATA SHEET

## Pac-Low SC

### 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Appearance:</b>	opaque white liquid	<b>pH:</b>	5.0-6.0
<b>Odor:</b>	sweet	<b>Capillary Viscosity:</b>	no data available
<b>Melting / Freezing Point:</b>	no data available	<b>Solubility:</b>	no data available
<b>Boiling Point / Range:</b>	no data available	<b>Partition Coefficient:</b>	no data available
<b>Flammability:</b>	no data available	<b>Vapor Pressure:</b>	no data available
<b>Flam. Limits (upper/lower):</b>	no data available	<b>Density:</b>	8.5-9.0 lb/gal
<b>Flash Point (cc):</b>	no data available	<b>Particle Char.:</b>	no data available
<b>Auto-Ignition Temp.:</b>	no data available		
<b>Decomposition Temp.:</b>	no data available		

### 10. STABILITY AND REACTIVITY

**CONDITIONS TO AVOID:** None known.

**CHEMICAL STABILITY:** Stable under normal use and storage conditions.

**INCOMPATIBILITY WITH OTHER MATERIALS:** None known.

**HAZARDOUS DECOMPOSITION PRODUCTS:** None known.

**HAZARDOUS POLYMERIZATION:** Will not occur.

### 11. TOXICOLOGICAL INFORMATION

The following information is from a substantially similar product:

**ORAL TOXICITY (rat LD<sub>50</sub>):** > 2,000 mg/kg (EPA Category III)

**DERMAL TOXICITY (rat LD<sub>50</sub>):** > 2,000 mg/kg (EPA Category III)

**INHALATION TOXICITY (rat LC<sub>50</sub>):** > 2.5 mg/L (4-hour) (EPA Category IV)

**EYE IRRITATION:** Mildly Irritating (Rabbit)

**SKIN IRRITATION:** Non-irritating (Rabbit)

**SKIN SENSITIZATION:** Not a contact sensitizer (Guinea Pig)

**CARCINOGENICITY:**

**EPA:** The Agency has not classified the carcinogenic potential (paclobutrazol)

**NTP:** Not listed

**IARC:** Not listed

**OSHA:** Not listed

**MUTAGENIC TOXICITY:** Paclobutrazol was negative for any gene mutations.

**REPRODUCTIVE TOXICITY:** Dose-related increase in minor skeletal defects and evidence of fetotoxicity in rat studies (urogenital defects). No adverse effects seen on reproductive parameters or reproductive organs in a 2-generation rat study. Liver effects were noted at the highest dose level in the FO females and male and female offspring.

**NEUROTOXICITY:** No evidence of neurotoxicity from subacute or longer-term studies in mammals. No specific neurotoxicity studies have been conducted.

**CHRONIC TOXICITY:** Evidence of liver toxicity in repeat dose rodent studies at high dose levels. (1250 ppm, 90-day and 2-year tests). No effects noted in rabbit studies. Non-genotoxic in a range of in vitro and in vivo short-term tests. No indication that paclobutrazol is an endocrine disruptor.



# SAFETY DATA SHEET

## Pac-Low SC

Page 4 of 6  
Date: December 20, 2022

### 12. ECOLOGICAL INFORMATION

This product is highly toxic to aquatic invertebrates.

**Information presented below is from testing done with the active ingredient, paclobutrazol:**

**Grass Carp (48-hour LC<sub>50</sub>): 15.9 mg/L**

Rainbow Trout (96-hour LC<sub>50</sub>): 27.8 mg/L; (NOAEC): 0.049 mg/L

Water Flea (48-hour EC<sub>50</sub>): 0.24 mg/L; (LOEC): 0.05 mg/L

Algae (96-hour EC<sub>50</sub>): 40.8 mg/L

#### AVIAN TOXICITY

Mallard (Oral LD<sub>50</sub>): >7,913 mg/kg (body weight)

Bobwhite Quail (11-days LC<sub>50</sub>): >5,000 mg/kg (diet)

#### HONEYBEE TOXICITY

Honeybee Acute contact (LD<sub>50</sub>): >24 µg/bee

### 13. DISPOSAL CONSIDERATIONS

**PESTICIDE DISPOSAL:** Pesticide spray mixture or rinsate that cannot be used should be disposed of in a landfill approved for pesticides. Improper disposal of excess pesticide spray mixture or rinsate is a violation of Federal law. If these wastes cannot be disposed of by the use according to label instructions, contact your State Pesticide or Environmental Control Agency or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

**CONTAINER DISPOSAL:** Nonrefillable container. Do not reuse or refill this container. Refer to the product label for specific container disposal instructions.

### 14. TRANSPORT INFORMATION

**US-DOT:**

Not regulated

**IMDG:**

Not regulated

**IATA:**



# SAFETY DATA SHEET

## Pac-Low SC

Shipped by air: Not regulated

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

### 15. REGULATORY INFORMATION

#### FIFRA –

This chemical is a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets, and for workplace labels of non-pesticide chemicals. The following is the hazard information as required on the pesticide label:

#### PRECAUTIONARY STATEMENTS

##### HAZARDS TO HUMANS AND DOMESTIC ANIMALS

**CAUTION.** Harmful if swallowed or absorbed through skin. Causes moderate eye irritation. Avoid contact with skin, eyes, or clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet. Remove and wash contaminated clothing before reuse.

##### ENVIRONMENTAL HAZARDS

Do not apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water by cleaning of equipment or disposal of equipment washwaters or rinsate.

##### PHYSICAL OR CHEMICAL HAZARDS

Do not use or store near heat or open flame. Do not mix or allow coming in contact with oxidizing agents. hazardous chemical reaction may occur.

All pesticides are governed under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). The regulatory information presented below is pertinent only when this product is handled outside of the normal use and application as a pesticide. This product is excluded from listing requirements under EPA/TSCA.

#### SARA Title III – Section 302 Extremely Hazardous Substances

Not listed

#### SARA Title III – Section 311/312 Hazard Categories

Not listed

#### SARA Title III – Section 312 Threshold Planning Quantity

The threshold planning quantity (TPQ) for this product treated as a mixture is 10,000 lbs. This product contains no ingredients with a TPQ of less than 10,000 lbs.

#### SARA Title III – Section 313 Reportable Ingredients

Not listed

#### CERCLA Reportable Quantity (RQ) –

Not listed

#### RCRA Code

Not applicable

#### CALIFORNIA PROP 65 STATUS –

This product does not contain any chemical known to the State of California to cause cancer or other reproductive harm.

#### CANADA –

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the SDS contains all of the information required by CPR.



# SAFETY DATA SHEET

## Pac-Low SC

### 16. OTHER INFORMATION

<b>NFPA</b>	<b>Health Hazards</b> 1	<b>Flammability</b> 1	<b>Instability</b> 0	<b>Special Hazards</b> – None
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**Disclaimer:** Control Solutions, Inc. believes the information presented herein is accurate and correct as of the document date. The presented information is based upon available data from reliable sources. Control Solutions, Inc. makes no warranty, express or implied, regarding the accuracy of the data or the results obtained from the use of this product. Nothing herein may be construed as recommending any practice or any product in violation of any law or regulations. The user is solely responsible for determining the suitability of any material or product for a specific purpose and for adopting any appropriate safety precautions. We disclaim all liability for injury or damage stemming from any improper use of the material or product described herein.

SDS Version: 1.0  
Effective Date 12/20/2022

**QUALI-PRO**<sup>®</sup>

PROPICONAZOLE | GROUP 3 | FUNGICIDE

# PROPICONAZOLE 14.3

## Fungicide



Broad spectrum and systemic disease control for turf and ornamentals and a systemic fungicide for control of selected diseases in trees

**ACTIVE INGREDIENT:**      % BY WT.

Propiconazole: 1-[[2-(2,4-dichlorophenyl)  
-4-propyl-1,3-dioxolan-2-yl]  
Methyl]-1H-1,2,4-triazole ..... **14.3%**

**OTHER INGREDIENTS:** ..... **85.7%**

**TOTAL:** ..... **100.0%**

Quali-Pro Propiconazole 14.3 is an emulsifiable concentrate containing 1.3 lbs. of active ingredient per gallon.

KEEP OUT OF REACH OF CHILDREN

### CAUTION – PRECAUCIÓN

Si usted no entiende la etiqueta,  
busque a alguien para que se la  
explique a usted en detalle.

(If you do not understand the label, find someone to explain it to you in detail.)

