

MATERIAL SAFETY DATA SHEET

**Terva™ 35 WP**

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**1. IDENTIFICATION**

Product name: **Terva™ 35 WP**  
 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/OSHA (Carcinogen)
Pyriproxyfen	95737-68-1	35	0.1 mg/m <sup>3</sup> (TWA)	NA	NA	NA
Kaolin	1332-58-7	11-12	2 mg/m <sup>3</sup> (respirable fraction)	15 mg/m <sup>3</sup> (total dust) 5 mg/m <sup>3</sup> (respirable fraction)	NA	NA
Amorphous Precipitated Silica	112926-00-8	38-40	10 mg/m <sup>3</sup>	80 mg/m <sup>3</sup> (%SiO <sub>2</sub> )	NA	NA
Particulates not otherwise classified		3-5	10 mg/m <sup>3</sup> (inhalable particulate) 3 mg/m <sup>3</sup> (respirable particulate)	15 mg/m <sup>3</sup> (total dust) 5 mg/m <sup>3</sup> (respirable fraction)	NA	NA

**3. HAZARDS IDENTIFICATIONS**

**PHYSICAL PROPERTIES:**

**Appearance:** Off-white powder

**Odor:** Not available

**EMERGENCY OVERVIEW:** CAUTION Causes moderate eye irritation. 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.

**POTENTIAL HEALTH EFFECTS:**

**Eye:** This product is expected to cause brief and/or minor eye irritation. The degree of injury will depend on the amount and duration of contact and the speed and thoroughness of the first aid treatment. The expected adverse health effects resulting from an exposure may include redness and possible swelling.

**Skin:** This product is expected to cause brief and/or minor irritation. The degree of injury will depend on the amount and duration of contact and the speed and thoroughness of the first aid treatment. The expected adverse health effects resulting from an exposure may include redness and possibly some minor swelling.

This product is not expected to cause allergic skin reactions.

This product has been shown to be minimally toxic when absorbed through the skin. The degree of injury will depend on the amount of material inhaled and the speed and thoroughness of the first aid treatment. The expected adverse systemic health effects are described above.

**Ingestion:** This product has been shown to be minimally toxic when ingested. The degree of injury will depend on the amount of material ingested and the speed and thoroughness of the first aid treatment. The expected adverse systemic health effects are described above.

**Inhalation:** This product has been shown to be minimally toxic when inhaled. The degree of injury will depend on the amount of material inhaled and the speed and thoroughness of the first aid treatment. The expected adverse systemic health effects are described above.

**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 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>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 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 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>
<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:** NA

**FLAMMABLE LIMITS:** NA

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

**FIRE & EXPLOSION HAZARDS:** 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:** Products of combustion from fires involving this product 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. 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. Read the entire document.

**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: CONTAINMENT:** Reduce airborne dust. Avoid runoff into storm sewers or other bodies of water.

**CLEANUP:** Clean up spill immediately. Vacuum or sweep up material and 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 will disperse or dissolve in water. Stop the source of the release. Contain and isolate to prevent further release into soil, surface water and ground water.

**CLEANUP:** Clean up spill immediately. Absorb spill with inert material. Remove contaminated water for treatment or disposal.

## 7. HANDLING AND STORAGE

**END USER MUST READ AND OBSERVE ALL PRECAUTIONS ON PRODUCT LABEL.**

**PRECAUTIONS TO BE TAKEN IN HANDLING:** Keep container closed when not in use. Handle and open container in a manner as to prevent spillage. Do not contaminate water, food or feed by storage, disposal or by cleaning equipment.

**PRECAUTIONS TO BE TAKEN IN STORAGE:** Do not store or transport near food or feed. Do not contaminate food or feed. Do not put concentrate into food or drink containers. Do not dilute concentrate in food or drink containers. Store in a cool, dry place, out of direct sunlight.

**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.**

**EYE PROTECTION:** Do not get this material in your eyes. Eye contact can be avoided by wearing protective eyewear.

**SKIN PROTECTION:** Avoid contact with skin or clothing. Skin contact should be minimized by wearing protective clothing including gloves.

**RESPIRATOR REQUIREMENTS:** Atmospheric levels should be maintained below the exposure limits. 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:** If operating conditions result in airborne concentrations of this material, the use of an approved respirator is recommended. Use adequate ventilation to keep the airborne concentration of this material below the recommended exposure standards.

**9. PHYSICAL AND CHEMICAL PROPERTIES****APPARANCE:** Off-white powder**ODOR:** Not available**pH:** 7.9 @24°C (1% suspension)**BULK DENISTY:** 11.6 lbs./cu. ft.**10. STABILITY AND REACTIVITY****CHEMICAL STABILITY:** Stable at normal ambient temperatures.**OXIDATION AND REDUCTION PROPERTIES:** Not reactive with water, monoammonium phosphate, zinc, and potassium permanganate.**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 LD<sub>50</sub> (Rat): > 5,000 mg/kgAcute Dermal LD<sub>50</sub> (Rat): > 5,000 mg/kgAcute Inhalation LC<sub>50</sub> (Rat): 2.13 mg/L (Dust from this product is also expected to be a respiratory irritant.)

Eye Irritation (Rabbit): Eye irritation reversible within 7 days.

Dermal Irritation (Rabbit): Mild or slight skin irritation at 72 hours.

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.

**12. ECOLOGICAL INFORMATION**

**ENVIRONMENTAL HAZARDS:** This pesticide is 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 high water mark. Drift and runoff from treated areas may be hazardous to aquatic organisms in neighboring areas. Do not contaminate water by 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:** Store in a cool dry place. 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.

**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:**

Not regulated.

**INTERNATIONAL TRANSPORTATION**

**IMO (vessel):** Not regulated.

**IATA (air):** Not regulated.

**15. REGULATORY INFORMATION**

**SARA TITLE III CLASSIFICATION:**

Section 302: Not applicable.

Section 311/312: Acute health hazard (immediate)

Chronic health hazard (delayed)

Section 313: Not applicable

**CA PROPOSITION 65:** Not applicable

**CERCLA RQ:** Not applicable

**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>HEALTH:</b>	0	0	MINIMAL
<b>FLAMMABILITY:</b>	1	1	SLIGHT
<b>REACTIVITY:</b>	0	2	MODERATE
		3	HIGH
		4	SEVERE

**MSDS DATE:** 2-1-12.

The information herein is given in good faith, but no warrant, express or implied, is made. Consult Makhteshim Agan of North America, Inc. for further information.