

**1. IDENTIFICATION**

Product name: **Farewell**  
 Chemical name of active ingredient(s): Pyriproxyfen: 2-[1-methyl-2-(4-phenoxyphenoxy)ethoxy]pyridine  
 Manufacturer: Makhteshim Agan of North America, Inc.  
 3120 Highwoods Boulevard, Suite 100  
 Raleigh, NC 27604  
 Phone: 1-919-256-9300  
 For fire, spill, and/or leak emergencies, contact Infotrac: Phone: 1-800-535-5053  
 For medical emergencies and health and safety inquiries, contact Prosar: Phone: 1-877-250-9291

**2. COMPOSITION/INFORMATION ON INGREDIENTS**

CHEMICAL NAME	CAS NO.	%	ACGIH/TLV	OSHA/PEL	OTHER	NTP/IARC/OSH A (Carcinogen)
Pyriproxyfen	95737-68-1	10-12	NE	NE	NE	NA
Heavy aromatic petroleum hydrocarbons	64742-94-5	45-52	525 mg/m <sup>3</sup> (TWA)	NE	NE	NA
Contains Naphthalene (% of total)	91-20-3	4-6	10 ppm (TWA) 15 ppm (STEL) (Skin-potential for absorption)	10 ppm (TWA) 15 ppm (STEL) 50 mg/m <sup>3</sup> (TWA) 75 mg/m <sup>3</sup> (STEL)	NA	NTP – 2* IARC – 2B**

NE: Net established. NA: Not applicable

\* Substances that may reasonably be anticipated to be carcinogens.

\*\* Substance is possibly carcinogenic to humans.

**3. HAZARDS IDENTIFICATIONS****PHYSICAL PROPERTIES:**

**Appearance:** Pale yellowish, clear liquid

**Odor:** Mild aromatic

**EMERGENCY OVERVIEW:** CAUTION Causes skin and eye irritation. Do not get on skin, in eyes or on clothing. Harmful if inhaled swallowed or absorbed through skin. Avoid contact with skin, eyes or clothing. Avoid breathing vapor or spray mist. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash clothing before reuse.

**SYMPTOMS OF EXPOSURE:** The acute toxicity of this product is relatively low; transient, minimal signs of toxicity were observed in animals at high oral doses. This product contains a solvent mixture. Solvents, when inhaled, can cause nasal and respiratory irritation and central nervous system effects including dizziness, weakness, fatigue, nausea, headache and possibly unconsciousness and even death. Ingestion of solvents can cause gastrointestinal irritation, nausea, vomiting and diarrhea. Aspiration of low viscosity solvents can cause chemical pneumonitis which can be fatal.

**POTENTIAL HEALTH EFFECTS:**

**EYE:** This product can cause brief and/or minor eye irritation. The expected adverse health effects resulting from an exposure may include redness and possible swelling.

**SKIN:** This product can cause moderate skin irritation. The expected adverse health effects resulting from an exposure may include redness and swelling. This product is slightly toxic when absorbed through the skin. This product is not expected to cause allergic skin reactions.

**INGESTION:** This product is slightly toxic when ingested. Ingestion of this product may cause gastrointestinal irritation, nausea, vomiting and diarrhea. Because of the low viscosity of this substance, it can directly enter the lungs if it is swallowed (this is called aspiration). This can occur during the act of

swallowing or when vomiting the substance. Once in the lungs, the substance is very difficult to remove and can cause injury to the lungs and death.

**INHALATION:** This product is minimally toxic when inhaled.

**SYMPTOMS OF OVEREXPOSURE:** Exposure to high concentrations in the air may result in respiratory irritation. Signs and symptoms may include, but not be limited to, nasal discharge, sore throat, coughing and difficulty in breathing.

**POTENTIALLY AGGRAVATED MEDICAL CONDITIONS:** Individuals with preexisting diseases of the liver, kidney, red blood cell or central nervous system may have increased susceptibility to the toxicity of excessive exposures.

**4. FIRST AID MEASURES**

<b>FIRST AID</b>	
<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>
<b>IF SWALLOWED:</b>	<ul style="list-style-type: none"> <li>• Immediately call a poison control center or doctor.</li> <li>• Do not induce vomiting unless told to do so 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 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>
<p><b>NOTE TO PHYSICIANS:</b> If ingested probably mucosal damage may contraindicate the use of gastric lavage. This product contains a light hydrocarbon liquid, ingestion or subsequent vomiting can result in aspiration of this product which can cause pneumonitis.</p>	
<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>	

**5. FIRE FIGHTING MEASURES**

**FLASH POINT:** 152°F (Seta Flash Closed Cup)

**FLAMMABLE LIMITS:** Not available.

**EXTINGUISHING MEDIA:** Water fog, carbon dioxide, foam, dry chemical

**FIRE FIGHTING INSTRUCTIONS:** Product combustion from fires involving this material may be toxic. Avoid breathing smoke and mists. Avoid personnel and equipment contact with fallout and runoff. Minimize the amount of water used for fire fighting.