EPA Reg. No. 53883-363

EPA Est No. 53883-TX-002

**NET CONTENTS:  
1 GALLON**



0 72693 33688 9



ADAMA

Manufactured by:

**Control  
Solutions Inc.**

5903 Genoa-Red Bluff, Pasadena, TX 77507

A member of Adama  
Consumer and Professional Solutions

13370

EPA 082223

#### FIRST AID

<b>IF SWALLOWED:</b>	<ul style="list-style-type: none"><li>• Call a poison control center or doctor immediately for treatment advice.</li><li>• Have person sip a glass of water if able to swallow.</li><li>• Do not induce vomiting unless told to do so by a poison control center or doctor.</li><li>• Do not give anything by mouth to an unconscious person.</li></ul>
<b>IF IN EYES:</b>	<ul style="list-style-type: none"><li>• Hold eye open and rinse slowly and gently with water for 15 to 20 minutes. Remove contact lenses, if present, after the first 5 minutes; then continue rinsing eye.</li><li>• Call a poison control center or doctor for treatment advice.</li></ul>
<b>IF ON SKIN OR CLOTHING:</b>	<ul style="list-style-type: none"><li>• Take off contaminated clothing.</li><li>• Rinse skin immediately with plenty of water for 15 to 20 minutes.</li><li>• Call a poison control center or doctor for treatment advice.</li></ul>
<b>IF INHALED:</b>	<ul style="list-style-type: none"><li>• Move person to fresh air.</li><li>• If person is not breathing, call 911 or an ambulance; then give artificial respiration, preferably mouth-to-mouth if possible.</li><li>• Call a poison control center or doctor for further treatment advice.</li></ul>

**Have the product container or label with you when calling a poison control center or doctor or going for treatment.** You may also contact SafetyCall® International for emergency medical treatment at (866) 897-8050.

**NOTE TO PHYSICIAN:** There is no specific antidote for this product. Induce emesis or lavage stomach, taking care to avoid aspiration of stomach contents into lungs.

#### PRECAUTIONARY STATEMENTS HAZARDS TO HUMANS AND DOMESTIC ANIMALS

**CAUTION.** Harmful if swallowed. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet.

#### PERSONAL PROTECTIVE EQUIPMENT (PPE)

Some materials that are chemical resistant to this product are listed below.

**Applicators and other handlers must wear:**

- Long-sleeved shirt and long pants
- Chemical-resistant gloves including barrier laminate, butyl rubber, nitrile rubber, neoprene rubber, polyvinyl chloride (PVC), or Viton
- Shoes plus socks

#### USER SAFETY REQUIREMENTS

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry. Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them.

#### ENGINEERING CONTROLS STATEMENT

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240(d)(4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

#### USER SAFETY RECOMMENDATIONS

**Users should:**

- Remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of the gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

#### ENVIRONMENTAL HAZARDS

This pesticide is toxic to fish and shrimp. Do not apply directly to water, to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment washwater or rinsate.

#### PHYSICAL OR CHEMICAL HAZARDS

Do not use or store near or use with oxidizing agents.

#### DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers can be in the area during application. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

### AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR Part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE) and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

**Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours.**

Exception: If the product is soil-injected or soil-incorporated, the Worker Protection Standard, under certain circumstances, allows workers to enter the treated area if there will be no contact with anything that has been treated.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated including plants, soil, or water is:

- Coveralls
- Chemical-resistant gloves including barrier laminate, butyl rubber, nitrile rubber, neoprene rubber, polyvinyl chloride (PVC), or Viton
- Shoes plus socks

### NON-AGRICULTURAL USE REQUIREMENTS

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses.

**Do not enter treated areas without protective clothing until sprays have dried.**

**FAILURE TO FOLLOW THE DIRECTIONS FOR USE AND PRECAUTIONS ON THIS LABEL MAY RESULT IN PLANT INJURY OR POOR DISEASE CONTROL.**

### PRODUCT INFORMATION

Quali-Pro Propiconazole 14.3 is a systemic fungicide for use on turfgrasses for the control of dollar spot (*Sclerotinia homoeocarpa*), brown patch (*Rhizoctonia solani*), anthracnose (*Colletotrichum graminicola*), red thread (*Laetisaria fuciformis*), pink patch (*Limonomycetes roseipellis*), rust (*Puccinia graminis*), powdery mildew (*Erysiphe graminis*), stripe smut (*Ustilago striiformis* and *Urocystis agropyri*), summer patch (*Magnaporthe poae*), necrotic ring spot (*Leptosphaeria korrae*), spring dead spot (*Leptosphaeria korrae*, *Leptosphaeria narnari*, *Ophiosphaerella herpotricha*, *Gaeumannomyces graminis*), take-all patch (*Gaeumannomyces graminis*), leafspot (*Bipolaris* spp., *Drechslera* spp.), gray leafspot (*Pyricularia grisea*), pink snowmold (*Microdochium nivale*), Fusarium patch (*Fusarium nivale*), gray snowmold (*Typhula* spp.), yellow patch (*Rhizoctonia cerealis*), and zoysia patch (*Rhizoctonia solani*).

Quali-Pro Propiconazole 14.3 also controls numerous diseases on ornamentals and other landscape and nursery plantings. It controls powdery mildews, rusts, leafspots, scabs, and blights. Refer to the appropriate section for specified diseases and plants.

### RESTRICTIONS:

- **DO NOT** use more than 5.4 gallons per acre (16 fl. oz. per 1000 sq. ft.) of Quali-Pro Propiconazole per calendar year.
- Maximum application rate is 1.79 lbs. propiconazole per acre and maximum yearly application rate is 7.2 lbs. propiconazole per acre per calendar year.
- Bermudagrass can be sensitive to Quali-Pro Propiconazole. **DO NOT** exceed 4 fl. Oz. per 1000 sq. ft. every 30 days on any variety of bermudagrass. In Florida, **DO NOT** apply Quali-Pro Propiconazole to bermudagrass golf course greens when temperature exceed 90°F.
- **DO NOT** graze animals on treated areas.
- **DO NOT** feed clippings from treated areas to livestock or poultry.
- **DO NOT** apply this product through any type of irrigation system.

### RESISTANCE MANAGEMENT

For resistance management, Quali-Pro Propiconazole contains a Group 3 fungicide. Any fungal population may contain individuals naturally resistant to Quali-Pro Propiconazole and other Group 3 fungicides. A gradual or total loss of pest control may occur over time if these fungicides are used repeatedly in the same fields. Follow appropriate resistance-management strategies.

To delay fungicide/bactericide resistance, take one or more of the following steps:

- Rotate the use of Quali-Pro Propiconazole or other Group 3 fungicides within a growing season sequence with different groups that control the same pathogens.
- Use tank mixtures with fungicide from a different group that are equally effective on the target pest when such use is permitted. Use at least the minimum application rate as labeled by the manufacturer.
- Adopt an integrated disease management program for fungicide use that includes scouting, uses historical information related to pesticide use, and crop rotation, and which considers host plant resistance, impact of environmental conditions on disease development, disease thresholds, as well as cultural, biological and other chemical control practices.
- Where possible, make use of predictive disease models to effectively time fungicide/bactericide applications. Note that using predictive models alone is not sufficient to manage resistance.
- Monitor treated fungal populations for resistance development.
- Contact your local extension specialist or certified crop advisor for any additional pesticide resistance management and/or IPM directions for specific crops and pathogens.
- For further information or to report suspected resistance contact your local Control Solutions, Inc. representative. You can also contact your pesticide distributor or university extension specialist to report resistance.

#### MIXING INSTRUCTIONS

Fill the spray tank 1/2 to 3/4 full with water. Add the proper amount of Quali-Pro Propiconazole 14.3 and then add the remainder of the water. Provide sufficient agitation during mixing and application to maintain a uniform emulsion.

If Quali-Pro Propiconazole 14.3 is tank mixed with other products, use the following sequence:

1. Always check the compatibility of the tank mix using a jar test with proportionate amounts of Quali-Pro Propiconazole 14.3, other chemicals to be used, and the water before mixing in the spray tank.
2. Provide sufficient jet or mechanical agitation during filling and application to keep the tank mix uniformly suspended.
3. Fill tank at least 1/2 full with clean water.
4. Add wettable powders to the tank first, allowing them to completely suspend in the tank before proceeding. Premixing the product in water before adding to the tank will hasten the process.
5. Add flowables or suspensions next.
6. Add Quali-Pro Propiconazole 14.3 next.
7. Add emulsifiable concentrates last.
8. Do not leave tank mix combinations in the spray tank for prolonged periods without agitation. Mix and apply them the same day.

#### TANK MIXES

For broader spectrum control, Quali-Pro Propiconazole 14.3 can be tank mixed with other fungicides. Quali-Pro Propiconazole 14.3 is also compatible with numerous herbicides and insecticides. Check compatibility before tank mixing. Add Unite® (3 pts. per 100 gals.) to tank mixes which are incompatible. Follow the directions under **MIXING INSTRUCTIONS** for tank mixes. Observe all directions, precautions, and limitations on labeling of all products used in tank mixes. Tank mixtures or other applications of products referenced on this label are permitted only in those states in which the referenced products are registered.

