

PURSUIT™ 31-67 ULV

For use by federal, state, tribal, or local governmental officials responsible for public health or vector control, or by persons certified in the appropriate category or otherwise authorized by the state or tribal lead pesticide regulatory agency to perform adult mosquito control applications, or by persons under their direct supervision.

A Synergized Permethrin Formulation that Provides Quick Knockdown and Effective Control of Mosquitoes, Black Flies, Gnats, Biting and Non-Biting Midges as well as Other Biting Flies in Residential, Recreational, Urban, Rural, and Agricultural Areas where mosquitoes and flies are found. For use as a Spray by Air and Ground Application to Control Adult Mosquitoes, biting and non-biting midges, Gnats and black flies. ULV application provides excellent control at Rates from 0.001 Up to 0.007 Pounds Permethrin per Acre. May be Applied Undiluted or Diluted

ACTIVE INGREDIENTS:

Permethrin: (3-phenoxyphenyl) methyl (+/-) cis/trans 3-(2,2-dichloroethenyl) 2,2-dimethyl-cyclopropanecarboxylate, (+/-) cis (min) 35%, (+/-) trans (max) 65%.....	31.15%
Piperonyl Butoxide*	66.85%
OTHER INGREDIENTS	2.00%
TOTAL	100.00%

* (butylcarbityl)(6-propylpiperonyl) ether and related compounds

Contains 2.86 pounds of Permethrin and 6.13 pounds of Piperonyl Butoxide per gallon.

KEEP OUT OF REACH OF CHILDREN CAUTION

See [Side Panel] [Inside Attached Booklet] For Additional Precautionary Statements.

“PRECAUCION AL USUARIO: Si usted no lee inglés, no use este producto hasta que la etiqueta haya sido explicado ampliamente.”

FIRST AID	
If swallowed	<ul style="list-style-type: none">• 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 by mouth to an unconscious person.
If in eyes	<ul style="list-style-type: none">• 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	<ul style="list-style-type: none">• 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 or label with you when calling a poison control center or doctor, or going for treatment. Hotline Number: You may also contact SafetyCall® International (866) 897-8050 for emergency medical treatment information.	

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

CAUTION: Harmful if swallowed. Causes moderate eye irritation. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals. Avoid contact with skin or clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, or using the toilet.

ENVIRONMENTAL HAZARDS

This pesticide is extremely toxic to aquatic organisms, including fish and aquatic invertebrates. Runoff from treated areas or deposition of spray droplets into a body of water may be hazardous to fish and aquatic invertebrates.

Before making the first application in a season, it is advisable to consult with the state or tribal agency with primary responsibility for pesticide regulation to determine if other regulatory requirements exist.

Do not apply over bodies of water (lakes, rivers, permanent streams, natural ponds, commercial fish ponds, swamps, marshes or estuaries), except when necessary to target areas where adult mosquitoes are present, and weather conditions will facilitate movement of applied material away from the water in order to minimize incidental deposition into the water body. Do not contaminate bodies of water when disposing of equipment rinsate or washwaters.

This product 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 actively visiting the area, except when applications are made to prevent or control a threat to public and/or animal health determined by a state, tribal or local health or vector control agency on the basis of documented evidence of disease causing agents in vector mosquitoes or the occurrence of mosquito-borne disease in animal or human populations, or if specifically approved by the state or tribe during a natural disaster recovery effort.

PHYSICAL AND CHEMICAL HAZARDS

Do not use, pour, spill or store near heat or open flame.

DIRECTIONS FOR USE

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

While using or handling this product wear long sleeved shirt and long pants, socks, and shoes.

STORAGE AND DISPOSAL

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

Storage: Store product in its original labeled container in a cool, dry, locked place designated for such insecticides and out of reach of children. In case of spillage, soak up with absorbent material such as sawdust, or fullers earth; sweep up and place in a labeled container and dispose of as follows.

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: Nonrefillable container. Do not reuse or refill this container. Triple rinse (or equivalent) promptly after emptying. Triple rinse as follows:

For Containers equal to or less than 5 Gallons: 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 mineral oil 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. If recycling is not available then dispose of container in a sanitary landfill or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.