**FIRE-FIGHTING EQUIPMENT:** Do not enter any enclosed area without full protective equipment. Including self-contained breathing equipment. Contain and isolate runoff and debris for proper disposal. Decontaminate personal protective equipment and fire fighting equipment before reuse.

**HAZARDOUS COMBUSTION PRODUCTS:** Normal combustion forms carbon dioxide, water vapor and may produce: oxides of nitrogen. Incomplete combustion can product carbon monoxide.

**6. ACCIDENTAL RELEASE MEASURES**

**ACTION TO TAKE FOR SPILLS/LEAKS: For spills on land:** Avoid runoff into storm sewers and ditches which lead to waterways. Contain spilled liquids with dry sorbents. **Cleanup:** Clean up spill immediately. Absorb spill with inert material (such as dry sand or earth), then place in a chemical waste container. Wash area with soap and water. Pick up wash liquid with additional absorbent and place in a chemical waste container. **For spills in water: Containment:** This material forms an emulsion in water. Stop or reduce contamination of any water. Isolate contaminated water. **Cleanup:** Clean up spill immediately. Absorb spill with inert material. Remove contaminated water for treatment or disposal.

## 7. HANDLING AND STORAGE

**PRECAUTIONS TO BE TAKEN IN HANDLING:** Do not use or store near flame, sparks or hot surfaces. Use only in well ventilated area. Keep container closed. Do not weld, heat or drill container, Replace cap or bung. Emptied container still contains hazardous or explosive vapor or liquid.

**PRECAUTIONS TO BE TAKEN IN STORAGE:** Store in a cool, dry place, out of direct sunlight. Keep pesticide in original container. Keep container closed when not in use. Do not put concentrate or dilute into food or drink containers. Not for use or storage in or around the home.

**STORAGE TEMPERATURE (MIN/MAX):** Normal ambient temperature.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

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

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

**SKIN PROTECTION:** Wear long-sleeved shirt and long pants, socks and shoes.

**EYE PROTECTION:** Wear goggles or face shield during mixing/loading, cleanup and repair activities.

**HAND PROTECTION:** Chemical-resistant gloves, such as barrier laminate or Viton selection category G.

**RESPIRATOR REQUIREMENTS:** Atmospheric levels should be maintained below the exposure guidelines. When respiratory protection is required, use a NIOSH approved respirator with any R, P, or HE filter.

**ADDITIONAL PROTECTIVE MEASURES:** 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.

### **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 clothing immediately after handling this product. Wash outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

**EXPOSURE GUIDELINES:** Refer to Section 2.

**ENGINEERING CONTROLS:** Refer to product label.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**APPARANCE:** Pale yellowish, clear liquid

**ODOR:** Mild aromatic

**pH:** 5.7 (10% dispersion)

**BULK DENISTY:** 7.65 lbs./gal. @20°C

**FLASH POINT:** 152°F (Seta Flash Closed Cup)

**VISCOSITY (Centipoise):** 18.5 cps

**SOLUBILITY:** Emulsifiable in water

## 10. STABILITY AND REACTIVITY

**CHEMICAL STABILITY:** Stable at normal ambient temperatures.

**SPECIFIC MATERIALS TO AVOID:** None known.

**HAZARDOUS DECOMPOSITION PRODUCTS:** Normal combustion forms carbon dioxide, water vapor and may produce: oxides of nitrogen. Incomplete combustion can product carbon monoxide.

**HAZARDOUS POLYMERIZATION:** Not known to occur.

**11. TOXICOLOGICAL INFORMATION****ACUTE TOXICITY/IRRITATION STUDIES**

Acute Oral LD50 (Rat):	4,733 mg/kg (males); 3,773 mg/kg (females)
Acute Dermal LD50 (Rat):	>2,000 mg/kg
Acute Inhalation LC50 (Rat):	3.1 mg/L (4-hr)
Eye Irritation (Rabbit):	Moderately irritating.
Dermal Irritation (Rabbit):	Moderately irritating.
Dermal Sensitization (Guinea Pig):	Not a skin sensitizer

**TOXICITY OF PYRIPROXYFEN TECHNICAL:****SUBCHRONIC TOXICITY:**

Subchronic oral toxicity studies conducted with Pyriproxyfen Technical in the rat, mouse and dog indicate a low level of toxicity. Effects observed at high dose levels consisted primarily of decreased body weight; increased liver weights; histopathological changes in the liver and kidney; decreased red blood cell counts, hemoglobin and hematocrit; altered blood chemistry parameters; and, at 5000 and 10000 ppm in mice, a decrease in survival rates. The NOELs from these studies were 1000 ppm (149.4 mg/kg/day) in mice, 100 mg/kg/day in dogs and 400 ppm (23.5 mg/kg/day) in rats.