It is the pesticide user's responsibility to ensure that all products are registered for the intended use. Read and follow the applicable restrictions and limitations and directions for use on all product labels involved in tank mixing. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

#### SPRAY DRIFT MANAGEMENT

A variety of factors including weather conditions (e.g., wind direction, wind speed, temperature, and relative humidity) and method of application can influence pesticide drift. The applicator must evaluate all factors and make appropriate adjustments when applying this product.

##### Wind Speed

**DO NOT** apply at wind speeds greater than 15 mph.

##### Droplet Size

Apply as a medium or coarser spray (ASAE Standard 572).

##### Temperature Inversions

If applying at wind speeds less than 3 mph, the applicator must determine if a) conditions of temperature inversion exist, or b) stable atmospheric conditions exist at or below nozzle height. **DO NOT** make applications into areas of temperature inversions or stable atmospheric conditions.

### Other State and Local Requirements

Applicators must follow all state and local pesticide drift requirements regarding application of propiconazole. Where states have more stringent regulations, they must be observed.

### Equipment

All application equipment must be properly maintained and calibrated using appropriate carriers or surrogates.

### TURFGRASS AND DICHONDRA DISEASE CONTROL

1. Use Quali-Pro Propiconazole in a preventive disease control program.
2. Apply in sufficient water to ensure thorough coverage.
3. Apply after mowing **OR** allow sprayed area to completely dry before mowing.
4. For control of foliar diseases, allow sprayed area to completely dry before irrigation.
5. For control of soil-borne diseases, Quali-Pro Propiconazole can be watered in after application.
6. Under conditions optimum for high disease pressure, use the higher rate and the shorter application interval.
7. For optimum turf quality and disease control, use Quali-Pro Propiconazole in conjunction with turf management practices that promote good plant health and optimum disease control.
8. Evaluate spray additives prior to use. Label directions are based on data obtained with no additives.
9. Before use of any fungicide, proper diagnosis of the organism causing the disease is important. Use of diagnostic kits or other means of identification of the disease organism is essential to determine the best control measures.

### RESTRICTIONS:

- **DO NOT** graze animals on treated areas.
- **DO NOT** feed clippings from treated areas to livestock or poultry.
- Maximum Single Application Rate: 1.79 lbs. ai/A (1.4 gal./A of Bumper 14.3 EC or 4 fl. oz./1,000 sq. ft)
- Maximum Annual Rate: 7.2 lbs. ai/A/year (5.5 gal./A of Bumper 14.3 EC or 16 fl. oz./1,000 sq. ft./year)
- Maximum Number of Applications per Year: 4 at the highest rate of 1.79 lb. ai/A (1.4 gal./A of Bumper 14.3 EC or 4 fl. oz./1,000 sq. ft)
- Minimum Retreatment Interval: 14 days
- **DO NOT** exceed 4 fl. oz./1,000 sq. ft. every 30 days on any variety of bermudagrass. In FL, **DO NOT** apply Bumper 14.3 EC to bermudagrass golf course greens when temperatures exceed 90°F.

TURFGRASS—SPECIFIC DISEASES, RATES, AND APPLICATION TIMING				
Disease	Fl. Oz. Per 1000 Sq. Ft. (lbs. A.I./1000 Sq. Ft.)	Fl. Oz. Per Acre (lbs. A.I./Acre)	Application Interval/ Timing	Application Instructions
<b>Dollar Spot</b> ( <i>Sclerotinia homoeocarpa</i> )	0.5 (0.005)	22 (0.22)	14 days	Tank mix with low label rate of one of the following fungicides: Daconil® Weatherstick(EPA#505342-209-100;A.I. Chlorothalonil)(or Quali-Pro Chlorothalonil 720 SFT;EPA# 53883-310; A.I. Chlorothalonil) Daconil Ultrex(EPA#50534-202-100; A.I. Chlorothalonil) (or Quali-Pro Chlorothalonil DF; EPA# 53883-313; A.I. Chlorothalonil )

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**TURFGRASS—SPECIFIC DISEASES, RATES, AND APPLICATION TIMING**

<b>Disease</b>	<b>Fl. Oz. Per 1000 Sq. Ft. (lbs. A.I./1000 Sq. Ft.)</b>	<b>Fl. Oz. Per Acre (lbs. A.I./Acre)</b>	<b>Application Interval/ Timing</b>	<b>Application Instructions</b>
<b>Dollar Spot</b> ( <i>Sclerotinia homoeocarpa</i> )	1 (0.01)	44 (0.44)	21-28 days	Tank mix with low label rate of one of the following fungicides: Daconil Weatherstick (EPA#505342-209-100; A.I. Chlorothalonil) (or Quali-Pro Chlorothalonil 720 SFT; EPA# 53883-310; A.I. Chlorothalonil) Daconil Ultrex (EPA#50534-202-100; A.I. Chlorothalonil) (or Quali-Pro Chlorothalonil DF; EPA# 53883-313; A.I. Chlorothalonil ) Iprodione 2SE(EPA#89442-13; A.I. Iprodione) or Quali-Pro Ipro 2SE(EPA#53883-380; A.I. Iprodione)
	1-2 (0.01-0.02)	44-88 (0.44-0.89)	14-28 days	If using the 1-2 fl. oz. per 1000 sq. ft. rate without tank mixing, make no more than 3 consecutive applications for dollar spot control before rotating to an alternate EPA-registered fungicide having a different mode of action.
<b>Anthracnose</b> ( <i>Colletotrichum graminicola</i> )	1-2 (0.01-0.02)	44-88 (0.44-0.89)	14-28 days	Apply when conditions are favorable for disease development. Use higher rates of Quali-Pro Propiconazole 14.3 and shorter application intervals when disease pressure is high. For broad spectrum control, tank mix with a registered contact fungicide at the label rate.  If disease is present, mix 2 fl. oz. of Quali-Pro Propiconazole 14.3 per 1000 sq. ft. with the label rate of the above mentioned contact fungicides.
<b>Brown Patch</b> ( <i>Rhizoctonia solani</i> )	1-2 (0.01-0.02)	44-88 (0.44-0.89)	14-21 days	Begin applications in May or June before disease is present. Tank mix with a registered contact fungicide labeled for brown patch control at the label rate.  Under conditions of high temperatures and high humidity, use the higher rates of Quali-Pro Propiconazole 14.3 and shorter application intervals.
<b>Powdery Mildew</b> ( <i>Erysiphe graminis</i> ) <b>Rust</b> ( <i>Puccinia graminis</i> )	1-2 (0.01-0.02)	44-88 (0.44-0.89)	14-28 days	Apply when conditions are favorable for disease development. If disease is present, use 2 fl. oz. of Quali-Pro Propiconazole 14.3 per 1000 sq. ft.

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**TURFGRASS—SPECIFIC DISEASES, RATES, AND APPLICATION TIMING**

Disease	Fl. Oz. Per 1000 Sq. Ft. (lbs. A.I./1000 Sq. Ft.)	Fl. Oz. Per Acre (lbs. A.I./Acre)	Application Interval/ Timing	Application Instructions
<b>Red Thread</b> ( <i>Laetisaria fuciformis</i> ) <b>Pink Patch</b> ( <i>Limonomyces roseipellis</i> )	2 (0.02)	88 (0.89)	14-21 days	Apply when conditions are favorable for disease development.
<b>Stripe Smut</b> ( <i>Ustilago striiformis</i> ) ( <i>Urocystis agropyri</i> )	1-2 (0.01-0.02)	44-88 (0.44-0.89)	Fall or Spring	Apply once in the fall after grass becomes dormant or in the early spring before grass starts to grow.
<b>Gray Leafspot</b> ( <i>Pyricularia grisea</i> )	1-2 (0.01-0.02)	44-88 (0.44-0.89)	14 days	Apply when conditions are favorable for disease development. If using the 1 fl. oz. per 1000 sq. ft. rate, tank mix with a registered contact fungicide at the label rate.
<b>Melting out, Leaf Spot</b> ( <i>Bipolaris</i> spp.) ( <i>Drechslera</i> spp.)	1-2 (0.01-0.02)	44-176 (0.44-1.79)	14 days	Under light to moderate pressure, apply Quali-Pro Propiconazole 14.3 to reduce the severity of leaf spot and melting out caused by Helminthosporium-type pathogens. For broad spectrum disease control, tank mix the 1 fl. oz. Quali-Pro Propiconazole 14.3 rate with a registered contact fungicide at the label rate  Tank mix the 1-2 fl. oz. per 1000 sq. ft. Quali-Pro Propiconazole 14.3 rate with a registered contact fungicide at the label rate.
<b>Summer Patch, Poa Patch</b> ( <i>Magnaporthe poae</i> )	2 4 (0.02) (0.04)	88 176 (0.89) (1.79)	14 days 28 days	Apply Quali-Pro Propiconazole 14.3 beginning in April. Use the 4 fl. oz. per 1000 sq. ft. rate on a 28-day schedule and the 2 fl. oz. per 1000 sq. ft. rate on a 14-day schedule.
<b>Take-All Patch</b> ( <i>Gaeumannomyces graminis</i> )	2-4 (0.02-0.04)	88-176 (0.89-1.79)	Spring and Fall	Apply Quali-Pro Propiconazole 14.3 to reduce the severity of take-all patch. Make 1 to 2 fall applications in September and October or when night temperatures drop to 55°F, and 1 to 2 spring applications in April and May depending on local specifications.
<b>Spring Dead Spot</b> ( <i>Leptosphaeria korrae</i> , <i>Leptosphaeria narmari</i> , <i>Ophiosphaerella herpotricha</i> , <i>Gaeumannomyces graminis</i> )	4 (0.04)	176 (1.79)	30 days	Make 1 to 3 applications. For one application, apply in September or October. For multiple applications, begin sprays in August.