For Containers greater than 5 Gallons: 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 mineral oil. 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 back and forth several times. Turn the container over on its other end and tip 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, if available. If recycling is not available then dispose of container in a sanitary landfill or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.

For Bulk Containers: (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 the container into application equipment or mix tank. Fill the container about 10 percent full with mineral oil. Agitate vigorously or recirculate mineral oil with pump for 2 minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing process two more times.

CONDITIONS AND RATES TO USE FOR MOSQUITO CONTROL

PURSUIT™ 31-67 ULV is recommended for application as an Ultra Low Volume (ULV) Thermal or Non-thermal aerosol (cold fog) to control adult mosquitoes, and other insects as listed on this label, in residential and recreational areas where these insect pests become a problem; such as, but not limited to urban areas, commercial areas, woodlands, roadsides, parks, campsites, animal quarters, barns, woodlands, athletic fields, golf courses, residential areas, municipalities, gardens, playgrounds, recreational areas, non-crop waste areas, and over listed crops, range land, and pastures where mosquitoes and flies may be found. **PURSUIT™ 31-67 ULV** may also be applied to treat outdoor aggregation and harborage sites including storm drains, underground drainage pipes and pipe chases. For best results, treat when insects are most active and conditions are conducive to keeping the fog in the air column close to the ground, (e.g. cool temperatures of the evening, night or early morning and wind).

Do not apply more than 0.007 lb ai/A per day. Do not apply more than 0.18 lb ai/A per year. More frequent treatments may be made to prevent or control a threat to public and/or animal health determined by a state, tribal or local health or vector control agency on the basis of documented evidence of disease causing agents in vector mosquitoes or the occurrence of mosquito-borne diseases in animal or human populations, or if specifically approved by the state or tribe during a natural disaster recovery effort. Apply when wind speed is greater than or equal to 1 mph

SPRAY DRIFT MANAGEMENT FOR WIDE AREA MOSQUITO ABATEMENT

A variety of factors including weather conditions (e.g., wind direction, wind speed, temperature, relative humidity) and method of application (e.g., ground, aerial, airblast) can influence pesticide drift. The applicator must evaluate all factors and make appropriate adjustments when applying this product.

Both ground and aerial applications should be made when meteorological conditions are conducive to keeping the spray cloud close to the ground, such as when an air temperature inversion is present. Applications during the cool hours of early morning or evening are preferable. Air temperatures should be greater than 50° F when conducting all types of applications. Application in calm air conditions is to be avoided. Apply when wind speed is greater than 1 mph.

PURSUIT™ 31-67 ULV can be applied over specific growing crops and range grasses prior to harvest for the control of adult mosquitoes and biting flies within or adjacent to these areas. Application can ~~only~~ be made where the following crops are present:

Alfalfa	Corn, fodder	Leafy Vegetables (except
Almonds	Corn, forage	Brassica)
Apples	Corn, grain (field and pop)	Lettuce, head
Artichoke, globe	Corn, stover	Mushrooms
Asparagus	Corn, sweet kernel plus cob	Onion, dry bulb
Avocado	with husks removed	Peaches
Broccoli	Eggplant	Pears
Brussels Sprouts	Filbert	Pepper, bell
Cabbage	Garlic	Pistachio
Cauliflower	Range Grasses	Potato
Celery	Horseradish	Soybeans
Cherries		Spinach

Tomatoes

Vegetable, cucurbits

Walnuts

Do not spray this product on or allow it to drift onto cropland (other than crops listed), or potable water supplies. In the treatment of corrals, feedlots, animal confinements/houses, swine lots, poultry ranges and zoos, cover any exposed drinking water, drinking fountains and animal feed before application.