In a 4 week inhalation study of Pyriproxyfen Technical in rats, decreased body weight and increased water consumption was observed at 1000 mg/m<sup>3</sup>. The NOEL in this study was 482 mg/m<sup>3</sup>.

A 21-day dermal toxicity study in rats with Pyriproxyfen Technical did not produce any signs of dermal or systemic toxicity at 1000 mg/kg/day.

**CHRONIC/CARCINOGENICITY:**

Pyriproxyfen Technical has been tested in chronic studies with dogs, rats and mice. Dogs exposed to dose levels of 300 mg/kg/day or higher for 52 weeks showed overt clinical signs of toxicity, elevated levels of blood enzymes and liver damage. The NOEL in this study was 100 mg/kg/day. In a 78 week study in mice, dietary levels of 3000 ppm or greater produced gross and histopathological changes in the kidney. The NOEL in this study was 600 ppm. In a 2-year study in rats, dietary levels of 3000 ppm or greater produced decreased body weights in female rats. The NOEL in the rat study was 600 ppm. No oncogenic response was produced in mice or rats.

This product is not listed as a carcinogen by the National Toxicology Program (NTP), the International Agency for Research on Cancer (IARC), or the Occupational Safety and Health Administration (OSHA).

**TERATOLOGY/DEVELOPMENTAL TOXICITY:**

Tests for developmental toxicity in rats and rabbits were conducted with Pyriproxyfen Technical. In the study conducted with rats, maternal toxicity (mortality, decreased body weight gain and food consumption and clinical signs of toxicity) was observed at doses of 300 mg/kg/day and greater. The maternal NOEL was 100 mg/kg/day. A transient increase in skeletal variations was observed in rat fetuses exposed to 300 mg/kg/day and greater. The NOEL for prenatal developmental toxicity was 100 mg/kg/day. An increased incidence of visceral and skeletal variations was observed postnatally at 1000 mg/kg/day. The NOEL for postnatal developmental toxicity was 300 mg/kg/day. In the study conducted with rabbits, maternal toxicity (clinical signs of toxicity including one death, decreased body weight gain and food consumption, and abortions or premature deliveries) was observed at oral doses of 300 mg/kg/day or higher. The maternal NOEL was 100 mg/kg/day. No developmental effects were observed in the rabbit fetuses. The NOEL for developmental toxicity in rabbits was 1000 mg/kg/day.

**REPRODUCTION TOXICITY:**

A dietary rat reproduction study was conducted with Pyriproxyfen Technical. Systemic toxicity (reduced body weights, histopathological changes in the liver and kidney, and increased liver weight) was produced at 5000 ppm. The systemic NOEL was 1000 ppm. No effects on reproduction were produced even at 5000 ppm, the highest dose tested.

**MUTAGENICITY:**

Pyriproxyfen Technical was negative in the following tests for mutagenicity: Ames Assay with and without S9, unscheduled DNA synthesis in HeLa S3 cells, in vitro gene mutation in V79 Chinese hamster cells, and in vitro chromosomal aberration in Chinese hamster ovary cells.

**TOXICITY OF OTHER INGREDIENTS:**

This product contains a solvent. Solvents, when inhaled, can cause nasal and respiratory irritation and central nervous system effects including dizziness, weakness, fatigue, nausea, headache and possibly unconsciousness and even death. Ingestion of solvents can cause gastrointestinal irritation, nausea, vomiting and diarrhea. Prolonged or repeated dermal exposures may cause drying, scaling and even blistering of the skin. Aspiration of low viscosity products can cause chemical pneumonitis which can be fatal. Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage. Systems include fatigue, concentration difficulties, anxiety, depression, rapid mood swings and short-term memory loss. The reports are not clear with regard to the types of solvents that may cause these symptoms, and there is controversy among scientists to weather the condition exists or is caused by this type of product. Since many other disease cause some or all of these conditions, a doctor should be consulted if hemolytic anemia, damage to the kidneys, cataracts, and, in infants, brain damage. There is limited evidence of fetal and maternal toxicity from exposure to naphthalene.