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TURFGRASS—SPECIFIC DISEASES, RATES, AND APPLICATION TIMING				
Disease	Fl. Oz. Per 1000 Sq. Ft. (lbs. A.I./1000 Sq. Ft.)	Fl. Oz. Per Acre (lbs. A.I./Acre)	Application Interval/ Timing	Application Instructions
<b>Necrotic Ring Spot</b> ( <i>Leptosphaeria korrae</i> )	4 (0.04)	176 (1.79)	Fall or Spring	Apply in the fall and/or the early spring depending on local specifications.
<b>Gray Snowmold</b> ( <i>Typhula</i> spp.) <b>Pink Snowmold</b> ( <i>Microdochium nivale</i> )	2-4 (0.02-0.04)	88-176 (0.89-1.79)	Late Fall	Apply one application in the late fall before snow cover. <b>DO NOT</b> apply on top of snow. If using rates of 2 and 3 fl. oz., tank mix Quali-Pro Propiconazole 14.3 with either PCNB or chlorothalonil at label rates to provide optimum disease control.
<b>Fusarium Patch</b> ( <i>Fusarium nivale</i> )	2-4 (0.02-0.04)	88-176 (0.89-1.79)	Fall-Early Spring	Apply when conditions are favorable for disease development.
<b>Yellow Patch</b> ( <i>Rhizoctonia cerealis</i> )	3-4 (0.03-0.04)	130-176 (1.32-1.79)	Late Fall	Apply one application in the late fall before snow cover. <b>DO NOT</b> apply on top of snow. If using a 3 fl. oz. per 1000 sq. ft. rate, tank mix with a registered contact fungicide at the label rate.
<b>Zoysia Patch, large patch of zoysia</b> ( <i>Rhizoctonia solani</i> )	3-4 (0.03-0.04)	130-176 (1.32-1.79)	Early Fall	Make one application in the early fall (mid-September to mid-October) prior to development of disease symptoms. Consult local turfgrass extension experts to determine the optimum application timing for your area.

DICHONDRA—SPECIFIC DISEASE, RATES, AND APPLICATION TIMING				
Disease	Fl. Oz. Per 1000 Sq. Ft. (lbs. A.I./1000 Sq. Ft.)	Fl. Oz. Per Acre (lbs. A.I./Acre)	Application Interval/ Timing	Application Instructions
<b>Dichondra Rust</b> ( <i>Puccinia dichondrae</i> )	2 (0.02)	88 (0.89)	14-21 days	Apply when conditions are favorable for disease development.

#### ESTABLISHMENT OF COOL-SEASON TURFGRASS

Quali-Pro Propiconazole 14.3 provides control of many diseases of turf, and its primary use is as a fungicide for use against the diseases listed on this label. As an additional benefit, Quali-Pro Propiconazole 14.3 will improve the establishment rate when it is applied to cool-season grass seedlings or sod.

**New Seedlings:** Apply 1 fl. oz. per 1000 sq. ft. (.45 lb. ai/A) at the 2- to 3-leaf stage of growth for faster root development and top growth.

**Sod:** Apply 1 fl. oz. per 1000 sq. ft. (.45 lb. ai/A) 2 to 6 weeks before cutting for increased sod knitting and faster establishment after laying.

#### RESTRICTIONS:

- Maximum Single Application Rate: .45 lb. ai/A (.35 gal./A of Bumper 14.3 EC or 1 fl. oz./1,000 sq. ft)
- Maximum Annual Rate: 7.2 lbs. ai/A/year (5.4 gal./A of Bumper 14.3 EC) or 16 fl. oz./1,000 sq. ft).
- Maximum Number of Applications per Year: 15 at the highest rate of .45 lb. ai/A (.35 gal./A of Bumper 14.3 EC or 1 fl. oz./1,000 sq. ft)
- Minimum Retreatment Interval: 14 days.

## DISEASE CONTROL IN NURSERIES (FIELD) AND LANDSCAPE PLANTINGS

1. Use Quali-Pro Propiconazole 14.3 in a preventive disease control program. To determine the use directions for controlling a disease on an ornamental plant species, select the plant species in **Table 1**. The number in parentheses following the plant species refers you to the disease(s) controlled in **Table 2**. Find the disease in **Table 2**. The letter in brackets following the disease refers you to the application regime in **Table 3**.
2. Allow spray to dry before overhead irrigation is applied.
3. Optimum benefit of Quali-Pro Propiconazole 14.3 is obtained when used in conjunction with sound disease management practices.

### Application Instructions and Use Rates

Use BUMPER 14.3 EC at rates of 2-24 fl. oz. (0.02-0.24 lbs A.I.) per 100 gals. of water for control of diseases of ornamental plant species (see **Tables 1, 2, and 3**.)

For outdoor uses, you can apply up to 5.4 gals. (7.03 lbs A.I.) of BUMPER 14.3 EC per acre per crop per calendar year. For disease control in landscapes, apply 6-8 fl. oz. (0.06-0.08 lbs A.I.) per 100 gals. of water every 21 days.

For best control, begin BUMPER 14.3 EC applications before disease development.

### RESTRICTIONS:

- Maximum Single Application Rate: 1.79 lb. ai/A (1.4 gal./A of BUMPER 14.3 EC or 4 fl. oz./1,000 sq. ft)
- Maximum Annual Rate: 7.2 lbs. ai/A/year (5.4 gal./A of BUMPER 14.3 EC or 16 fl. oz./1,000 sq. ft./year)
- To avoid possible illegal residues, **DO NOT** apply to apple, Bartlett pear, cherry, citrus, nectarine, peach, pecan, plum, or walnut trees that will bear harvestable fruit within 12 months.
- Maximum Number of Applications per Year: 4 at the highest rate of 1.79 lb. ai/A (1.4 gal./A of BUMPER 14.3 EC or 4 fl. oz./1,000 sq. ft)
- Minimum Retreatment Interval: 21 days.

**Note On Plant Tolerance:** Plant tolerances to Quali-Pro Propiconazole 14.3 have been found acceptable for the specific genera and species of plants listed under the **DIRECTIONS FOR USE** section of this label. Other plant species could be sensitive to Quali-Pro Propiconazole 14.3 and diseases other than those listed may not be controlled. Before using Quali-Pro Propiconazole 14.3 on ornamental plants, test Quali-Pro Propiconazole 14.3 on a small-scale basis first. **DO NOT apply** Quali-Pro Propiconazole 14.3 to **African violets, begonias, Boston fern, or geraniums**. Apply the specified rates for a particular type of disease, i.e., rust, powdery mildew, etc., and evaluate for phytotoxicity and disease control prior to widespread use.

**Table 1. Ornamentals—Plant Species**

Numbers in parentheses refer to diseases controlled. See **Table 2**.