GROUND APPLICATION INSTRUCTIONS

DROPLET SIZE CALIBRATION FOR GROUND APPLICATION EQUIPMENT: For ground-based application spray equipment must be adjusted so that the volume median diameter is less than 30 microns ($D_v 0.5 < 30\mu m$) and that 90% of the spray is contained in droplets smaller than 50 microns ($D_v 0.9 < 50\mu m$). Directions from the equipment manufacturer or vendor, or pesticide registrant or a test facility using a laser-based measurement instrument must be used to adjust equipment to produce acceptable droplet size spectra. Application equipment must be tested at least annually to confirm that pressure at the nozzle and nozzle flow rate(s) are properly calibrated.

ULV NON-THERMAL AEROSOL (COLD FOG)

To control ADULT Mosquitoes, Midges, Gnats, and Black-flies apply **PURSUIT™ 31-67 ULV** diluted or undiluted using any standard ULV ground applicator capable of producing the required droplet spectrum. Apply the product to deliver 0.001 to 0.007 lb. permethrin per acre. Under normal conditions a 300ft swath width is recommended but in dense vegetation, high mosquito populations or open areas the swath width can be adjusted accordingly to establish the proper flow rates. See Rate Charts below for some suggested application rates for ground ULV applications based on a 300 ft swath width.

When applying this product undiluted, apply at a flow rate of 0.27 to 1.90 ounces per minute at an average vehicle speed of 10 mph. These rates are equivalent to 0.001 to 0.007 pound of permethrin and 0.001 to 0.007 pounds of piperonyl butoxide per acre with an assumed 300ft swath width. If a different vehicle speed or swath width is used, adjust the rate accordingly to achieve a rate between 0.001 and 0.007 lbs of permethrin per acre. Vary flow rates accordingly to vegetation density and mosquito population. Use of the maximum flow rates and application rates listed on this label is recommended to treat heavy vegetation or when target insect populations are high. An accurate flow rate control system must be used to ensure proper flow rate. For optimum ground application performance, apply at speeds of 5 to 20 mph.

FLOW RATE CHART FOR USE OF PURSUIT™ 31-67 ULV UNDILTED OR DILUTED.

PURSUIT™ 31-67 ULV may also be applied by diluting with a light mineral oil or suitable solvent, applied so as not to exceed 0.007 lbs of permethrin per acre. If an alternate dilution rate is required, adjust the flow rate accordingly, provided the droplet size and spectrum remain within label specifications.

GROUND APPLICATION RATE CHART– FOR USE OF PURSUIT™ 31-67 ULV

Application Rate (lbs Permethrin/Acre)	Vehicle Speed (MPH)	Undiluted	Diluted 1 + 1	Diluted 1 + 2	Diluted 1 + 3	Diluted 1 + 4	Diluted 1 + 8
0.001	5	0.14	0.27	0.41	0.54	0.68	1.22
	10	0.27	0.54	0.81	1.08	1.36	2.44
	15	0.41	0.81	1.22	1.63	2.03	3.66
	20	0.54	1.08	1.63	2.17	2.71	4.88
0.00175	5	0.24	0.47	0.71	0.95	1.19	2.14
	10	0.47	0.95	1.42	1.90	2.37	4.27
	15	0.71	1.42	2.14	2.85	3.56	6.41
	20	0.95	1.90	2.85	3.80	4.75	8.54
0.0025	5	0.34	0.68	1.02	1.36	1.70	3.05
	10	0.68	1.36	2.03	2.71	3.39	6.10
	15	1.02	2.03	3.05	4.07	5.09	9.15
	20	1.36	2.71	4.07	5.42	6.78	12.21
0.0035	5	0.47	0.95	1.42	1.90	2.37	4.27
	10	0.95	1.90	2.85	3.80	4.75	8.54
	15	1.42	2.85	4.27	5.70	7.12	12.82
	20	1.90	3.80	5.70	7.59	9.49	17.09
0.005	5	0.68	1.36	2.03	2.71	3.39	6.10
	10	1.36	2.71	4.07	5.42	6.78	12.21
	15	2.03	4.07	6.10	8.14	10.17	18.31
	20	2.71	5.42	8.14	10.85	13.56	24.41
0.007	5	0.95	1.90	2.85	3.80	4.75	8.54
	10	1.90	3.80	5.70	7.59	9.49	17.09
	15	2.85	5.70	8.54	11.39	14.24	25.63
	20	3.80	7.59	11.39	15.19	18.99	34.18