Chronic (long-term) exposure of workers and rodents to naphthalene has been reported to cause cataracts and damage to the retina. Lesions in the kidneys and thymus, signs of anemia, and reduced spleen weights have been observed in rats and mice chronically exposed via gavage. A National Toxicology Program (NTP) report states that lifetime inhalation exposure to naphthalene resulted in increases in tumors of the nose in rats. In another NPT study, lifetime inhalation exposure to naphthalene increased lung tumors in female mice. The relevance of the rodent findings to humans is unknown. Naphthalene has been listed by the International Agency for Research on Cancer (IARC) as possibly carcinogenic to humans (Group 2B).

**12. ECOLOGICAL INFORMATION**

**ENVIRONMENTAL HAZARDS:** This pesticide is toxic to fish, aquatic 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 washwaters or rinsate. Avoid direct application and/or spray drift to beehives.

**AVIAN TOXICITY:** Pyriproxyfen Technical is practically non-toxic to avian species. Test results include:

- Oral LD<sub>50</sub> mallard duck: greater than 2000 mg/kg
- Oral LD<sub>50</sub> bobwhite quail: greater than 2000 mg/kg
- Dietary LC<sub>50</sub> mallard duck: greater than 5200 ppm
- Dietary LC<sub>50</sub> bobwhite quail: greater than 5200 ppm
- Reproduction bobwhite quail: NOEC = 600 ppm
- Reproduction mallard duck: NOEC = 600 ppm

**AQUATIC ORGANISM TOXICITY:** Pyriproxyfen Technical is moderately to highly toxic to fish and moderately to very highly toxic to aquatic invertebrate species. Test results include:

**Freshwater species:**

- LC<sub>50</sub> (96 hr) Bluegill Sunfish: greater than 270 ug/l
- LC<sub>50</sub> (96 hr) Rainbow Trout: greater than 325 ug/l
- LC<sub>50</sub> (21 day) Rainbow Trout: 90 ug/l
- LC<sub>50</sub> (96 hr) Carp: 450 ug/l
- LC<sub>50</sub> (96 hr) Killifish: 2660 ug/l
- EC<sub>50</sub> (48 hr) Daphnia magna: 400 ug/l
- MATC (21 day) Daphnia magna: 20 ppt
- MATC (Early Life Cycle) Rainbow Trout: 5.4 ug/l

**Estuarine species:**

- LC<sub>50</sub> (96 hr) Sheepshead Minnow: greater than 1.02 ppm
- LC<sub>50</sub> (96 hr) Mysid Shrimp: 65 ppb
- EC<sub>50</sub> (96 hr) Oyster Shell Deposition: 92 ppb

**OTHER NON-TARGET ORGANISM TOXICITY:** Pyriproxyfen Technical is practically non-toxic to bees. The acute contact LC<sub>50</sub> in bees was greater than 100 ug/bee.

**13. DISPOSAL CONSIDERATIONS**

**PESTICIDE DISPOSAL:** Open dumping is prohibited. Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal law. If these wastes cannot be disposed of by use

MATERIAL SAFETY DATA SHEET

**FAREWELL**

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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:** Dispose of product containers, waste containers, and residues according to label instructions and local, state, and federal health and environmental regulations.

**14. TRANSPORT INFORMATION**

**DOT CLASSIFICATION:**

**Non-bulk :** Not Regulated

**Bulk :** NA 1993, Combustible Liquid (contains hydrocarbon solvent), PG III

**INTERNATIONAL TRANSPORTATION**

**IMO (vessel):** UN 3082, Environmentally hazardous substances, liquid, N.O.S. (pyriproxyfen), 9, PG III, Marine Pollutant

**IATA (air):** UN 3082, Environmentally hazardous substances, liquid, N.O.S. (pyriproxyfen), 9, PG III, Marine Pollutant

**15. REGULATORY INFORMATION**

**SARA TITLE III CLASSIFICATION:**

Section 302: Not applicable.

Section 311/312: Acute health hazard (immediate)

Chronic health hazard (delayed)

Fire hazard

Section 313: Naphthalene (4-6%) CAS#: 91-20-3

**CA PROPOSITION 65:** This product contains a material (naphthalene) known to the State of California to cause cancer.

**CERCLA RQ:** Naphthalene RQ=100 lbs. (267 gallon of product)

**RCRA CLASSIFICATION:** Under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste.

**TSCA STATUS:** The ingredients of this product are listed on the TSCA inventory or are exempt.

**16. OTHER INFORMATION**

<b>NFPA HAZARD RATINGS</b>	<b>NFPA</b>	<b>HMIS</b>		
<b>HEALTH:</b>	2	2	0	MINIMAL
<b>FLAMMABILITY:</b>	2	2	1	SLIGHT
<b>REACTIVITY:</b>	0	0	2	MODERATE
			3	HIGH
			4	SEVERE

**MSDS DATE:** 1-13-13.

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