#### Herbaceous Ornamentals

Ajuga (6)  
 Calendula (4a)  
 Carnation (5f)  
 Chrysanthemum (2a)  
 Delphinium (4a)  
 English Ivy (3e)  
 German statice (6)  
 Gomphrena (3a)  
 Hollyhock (6)  
 Impatiens (3a, 3b, 4a)  
 Iris (5d)  
 Liriope (6)  
 Marigold (3a)  
 Monarda (4c)  
 Peony (6)  
 Phlox (4c)  
 Snapdragon (5d)

#### Woody Ornamentals

Amelanchier (4d)  
 Ash (4c)  
 Azalea (2c, 4b)  
 Bayberry (3n)  
 Camelia (3e)  
 Candytuft (6)  
 Cotoneaster (3i)  
 Crabapple (3c, 3q, 4c, 5a)  
 Crape Myrtle (4a)  
 Dogwood (3h, 4c)  
 Douglas Fir (5b)  
 Elm (4c)  
 Euonymus (3e, 4c)  
 Hawthorn (5a)  
 Holly (3r)  
 Juniper (1a)  
 Lilac (4c)

#### Nonbearing Fruits and Nuts (Nurseries and Landscape Plantings)

Apple (3q, 4d, 5a)  
 Bartlett Pear (3q, 4c, 5a)  
 Cherry (2b, 3d)  
 Citrus (3m)  
 Nectarine (2b)  
 Peach (2b)  
 Pecan (3b, 3c, 3f, 3l, 3n, 4e)  
 Plum (2b)  
 Walnut (3j)

(continued)

## Herbaceous Ornamentals

Sweet William (*Dianthus barbatus*) (3k)  
Vinca (6)  
Zinnia (4c)

## Woody Ornamentals

Linden (3e, 3b, 4b)  
Magnolia (3e, 4b)  
Maple (3e, 4f)  
Oaks (3p)  
Pines (1b, 1c)  
Poplars (5b)  
Privet (6)  
Pyracantha (3o)  
Redbud (6)  
Red Tip Photinia (3i)  
Raphiolepis (3e, 3j)  
Rhododendron (2c, 3n)  
Roses (3g, 4e, 5c)  
(Outdoor Use Only)  
Shasta Fir (5e)  
Sweet Gum (3b, 3c, 3n)  
Sycamore (3e)  
Tulip tree (3e, 4a)  
Wax myrtle (3n)

**Table 2. Diseases**

Letters in brackets refer to application regimes. See **Table 3**.

1. Conifer Blights
  - a. *Phomopsis juniperovora* (Phomopsis Blight) [B]
  - b. *Sirococcus strobilinus* (Tip Blight) [D]
  - c. *Sphaeropsis sapinea* (Diplodia Tip Blight) [B]
2. Flower Blight
  - a. *Ascochyta chrysanthemi* (Ray Blight) [C]
  - b. *Monilinia* spp. [A]
  - c. *Ovulinia* spp. [B]
3. Leaf Blights/Spots
  - a. *Alternaria* spp. [B]
  - b. *Cercospora* spp. (Brown Leaf Spot) [C]
  - c. *Cladosporium* spp. (Scab) [C]
  - d. *Coccomyces hiemalis* [A]
  - e. *Colletotrichum* spp. [B]
  - f. *Cristulariella* spp. (Zonate Leafspot) [C]
  - g. *Diplocarpon rosae* (Blackspot) [B]
  - h. *Discula* spp. (Anthracnose) [A]
  - i. *Fabraea maculata* (syn. *Entomosporium maculata*) [B]
  - j. *Gnomonia leptostyla* (Anthracnose) [C]
  - k. *Heterosporium echinulatum* [B]
  - l. *Mycosphaerella caryigena* (Downy Spot) [C]
  - m. *Mycosphaerella fructicola* (Greasy Spot) [E]
  - n. *Septoria* spp. (Leaf Scorch) [C]
  - o. *Spilocaea pyracanthae* [B]
  - p. *Tubakia dryina* [D]
  - q. *Venturia inaequalis* (Scab) [A]
  - r. Rhizoctonia Web Blight [B]\*
4. Powdery Mildew
  - a. *Erysiphe* spp. [B]
  - b. *Microsphaera* spp. [C]
  - c. *Oidium* spp. [B]

- d. *Podosphaera* spp. [B]
  - e. *Sphaerotheca pannosa* [B]
  - f. *Phyllactinia* spp. [B]\*
5. Rust
- a. *Gymnosporangium juniperi-virginianae* [A]
  - b. *Melampsora occidentalis* [D]
  - c. *Phragmidium* spp. [B]
  - d. *Puccinia* spp. [B]
  - e. *Pucciniastrum goeppertianum* [D]
  - f. *Uromyces dianthi* [B]
6. Rust, Powdery Mildew, etc. [F]\*

**\*Not registered for use in California.**

**Table 3. Application Regimes**

- [A] Mix 2-4 fl. oz. (0.02-0.04 lbs A.I.) of Quali-Pro Propiconazole 14.3 in 100 gals. of water and apply as a full coverage spray to the point of drip. Apply every 14-21 days during the period of primary infection. If disease is present, tank mix with an EPA-registered contact fungicide. For flower blight, apply Quali-Pro Propiconazole 14.3 when there is 5-10% bloom and again at 70-100% bloom. For dogwoods, apply the 2-4 fl. oz. (0.02-0.04 lbs A.I.) rate every 14 days or apply 8 fl. oz. (0.08 lbs A.I.) of Quali-Pro Propiconazole 14.3 every 28 days.
- [B] Mix 5-8 fl. oz. (0.05-0.08 lbs A.I.) of Quali-Pro Propiconazole 14.3 in 100 gals. of water and apply as a full coverage spray to the point of drip. Apply as needed, beginning when conditions are favorable for disease development. For blackspot, apply with a registered contact fungicide labeled for black spot. For calendula, apply every 30 days. For diplodia tip blight, make 3 applications every 14 days prior to major period of infection. For juniper phomopsis blight, make first application as soon as junipers start to grow, and repeat the applications every 14-21 days during periods of active growth.
- [C] Mix 8-12 fl. oz. (0.08-0.12 lbs A.I.) of Quali-Pro Propiconazole 14.3 in 100 gals. of water and apply as a full coverage spray to the point of drip. Apply every 30 days beginning when conditions are favorable for disease development. For pecans, apply the 12 fl. oz. (0.12 lbs A.I.) rate beginning at bud break. Apply 3 times at 14-day intervals. For walnut, apply 8.5 fl. oz. (0.9 lbs A.I.) at 14- to 21-day intervals. For ray blight, apply 12 fl. oz. (0.12 lbs A.I.) at 7-day intervals or 20 fl. oz. (0.2 lbs A.I.) at 14-day intervals. For impatiens, bayberry, linden, magnolia, sweet gum, and wax myrtle, the maximum use rate is 8 fl. oz. (0.08 lbs A.I.) per 100 gals. of water.
- [D] Mix 16 fl. oz. (0.16 lbs A.I.) of Quali-Pro Propiconazole 14.3 in 100 gals. of water and apply as a full coverage spray to the point of drip. Apply every 14 to 28 days, beginning when conditions are favorable for disease development. For Douglas fir needle rust, apply once in May. For tip blight, initiate applications in mid to late winter and apply 3 times at 2-month intervals.
- [E] Mix 20-24 fl. oz. (0.2-0.24 lbs A.I.) of Quali-Pro Propiconazole 14.3 in 100 gals. of water and apply as a full coverage spray to the point of drip. Apply during June to August time period.
- [F] Apply 6-8 fl. oz. (0.06-0.08 lbs A.I.) per 100 gals. Crop tolerance has been demonstrated on these ornamental plants at this rate; however, you must follow the **Note On Plant Tolerance** section of the label above for phytotoxicity and disease control precautions.

**Restriction:** To avoid possible illegal residues, do not apply to apple, Bartlett pear, cherry, citrus, nectarine, peach, pecan, plum, or walnut trees that will bear harvestable fruit within 12 months.

## STORAGE AND DISPOSAL

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

**STORAGE:** Store in a cool, dry area out of reach of children.

**PESTICIDE DISPOSAL:** Pesticide wastes are toxic. Improper disposal of unused pesticide, spray mixture, or rinse water is a violation of Federal law. If these wastes cannot be used according to label instructions, contact your State Pesticide or Environmental Control Agency or the Hazardous Waste representative at the nearest EPA Regional Office for guidance in proper disposal methods.

### **CONTAINER HANDLING:**

**Nonrefillable Container (five gallons or less):** Nonrefillable container. Do not reuse or refill this container. Clean container promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling if available or puncture and dispose of in a sanitary landfill, or by puncture and dispose of in a sanitary landfill, or by incineration.

### **LIMITATION OF WARRANTY AND LIABILITY**

Read the entire direction for use, conditions of warranties and limitations of liability before using this product. If terms are not acceptable, return the unopened product container at once. By using this product, user or buyer accepts the following **CONDITIONS, DISCLAIMER OF WARRANTIES, and LIMITATIONS OF LIABILITY.**

**CONDITIONS:** The directions for use of this product are believed to be adequate and must be followed carefully. However, it is impossible to eliminate all risk associated with the use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of such factors as weather conditions, presence of other materials, or the manner of use or application, all of which are beyond the control of Control Solutions, Inc. All such risks shall be assumed by the user or buyer.