THERMAL AEROSOL FOGGING

Apply **PURSUIT™ 31-67 ULV** diluted or undiluted with suitable Thermal Fogging equipment such as vehicle mounted or hand held thermal fog generators capable of making thermal fog applications. Use only well maintained and properly calibrated thermal fogging equipment to ensure optimum performance and effectiveness. If diluted, use a light mineral oil, or another suitable non-phytotoxic diluent, to reduce oil requirement and sludge buildup in equipment. Do not exceed the maximum rate of 0.007 lbs of permethrin per acre. Apply **PURSUIT™ 31-67 ULV** to deliver 0.001 to 0.007 lb. a.i. per acre. Droplet size of thermal fog will be very small usually in the 0.5 to 1.0 micron range. For best results, fog downwind by directing thermal fog into the air and allowing it to drift through areas with active mosquitoes or where mosquitoes find harborage. Do not thermal fog when winds exceed 10 mph. Do not fog wet foliage.

VEHICLE MOUNTED: May be applied with vehicle mounted sprayers at speeds of 5 to 20 mph using a treatment swath width of 300 ft.

PORTABLE OR HAND CARRIED: For use with **Hand Carried** and/or **Portable Thermal Foggers**, use a walking speed of 2 mph and a 50 foot swath.

USE AS AN INSECT BARRIER TREATMENT

For use in Non-Thermal ULV, motorized, portable, backpack, handheld or vehicle mounted fogging equipment or fog type mist blower equipment, apply **PURSUIT™ 31-67 ULV** with equipment adjusted to deliver ULV particles of 50 to 120 microns volume median diameter. **PURSUIT™ 31-67 ULV** may be applied undiluted or diluted. If diluted, use a light mineral oil, or another suitable non-phytotoxic diluent. Do not apply more than 0.007 lbs of permethrin per acre using an appropriate swath with based on the capabilities of your equipment, typically a 50ft swath width is used. Direct spray onto foliage at the perimeter of areas from which mosquitoes or flies are to be excluded or direct spray into harborage areas where adult mosquitoes or flies may be found. May be used to treat aggregation and harborage sites such as abandoned buildings, residential buildings, warehouses, storm drains, and underground drainage pipes where adult mosquitoes find harborage. When this product is applied as a barrier treatment, do not apply within 100 feet (30 meters) of lakes and streams.

AERIAL APPLICATION INSTRUCTIONS

PURSUIT™ 31-67 ULV may be applied diluted or undiluted at rates of 0.001 to 0.007 pounds of permethrin per acre by fixed wing or rotary aircraft that are capable of making a ULTRA LOW VOLUME (ULV) application. For fixed wing and rotary aircraft with flat fan or rotary nozzles, apply at a sufficient airspeed to deliver the appropriate amount of a.i./acre and to achieve the appropriate droplet range as prescribed by this label. Apply when wind speed is equal to or greater than 1 mph. In order to compensate for windy and meteorological conditions and ensure drift into the target area, aerial applications with aircraft equipped with Global Positioning Systems (GPS) and/or spray cloud drift optimization software is recommended.

Do not apply by fixed wing aircraft at a height less than 100 ft, or by helicopter at a height less than 75 feet unless specifically approved by the state or tribe based on public health needs.

SPRAY DROPLET SIZE CALIBRATION: For Aerial applications made ≤ 200 ft above ground elevation: Spray equipment must be adjusted so that the volume median diameter produced is less than 60 microns ($D_v 0.5 < 60\mu\text{m}$) and that 90% of the spray is contained in droplets smaller than 100 microns ($D_v 0.9 < 100\mu\text{m}$).

For Aerial applications made >200 ft above ground elevation: Spray equipment must be adjusted so that the volume median diameter produced is less than 70 microns ($D_v 0.5 < 70\mu\text{m}$) and that 90% of the spray is contained in droplets smaller than 145 microns ($D_v 0.9 < 145\mu\text{m}$).