**DISCLAIMER OF WARRANTIES:** To the extent consistent with applicable law, Control Solutions, Inc. makes no other warranties, express or implied, of merchantability or of fitness for a particular purpose or otherwise, that extend beyond the statements made on this label. No agent of Control Solutions, Inc. is authorized to make any warranties beyond those contained herein or to modify the warranties contained herein. To the extent consistent with applicable law, Control Solutions, Inc. disclaims any liability whatsoever for special, incidental or consequential damages resulting from the use or handling of this product.

**LIMITATIONS OF LIABILITY:** To the extent consistent with applicable law, the exclusive remedy of the user or buyer for any and all losses, injuries or damages resulting from the use or handling of this product, whether in contract, warranty, tort, negligence, strict liability or otherwise, shall not exceed the purchase price paid or at Control Solutions, Inc. election, the replacement of product.

Daconil® is a registered trademark of the Syngenta Group.

®denotes registered trademark.



# SAFETY DATA SHEET

## Quali-Pro Propiconazole 14.3 Fungicide

### SECTION 1: IDENTIFICATION

**Product Name:** Quali-Pro Propiconazole 14.3 Fungicide  
**EPA Registration No.:** 53883-363  
**Recommended Use:** Fungicide; See product label for a complete list of uses and use sites.  
**Restrictions on Use:** See product label for any restrictions on the use of this product.  
**Chemical Family:** Triazole  
**Chemical Name of Active Ingredient(s):** Propiconazole (1-[ [2-(2,4-dichlorophenyl)-4-propyl-1,3-dioxolan-2-yl]methyl] ]-1,2,4-triazole  
**Manufactured for:** Control Solutions, Inc.  
5903 Genoa-Red Bluff  
Pasadena, TX 77507

**FOR FIRE, SPILL, AND/OR LEAK EMERGENCIES CONTACT: CHEMTREC 1-800-424-9300**

**FOR MEDICAL EMERGENCIES AND HEALTH AND SAFETY INQUIRIES CONTACT: Safety Call 1-866-897-8050**

### SECTION 2: HAZARD(S) IDENTIFICATION

**EMERGENCY OVERVIEW:** Clear yellow liquid with a slight solvent odor. Thermal decomposition may produce toxic carbon and nitrogen oxides and hydrogen chloride.

#### OSHA HCS CLASSIFICATION (29 CFR 1910.1200)

Acute Inhalation Toxicity	Category 4
---------------------------	------------

**Signal Word:** WARNING



**Hazard Statement(s):** Harmful if inhaled.

**Precautionary Statement(s):**

- Prevention:** Avoid breathing mist/vapors/spray. Use only outdoors or in a well ventilated area.
- Response:** **IF INHALED:** Remove person to fresh air and keep comfortable for breathing. Call a poison center/doctor if you feel unwell.
- Storage:** No statement required. See section 7 for storage information.
- Disposal:** No statement required. See section 13 for disposal information.

### SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS Number	Weight %
Propiconazole	60207-90-1	14.3%

\*Ingredients not listed or listed with a weight % range are considered a trade secret and are withheld under 29 CFR 1910.1200(i).

SECTION 4: FIRST AID MEASURES	
<b>IF IN EYES:</b>	Hold eye open and rinse slowly and gently with water for 15 to 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.
<b>IF ON SKIN:</b>	Take off contaminated clothing. Rinse skin immediately with plenty of water for 15 to 20 minutes. Call a poison control center or doctor for treatment advice.
<b>IF INHALED:</b>	Move person to fresh air. If person is not breathing, call 911 or an ambulance; then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or doctor for further treatment advice.
<b>IF INGESTED:</b>	Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give anything by mouth to an unconscious person.

**Note to Physician:** There is no specific antidote for this product. Induce emesis or lavage stomach, taking care to avoid aspiration of stomach contents into lungs.

**Most important symptoms/effects, acute and delayed:** None known

**SECTION 5: FIRE-FIGHTING MEASURES**

**Suitable Extinguishing Media:** Foam, dry chemical, carbon dioxide or water spray  
**Unsuitable Extinguishing Media:** Water jet  
**Hazardous Combustion Products:** Thermal decomposition may produce toxic carbon and nitrogen, and hydrogen chloride.  
**Special Protective Equipment & Precautions:** Evacuate area and fight fire upwind from a safe distance to avoid hazardous vapors and decomposition products. Foam and/or dry chemical are preferred to minimize environmental contamination. If water is used, dike and collect water to prevent run-off. Wear self-contained breathing apparatus and full fire-fighting turn-out gear (Bunker gear).  
**Unusual Fire & Explosion Hazards:** None known

**SECTION 6: ACCIDENTAL RELEASE MEASURES**

**Personal Precautions:** See Section 8 for personal protection equipment.  
**Environmental Precautions:** Keep spilled material and any rinsate from contaminating soil or from entering sewage and drainage systems and bodies of water.  
**Methods for Containment:** Isolate the spill area. Keep unnecessary and unprotected personnel from entering. Absorb small spills with sand, vermiculite or other inert absorbent. Dike large spills using absorbent or impervious material such as clay or sand. Recover and contain as much free liquid as possible for reuse. Allow absorbed material to solidify and scrape up for disposal.  
**Methods for Clean-up:** Place contaminated material in appropriate container for disposal. After removal, flush contaminated area thoroughly with water. Pick up wash liquid with additional absorbent and place in a disposable container. Do not put spilled material back in the original container.  
**Other Information:** None known

**SECTION 7: HANDLING AND STORAGE**

**Handling:** RECOMMENDATIONS ARE INTENDED FOR MANUFACTURING, PACKAGING AND COMMERCIAL BLENDING WORKERS. PESTICIDE APPLICATORS AND WORKERS must refer to the product label and Directions for Use attached to the product for Agricultural Use Requirements in accordance with the EPA Worker Protection Standard 40 CFR part 170. Handle and open container in a manner as to prevent spillage. Do not eat, drink or smoke while handling this product. Immediately wash off accidental splashes of the concentrate or spray mixture from skin, clothing and out of eyes.

**Storage:** See pesticide label for full information on product storage. Do not contaminate water, food or feed by storage of this product. Store away from sources of heat, out of direct sunlight and away from incompatible materials. Pesticides should be stored in secured areas away from children and animals.

**Storage Temperature (Min/Max):** Do not store above 150°F or below 20°F.

**Product Incompatibilities:** Avoid contact with oxidizers.

**SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**

Users of a pesticide product must refer to the product label for personal protective equipment requirements.

**Exposure Guidelines:**

COMPONENT	OSHA PEL	ACGIH TLV	NIOSH REL
No components listed			

**Engineering Controls:** Provide general or local exhaust ventilation systems to maintain airborne concentrations below OSHA PELs or other specified exposure limits. Local exhaust ventilation is preferred.

**Respiratory Protection:** In areas of poor ventilation, use a NIOSH approved respirator with cartridges/canisters approved for pesticides.

**Eye Protection:** Chemical goggles or safety glasses and full-face shield.

**Protective Gloves:** Chemical-resistant gloves such as barrier laminate, butyl rubber, nitrile, neoprene rubber, polyvinyl chloride (PVC) or Viton.

**Other Protective Clothing:** Long-sleeved shirt, long pants and chemical resistant footwear plus socks.

**General Safety Measures:** Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet. Remove clothing immediately after handling this product. Wash outside of gloves before removing. Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them. Follow manufacturer's instructions for cleaning and maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

**SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES**

<b>Appearance:</b>	Clear yellow liquid	<b>Upper/Lower Flammability Limits:</b>	Not determined
<b>Odor:</b>	Slight solvent odor	<b>Vapor Pressure:</b>	Not determined
<b>Odor Threshold:</b>	Not determined	<b>Vapor Density:</b>	Not determined
<b>pH (1% dispersion):</b>	5.82 @ 25°C	<b>Relative Density (@24°C):</b>	1.08 (typical)
<b>Melting /Freezing Point:</b>	Not determined	<b>Solubility:</b>	Not determined
<b>Boiling Point/Range:</b>	Not determined	<b>Partition Coefficient:</b>	Not determined
<b>Flash Point:</b>	>230°F	<b>Auto-ignition Temperature:</b>	Not determined
<b>Evaporation Rate:</b>	Not determined	<b>Decomposition Temperature:</b>	Not determined
<b>Flammability:</b>	Not applicable	<b>Viscosity:</b>	138 cPs @ 24°C

**SECTION 10: STABILITY AND REACTIVITY**

<b>Reactivity:</b>	No hazardous chemical reactions known.
<b>Chemical Stability:</b>	Stable under normal storage and handling conditions.
<b>Possibility of Hazardous Reactions:</b>	No potential for hazardous reactions known.
<b>Conditions to Avoid:</b>	Excessive heat
<b>Incompatible Materials:</b>	Oxidizers
<b>Hazardous Decomposition Products:</b>	Thermal decomposition may produce toxic carbon and nitrogen, and hydrogen chloride.