The effects of flight speed and, for non-rotary nozzles, nozzle angle on the droplet size spectrum must be considered. Directions from the equipment manufacturer or vendor, or pesticide registrant or a test facility using a wind tunnel and laser-based measurement instrument must be used to adjust equipment to produce acceptable droplet size spectra. Application equipment must be tested at least annually to confirm that pressure at the nozzle and nozzle flow rate(s) are properly calibrated.

PROHIBITION ON AERIAL USE IN FLORIDA: Not for aerial application in the State of Florida unless specifically authorized by the Florida Bureau of Entomology and Pest Control and the Florida Department of Agriculture and Consumer Services.

WARRANTY NOTICE

Read the entire Directions for Use and Warranty before using this product. By using this product, User or Buyer accepts the following warranty.

The Directions for Use of this product are believed to be adequate and must be followed carefully. It is impossible to eliminate all risks associated with the use of this product. Unintended consequences may result because of unknown factors. All such risks shall be assumed by the User or Buyer.

Precision Control Technologies Inc. is committed to providing high quality products. To the extent consistent with applicable law, Precision Control Technologies Inc. makes no warranties, express or implied, of merchantability or of fitness for a particular purpose or otherwise that extend beyond statements on this label. To the extent consistent with applicable law, Precision Control Technologies Inc., the Manufacturer, or the Seller shall not be liable for indirect, special, incidental or consequential damages. To the extent consistent with applicable law, the exclusive remedy of the User or Buyer shall not exceed the purchase price paid.

Net Contents: 4X1 gallons, 2x2.5 gallons, 30 gallons, 55 gallons, 275 Gallons

EPA Reg. No 86291-1

EPA Est. No. 655-GA-1

Manufactured by:

Precision Control Technologies Inc.
111 South Calvert Street, Suite 1800
Baltimore, Maryland 21202

Product Code:

- ☐ 3167041(4x1 gal Case)
- ☐ 3167225 (2x2.5gal Case)
- ☐ 3167030 (30 gallon Drum)
- ☐ 3167055 (55 gallon Drum)
- ☐ 3167275 (275 gallon Tote)

Lot/Batch No: _____

SECTION 1: IDENTIFICATION

Product Name: Pursuit 31-67 ULV

Description: Insecticide

EPA Reg. No.: 86291-1

Company Identification:

Precision Control Technology, Inc.

550 Aero Lane
Sanford, FL 32725

Emergency Response Telephone Numbers

For Spills Call: 1-(800)-424-9300

For Medical Emergencies Call: 1-(866)-897-8050

SECTION 2: HAZARD IDENTIFICATION

Classification in accordance with regulation HCS 29CFR §1910.1200



WARNING

Harmful if swallowed.

Causes moderate eye irritation.

May cause moderate skin irritation with prolonged or repeated contact.

May cause allergic skin reactions

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

<u>INGREDIENTS:</u>	<u>(% w/w)</u>
Permethrin (CAS Reg. No. 52645-53-1)	
(3-phenoxyphenyl) methyl (\pm) cis, trans-3-(2,2-dichloroethenyl)-2,2-dimethylcyclopropane carboxylate ¹	31.15%
Piperonyl Butoxide (CAS Reg. No. 51-03-6)	
Equivalent to 80% (butylcarbityl)(6-propylpiperonyl) ether	66.85%
And 20% related compounds	
Inert Ingredients ²	2.0%

¹ cis/trans ratio: minimum 35% (\pm) cis and maximum 65% trans

² Impurities from the Permethrin technical grade product.

MATERIAL:

OSHA PEL

ACGIH TLV

Active Ingredients:	Permethrin	Not established	Not established
	Piperonyl Butoxide	Not established	Not established

SECTION 4: FIRST AID MEASURES

FIRST AID	
If swallowed	<ul style="list-style-type: none">• 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 by mouth to an unconscious person.
If in eyes	<ul style="list-style-type: none">• 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	<ul style="list-style-type: none">• 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 or label with you when calling a poison control center or doctor, or going for treatment. Hotline Number: You may also contact SafetyCall® International (866) 897-8050 for emergency medical treatment information.	