**SECTION 11: TOXICOLOGICAL INFORMATION**

<b>Likely Routes of Exposure:</b>	Eye contact, Skin contact, Inhalation, Ingestion
<b>Symptoms of Exposure:</b>	No overt symptoms.
<b>Oral LD<sub>50</sub>:</b>	5,000 mg/kg (rat)
<b>Dermal LD<sub>50</sub>:</b>	>5,050 mg/kg (rat)
<b>Inhalation LC<sub>50</sub>:</b>	>2.10 mg/L (4-hour)(rat)
<b>Eye Irritation/Damage:</b>	No positive effects after 24 hours. Mildly irritating at 1 hour after treatment based upon a study in rabbits.
<b>Skin Corrosion/Irritation:</b>	No erythema or edema observed at any time after treatment based upon a study in rabbits.
<b>Skin Sensitization:</b>	Non-sensitizer
<b>Chronic/Subchronic Toxicity:</b>	No data available
<b>Mutagenicity:</b>	No data available
<b>Reproductive Toxicity:</b>	No data available
<b>Neurotoxicity:</b>	No data available
<b>Target Organs:</b>	No data available
<b>Aspiration Hazard:</b>	Not anticipated to be an aspiration hazard.
<b>Carcinogenicity:</b>	No anticipated carcinogenic effects.

Chemical Name	ACGIH	IARC	NTP	OSHA
No components listed				

**SECTION 12: ECOLOGICAL INFORMATION**

**Environmental Hazards Statement from FIFRA Regulated Pesticide Label:**

This pesticide is toxic to fish. Do not apply directly to water, to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwater.

**ECOTOXICITY DATA:**

Data presented below is on the propiconazole technical product.

**Fish Toxicity:**

Rainbow trout: 96-hour LC<sub>50</sub> = 850 ppb

Fathead minnow: Early life stage chronic study NOAEC = 95 ppb

**Aquatic Invertebrate Toxicity:**

*Daphnia magna*: 96-hour LC<sub>50</sub> = 4800 ppb

Mysid shrimp: 96-hour LC<sub>50</sub> = 510 ppb

Mysid shrimp: Life cycle NOAEC = 205 ppb

**Aquatic Plant Toxicity:**

Duckweed (*Lemna gibba*): EC<sub>50</sub> = 4828 µg/L; NOAEC/EC<sub>05</sub> <2540 µg/L

**Avian Toxicity:**

Bobwhite quail: LD<sub>50</sub> = 2825 mg/kg bwt; NOAEC = 1000 mg/kg diet

**Honeybee Toxicity:**

No data available

**ENVIRONMENTAL EFFECTS:**

**Persistence and Degradability:** No data available

**Bioaccumulation:** No data available

**Mobility:** No data available

**Other Adverse Effects:** No data available

**SECTION 13: DISPOSAL CONSIDERATIONS**

**Waste Disposal:** Refer to the pesticide label for full information on disposal. Pesticide wastes are toxic. Improper disposal of unused pesticide, spray mixture, or rinse water is a violation of Federal law. If these wastes cannot be used according to label instructions, contact your State Pesticide or Environmental Control Agency or the Hazardous Waste representative at the nearest EPA Regional Office for guidance in proper disposal methods.

**Container Disposal:** Refer to the pesticide label for full information on disposal. When possible, triple rinse the container and offer for recycling if available.

**RCRA Characteristics:** It is the responsibility of the individual disposing of this product to determine the RCRA classification and hazard status of the waste.

**SECTION 14: TRANSPORTATION INFORMATION**

**DOT (Ground):** Not regulated

**IMDG (Sea):** UN3082, Environmentally hazardous substance, liquid, n.o.s. (Propiconazole), 9, PGIII

**IATA (Air):** UN3082, Environmentally hazardous substance, liquid, n.o.s. (Propiconazole), 9, PGIII

**SECTION 15: REGULATORY INFORMATION**

**Labeling Requirements Under FIFRA:** This chemical is a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets and for workplace labels of non-pesticide chemicals. Following is the hazard information as required on the pesticide label:

**CAUTION**

Harmful if swallowed. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, or using tobacco.

**TSCA Inventory:** This product is exempt from TSCA inventory listing requirements as it is solely for FIFRA regulated use.

**SARA Title III Information:**

**Section 302 – Extremely hazardous substances:** None

**Section 311/312 – Hazard Categories:** Acute (Immediate)

**Section 313** – This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372:

Chemical Name	CAS Number	Weight %	SARA 313 – Threshold Values (lbs)
Propiconazole	60207-90-1	14.3	10,000

**CERCLA** – This product contains the following chemicals which have a reportable quantity (RQ) under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA):

Chemical Name	CAS Number	RQ	Quantity of Finished Product
None listed			

**CALIFORNIA PROPOSITION 65:**

Chemical Name	CAS Number	Prop 65 Category(ies)
None listed		

**U.S. STATE RIGHT-TO-KNOW REGULATIONS:**

Chemical Name	New Jersey	Massachusetts	Pennsylvania
Propiconazole	X		

**SECTION 16: OTHER INFORMATION**

<b>NFPA</b>	<b>Health Hazards 2</b>	<b>Flammability 1</b>	<b>Instability 0</b>	<b>Special Hazards – None</b>
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**Disclaimer:** Control Solutions, Inc. believes the information presented herein is accurate and correct as of the document date. The presented information is based upon available data from reliable sources. Control Solutions, Inc. makes no warranty, express or implied, regarding the accuracy of the data or the results obtained from the use of this product. Nothing herein may be construed as recommending any practice or any product in violation of any law or regulations. The user is solely responsible for determining the suitability

## Quali-Pro Propiconazole 14.3 Fungicide

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Revision Date: October 9, 2015

of any material or product for a specific purpose and for adopting any appropriate safety precautions. We disclaim all liability for injury or damage stemming from any improper use of the material or product described herein.

**Revision Date:** October 9, 2015  
**Document Superseded:** January 8, 2015  
**Revision Note:** Update to SDS format

# Mosquito Free®

Mosquito Free® can be used year round (southern states). Product does not cause discoloration. Mosquito Free® is not a larvicide and is intended to rid adult mosquitoes with proper use. Not for use on edible crops. Visit our website for frequently asked questions at [www.gardengirlsrepellents.com](http://www.gardengirlsrepellents.com).

## Directions:

**300 Gallon Truck Tanks:** Fill tank half with water then add product to avoid foaming. Then add remaining water. Use entire bottle to make 300 gallons. Smaller tanks adjust accordingly at 12oz per 100 gallons. No more than 100 psi (pounds of pressure) to avoid drift. Use 25-40 gallons of RTU product per acre depending on saturation. See section below for further instructions.

**Mist Blowers/3 Gallon Backpack Sprayers:** Add 1 oz to make 3 gallons. Shake well. This bottle will make 108 gallons of RTU product when spraying with this method. We recommend spraying under shrubs, wood piles, leafy areas and anywhere on property where it is shaded and moist. Spray into trees up and under the leaves where mosquito hide during the day. Can also be sprayed directly on swing sets, patios and stone walls. Apply product every 21-30 days. If infestation is severe, apply more often to gain control then resume to 21-30 days in between applications.

**Do not dilute more than recommended for initial or maintenance applications.** You can use more product per gallon for heavily infested areas. This will lower your total gallon production. Allow up to 1 hour or more for drying time. Product is hazardous to aquatic life. Do not spray into any body of water. Do not apply this product if bees or other pollinators are foraging in the treatment area. We do not recommend mixing any product with Mosquito Free.

**Dispose** empty container according to your states requirements for non-hazardous material. **Store** in a cool dry location away from sunlight and heat source. Unused/unmixed product can be stored for 2 years. Do not store below freezing temps.

This product is not registered with US EPA. Garden Girls Repellents™ LLC represents that this product qualifies for 25(b) exemption under FIFRA.

**CAUTION:** Eye protection & gloves recommended. Long sleeves and long pants recommended to avoid excess skin exposure.

**First Aid:** In case of eye contact flush thoroughly with water. Prolonged skin exposure wash with soap and water. If swallowed, seek immediate medical attention. **KEEP OUT OF REACH OF CHILDREN AND PETS.**

Manufactured by:  
Garden Girls Repellents LLC  
55 Triangle Street, Unit B  
Danbury, CT 06810  
(888)864-8815



Net Contents: 36 Fl. oz. Concentrate

# Mosquito Free<sup>®</sup>

**Mosquito Free<sup>®</sup> is not a larvicide  
and is used to target adult mosquitoes.  
For best results read the directions.**

<b>Active Ingredients:</b>	<b>80.0%</b>	<b>Inert Ingredients:</b>	<b>20%</b>
Cedarwood Oil	65.8%	Ethyl Lactate,	
2 Phenylethyl Propionate	14.2%	Potassium sorbate, Soap,	



**NET CONTENTS 36 FL.OZ  
CONCENTRATE**

Name of this product is for branding purposes and does not dictate the efficacy of the product.