SECTION 5: FIRE-FIGHTING MEASURES

Flash Point:	> 230° F (110° C)
Method Used:	TCC
Extinguishing Media:	Foam, CO ₂ , or dry chemical is preferred. Soft stream water fog only if necessary
Fire & Explosion Precautions:	Foam fire-extinguishing system is preferred because uncontrolled water can spread possible contamination. Do not allow fire-fighting water to escape into waterways or sewers. Toxic irritating gases can be formed.
Fire-Fighting Equipment:	Use positive-pressure self-contained breathing apparatus and full protective equipment.
Hazardous Decomposition:	Under fire conditions hydrogen chloride, oxides of chlorine, carbon dioxide, carbon monoxide, and asphyxiants can be formed.

SECTION 6: ACCIDENTAL RELEASE MEASURES

SPILLS OR LEAKS: Wear protective clothing as described in Section 7: Handling and Storage of this MSDS. Absorb liquid with material such as clay, sand, sawdust, or dirt. Sweep up and place in a suitable container for disposal and label the contents. Area can be washed down with a suitable solution of bleach or soda ash and an appropriate alcohol (methanol, ethanol, or isopropanol). Follow this by washing with a strong soap and water solution. Absorb any excess liquid as indicated above, and add to the disposal container. Keep product, contaminated materials and wash water out of streams and sewers. Wash exposed body areas thoroughly after handling.

SECTION 7: HANDLING AND STORAGE

Keep out of reach of children. Do not contaminate water, food or feed by storage or disposal. Do not use, pour, spill or store near heat or open flame.

SKIN PROTECTION: While using or handling this product wear long sleeved shirt and long pants, socks, and shoes. Contaminated leather articles, such as shoes, belts, and watchbands, should be removed and destroyed. Launder all work clothing before reuse. Keep work clothing separated from household laundry.

SPECIAL PRECAUTIONS FOR HANDLING AND STORAGE: See product label. Harmful if swallowed. Causes moderate eye irritation. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals. Avoid contact with skin or clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, or using the toilet.

Store product in its original labeled container in a cool, dry, locked place designated for such insecticides and out of reach of children. In case of spillage, soak up with absorbent material such as sawdust, or fullers earth; sweep up and place in a labeled container and dispose of as follows.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

EXPOSURE GUIDELINE(S):

Permethrin	None established.
Piperonyl Butoxide	None established

VENTILATION: Provide general and/or local exhaust ventilation to control airborne levels below the exposure guideline. Ventilate all transport vehicles prior to unloading.

RESPIRATORY PROTECTION: Atmospheric levels should be maintained below the exposure guideline. For most conditions, no respiratory protection should be needed; however, if the exposure guideline is exceeded, use an air-purifying respirator approved for pesticides (U.S. NIOSH/MSHA, EU CEN, or comparable certification organization).

EYE/FACE PROTECTION: Use chemical protective goggles or a face shield.

SKIN PROTECTION: While using or handling this product wear long sleeved shirt and long pants, socks, and shoes. Contaminated leather articles, such as shoes, belts, and watchbands, should be removed and destroyed. Launder all work clothing before reuse. Keep work clothing separated from household laundry.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Color:	Yellow, Gardner 2
Physical State:	Liquid
Odor:	Faint Chemical Odor
Density:	1.1 g/cc @ 25° C
Solubility:	Does not disperse in water
Viscosity:	41.71 CPS @ 25° C
pH:	4.01 (1% dispersion)
Stability:	Stable

SECTION 10: STABILITY AND REACTIVITY

Stability:	(CONDITIONS TO AVOID) Avoid heating above 230° F (110° C).
Incompatibility:	(SPECIFIC MATERIALS TO AVOID) Strong Oxidizers.
Hazardous Decomposition:	Under fire conditions hydrogen chloride, oxides of chlorine, carbon dioxide, carbon monoxide, and asphyxiants can be formed.
Hazardous Polymerization:	Will not occur.

SECTION 11: TOXICOLOGICAL INFORMATION

SKIN ABSORPTION: The acute dermal toxicity is considered to be low. The dermal LD₅₀ for rabbits is greater than 2000 mg/kg.

INGESTION: The acute oral toxicity is considered to be low. The oral LD₅₀ for rats is greater than 1000 mg/kg. Small amounts that might be swallowed incidental to normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause serious injury, even death. If aspirated (liquid enters the lungs), may cause lung damage or even death due to chemical pneumonia.

INHALATION: The acute inhalation toxicity is considered to be low. The inhalation LC₅₀ for rats is greater than 4 mg/l for 4 hours. Symptoms of excessive exposure includes squinting eyes, irregular and rattled breathing, ataxia, headache, dizziness, anesthesia, drowsiness, unconsciousness, and other central nervous system effects.

SYSTEMIC (OTHER TARGET ORGAN) EFFECTS: Excessive exposure may produce effects on the nervous system such as sensitivity to touch and sound, tremors, abnormal movement, and clonic convulsions. Long-term studies with permethrin in laboratory animal resulted in increased liver and kidney weights, induction of the liver microsomal drug metabolizing enzyme system, and histopathological changes in the lungs and liver. Long-term studies with piperonyl butoxide indicated increased organ weights in the liver, kidney, and adrenal glands.

CANCER INFORMATION: Chronic feeding studies with permethrin in mice and rats indicate limited evidence of oncogenicity in laboratory animals. Based on comprehensive evaluations of all relevant health effects data, it was concluded that the oncogenic potential in humans is extremely weak or nonexistent. A chronic feeding study in mice indicate an increased incidence of benign liver tumors; the significance of these findings is questionable and under review. The doses that produced this oncogenic effect in laboratory animals, greatly exceeds human exposure levels for the recommended use of this product.

TERATOLOGY (BIRTH DEFECTS): The active ingredients in this product did not cause birth defects in laboratory animal studies. Exposures having no effect on the mothers had no effect on the fetuses in rabbits and rats. The no-effect levels for permethrin in rabbits and rats were 600 mg/kg and 50 mg/kg, respectively. The no-effect levels for piperonyl butoxide in rabbits and rats were 200 mg/kg and 1000 mg/kg, respectively.

REPRODUCTIVE EFFECTS: Permethrin and piperonyl butoxide did not interfere with fertility in animal reproduction studies. The no effect level for permethrin in a two-generation rat reproduction study was 180 mg/kg. The no-effect level for piperonyl butoxide in a two-generation rat reproduction study was 350 mg/kg.

MUTAGENICITY (EFFECTS ON GENETIC MATERIAL): Based on a number of *in vivo* and *in vitro* studies, it was concluded that the active ingredients in this product are not mutagenic.

SECTION 12: ECOLOGICAL INFORMATION

PHYSICAL ENVIRONMENTAL PROPERTIES: In soil, permethrin is stable over a wide range of pH values. Due to its high affinity for organic matter, ($K_{oc} = 86,000$), there is little potential for movement in soil or entry into ground water. Permethrin has a Log P_{OW} of 6.1, but a low potential to bioconcentrate ($BCF = 500$) due to the ease with which it is metabolized. Piperonyl butoxide is reported to have a maximum half-life of 4.3 days in soil and from 0.55 to 1.64 days in aqueous environments. Gravitational settling remove piperonyl butoxide released in the atmosphere as an aerosol. Gaseous piperonyl butoxide degrades in the atmosphere with an estimated half-life of 3.4 hours. It is reported that piperonyl butoxide has a low potential for environmental bioconcentration.

ENVIRONMENTAL TOXICOLOGY: Permethrin is highly toxic to fish ($LC_{50} = 0.5 \mu\text{g/L}$ to $315 \mu\text{g/L}$) and aquatic invertebrates ($LC_{50} = 0.02 \mu\text{g/L}$ to $7.6 \mu\text{g/L}$). Marine species are often more sensitive than the freshwater species. Bacteria, algae, mollusks, and amphibians are much more tolerant of permethrin than the fish and arthropods. Care should be taken to avoid contamination of the aquatic environment. Permethrin is slightly toxic to birds and oral LD_{50} values are greater than 3,600 mg/kg.