For residential & commercial use.



**CAUTION  
KEEP OUT OF REACH OF CHILDREN**

# Mosquito Free

## By Garden Girls Repellents LLC - Safety Data Sheet (SDS)

### Section 1: Product and Company Information


**Product Family:**  
**Trade Names:**  
**Recommended Uses:**  
**Prepared By:**

Garden Girls Repellents LLC. P.O. Box 735 Hawleyville, CT 06440 (888)864-8815  
Organic Compound  
Mosquito Free - Natural Insect Control Concentrate. **Other Means of Identification:** Minimum Risk Pesticide  
Pesticide  
Tyme Technologies LLC

**Emergency Phone Number**  
Garden Girls Repellents LLC. (888)864-8815 (M-F 7:30 AM – 5:00 PM)  
CHEMTREC (800)424-9300

### Section 2: Hazard Identification

EMERGENCY OVERVIEW			
<b>GHS CLASSIFICATION</b>	Non-hazardous	<b>HMIS</b>	
<b>Physical State</b>	Liquid	<b>HEALTH</b>	1
<b>Color</b>	Typically clear, amber liquid	<b>FLAMMABILITY</b>	1
<b>Odor</b>	Mildly alcoholic	<b>PHYSICAL HAZARD</b>	0
		<b>PERSONAL PROTECTION</b>	See Section 8
		<b>AQUATIC HAZARD</b>	See Section 12



**Primary Routes of Exposure** Eyes, skin contact and inhalation  
**Potential Health Effects**  
**Acute Effects**  
**Inhalation** Not categorized. Possible respiratory tract irritation.  
**Skin contact** Not categorized. Possible skin irritation.  
**Eye contact** Not categorized. Possible eye irritation  
**Ingestion** Not categorized. Possible digestive tract irritation.  
**Chronic effects** Ongoing exposure may aggravate acute effects  
**Carcinogenicity** See Section 11  
**Medical conditions aggravated by long term exposure** Ongoing exposure may aggravate acute effects .

### Section 3: Composition/Information on Ingredients

<u>Component</u>	<u>CAS Number</u>
Cedarwood Oil	68990-83-0
2 Phenylethyl Propionate	122-70-3

### Section 4: First Aid Measures

**Skin Contact:** Wash with soap and water. Get medical attention if irritation develops or persists.  
**Eye Contact:** Flush eyes with plenty of water. Get medical attention if irritation develops or persists.  
**Inhalation:** Remove to fresh air. Get medical attention if you feel unwell.  
**Ingestion:** Do not give liquids to an unconscious person. Dilute with water or milk. Get immediate medical attention.

### Section 5: Fire Fighting Measures

Use water fog, dry chemical, carbon dioxide or foam as appropriate for materials in surrounding fire. Use direct streams of water to cool containers exposed to fire. See NFPA Bulletin 654, "Standard for the Prevention of Fire and Dust Explosions from the Manufacturing Processing, and Handling of Combustible Particulate Solids," for safe handling procedures. As in any fire, wear NIOSH/MSHA approved positive pressure self-contained breathing apparatus and full protective clothing.

### Section 6: Accidental Release Measures

Refer to Section 8: Exposure Control and Personal Protection

**Emergency Action:**  
No special environmental precautions required.

**Spill/Leak Procedure:**  
Adsorb on an inert material like kitty litter. Sweep up or gather material and place in appropriate container for disposal.

# Safety Data Sheet (SDS)

## Section 7: Handling and Storage

Refer to Section 8: Exposure Control and Personal Protection

**Handling:** Keep away from heat, flame and strong oxidizing agents.

**Storage:** Keep away from heat, sparks, and flame. Store in a cool place in original container away from window or direct sun light. Do not store below freezing conditions.

## Section 8: Exposure Control and Personal Protection

### Engineering Controls:

Use recommended safe handling practices to minimize unnecessary exposure. General room ventilation is adequate for storage and ordinary handling. Use local exhaust at points of fume generation.

### Personal Protective Equipment:

Wear safety glasses or chemical goggles to prevent eye contact. Have eye-washing facilities or portable eye wash readily available where eye contact can occur. Wear impervious gloves and protective clothing to prevent prolonged skin contact. The use of NIOSH or MSHA approved respiratory equipment is not required.

## Section 9: Physical and Chemical Properties

<b>Boiling Point:</b>	Not determined	<b>Vapor Density (Air = 1):</b>	Not applicable
<b>Specific Gravity (@ 23°C):</b>	Not determined	<b>Soluble (% in Water):</b>	100% Soluble in water.
<b>Melting Point:</b>	Not determined	<b>Appearance:</b>	Liquid
<b>Evaporation Rate:</b>	Not determined	<b>Odor:</b>	Characteristic
<b>Vapor Pressure:</b>	Not determined	<b>pH:</b>	Not applicable
<b>Odor Threshold:</b>	Not determined	<b>Auto Ignition Temperature:</b>	Not determined
<b>Solubility:</b>	Soluble	<b>Viscosity (SUS @ 100°F):</b>	Not determined
<b>Decomposition Temperature:</b>	Not determined	<b>Flash Point:</b>	Not determined
<b>Flammability Limits in Air (% by Volume)</b>		<b>Lower:</b> Not determined	<b>Upper:</b> Not determined

## Section 10: Stability and Reactivity

**Reactivity:** Not reactive under normal conditions of storage and use.

**Chemical Stability:** Stable under normal conditions of storage and use. Avoid exposure to open flame or exceeding recommended processing conditions.

**Stability/Incompatibility:** Avoid contact with strong oxidizers, strong acids or flammable materials.

**Conditions to Avoid:** Avoid contact with incompatible materials such as oxidizing agents.

### Hazardous Reactions/Decomposition Products:

Material does not decompose at ambient temperatures. Combustion or high heat may produce thermal decomposition products that may include carbon monoxide, carbon dioxide, dense smoke, and other toxic vapors.

## Section 11: Toxicological Information

**Likely Routes of Exposure:** Eye, skin contact, and inhalation.

**Acute Effects:** Irritation of eye, skin, digestive and respiratory tracts.  
Oral toxicity LD50 - Not available; component LD50s are high  
Inhalation Toxicity LD50 - Not available.

**Chronic Effects:** None known.

**Symptoms:** Irritation of eyes, skin and digestive or respiratory tract.

**Carcinogenicity:** This product has not been found to be carcinogenic by the NTP, ACGIH, IARC or OSHA.

**Further information** This product has no known adverse effect on human health.

## Section 12: Ecological Information

**Aquatic Toxicity:** Toxic to aquatic life with long lasting effects. Do not spray this product in any body of water.

**Ecotoxicity:** No known or expected ecotoxicity. Not recommended where pollinators are foraging.

**Persistence and Biodegradability:** Not determined.

**Bio accumulative Potential:** Not determined.

**Mobility in Soil:** Not determined

## Section 13: Disposal Consideration

Dispose of this product in compliance with all applicable federal, state and local regulations. The unused product is not specifically listed by EPA as a hazardous waste (40 CFR, Part 261D), nor is it formulated with materials which are listed as hazardous wastes. It does not exhibit the hazardous characteristics of ignitability, corrosivity or reactivity and is not formulated with contaminants as determined by the Toxicity Characteristic Leaching Procedure (TCLP).

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## Section 14: Transport Information

D.O.T. 49 CFR 172.101:

TDG:

UN Proper Shipping Name/Number:

IMDG:

IATA:

Refer to Section 6: Accidental Release Measures

Not regulated

Not regulated

Not regulated

Not regulated

Not regulated

## Section 15: Regulatory Information

### SARA TITLE III Information:

Hazard categories for the Superfund Amendments and Reauthorization Act (SARA) Section 302/304/313/CERCLA/CAA/TSCA NA. For 311/312:

Immediate Hazard: No

Delayed Hazard: No

Fire Hazard: No

Pressure Hazard: No

Reactivity Hazard: No

## Section 16: Other Information

**Notice:** The information presented herein is based on data considered to be accurate as of the date of preparation of this Safety Data Sheet; however, no warranty or representation, expressed or implied, is made as to the accuracy or completeness of the foregoing data and safety information, nor is any authorization given or implied to practice any patented invention without a license. In addition, no responsibility can be assumed by vendor for any damage or injury resulting from abnormal use, from any failure to adhere to recommended practices, or from any hazards inherent in the nature of the product.

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