Longer dietary studies showed that concentrations of up to 500 ppm in the diet had no effect on bird reproduction. Piperonyl butoxide is acutely toxic to fish (LC_{50} = 3.94 mg/L to 6.12 mg/L) and highly toxic to aquatic invertebrates (LC_{50} 0.23 mg/L to 0.51 mg/L). Care should be taken to avoid contamination of aquatic environments. Piperonyl butoxide has a low to very low toxicity to birds with an acute oral LD_{50} greater than 2,250 mg/kg and longer-term dietary studies at LC_{50} values greater than 5,620 ppm.

SECTION 13: DISPOSAL CONSIDERATIONS

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: Nonrefillable container. Do not reuse or refill this container. Offer for recycling if available. If recycling is not available then dispose of container in a sanitary landfill or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.

Triple rinse (or equivalent) promptly after emptying. Triple rinse as follows:

For Containers equal to or less than 5 Gallons: 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 mineral oil 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.

For Containers greater than 5 Gallons: 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 mineral oil. 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 back and forth several times. Turn the container over on its other end and tip 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.

For Bulk Containers: (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 the container into application equipment or mix tank. Fill the container about 10 percent full with mineral oil. Agitate vigorously or recirculate mineral oil with pump for 2 minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing process two more times.

SECTION 14: TRANSPORTATION INFORMATION

U.S. SURFACE FREIGHT CLASS: Insecticide, NOI, other than Poison. NMFC Item 102120.

MARINE POLLUTANT #1: permethrin (Severe Marine Pollutant).

OTHER SHIPPING INFORMATION: This product is not regulated for transport in the USA when shipped via highway or railroad in non-bulk packages. Describe using the “U.S. Surface Freight Class” above, which applies in all cases.

SPECIAL NOTE: The following applies to water and air shipments, and shipments in bulk packages:

PROPER SHIPPING NAME: Environmentally hazardous substance, liquid, n.o.s. (permethrin)

HAZARD CLASS OR DIVISION: 9

IDENTIFICATION NUMBER: UN 3082

PACKING GROUP: III

OTHER: NAERG Guide 171

SECTION 15: REGULATORY INFORMATION

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 the workplace labels of non-pesticide chemicals. The following is the hazard information as required on the pesticide label:

CAUTION: Harmful if swallowed. Causes moderate eye irritation. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals. Avoid contact with skin or clothing. While using or handling this product wear long sleeved shirt and long pants, socks, and shoes. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, or using the toilet.

SARA 313 INFORMATION: This product contains the following substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372:

CHEMICAL NAME	CAS NUMBER	CONCENTRATION
Permethrin	52645-53-1	31.15%
Piperonyl Butoxide	51-03-5	66.85%

SARA HAZARD CATEGORY: This product has been reviewed according to the EPA “Hazard Categories” promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:

An immediate health hazard

A delayed health hazard

TOXIC SUBSTANCES CONTROL ACT (TSCA): All ingredients are on the TSCA inventory or are not required to be listed on the TSCA inventory.

OSHA HAZARD COMMUNICATION STANDARD: This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) RATINGS:

Category	Rating
Health	1
Flammability	1
Reactivity	0

COMPREHENSIVE ENVIRONMENTAL RESPONSE COMPENSATION AND LIABILITY ACT (CERCLA, or SUPERFUND): This product contains the following substance(s) listed as "Hazardous Substances" under CERCLA which may require reporting of releases:

Category:

Chemical Name	CAS Number	RQ	% in Product
Permethrin	52645-53-1	not listed	31.15%
Piperonyl Butoxide	51-03-6	not listed	66.85%

SECTION 16: OTHER INFORMATION

SDS Date: May 5, 2015

This document is prepared pursuant to the OSHA Hazard Communication Standard (HCS) (29 CFR 1910.1200(g)), revised in 2012. In addition, other substances not "Hazardous" per this OSHA Standard may be listed. Where proprietary ingredient shows, the identity may be made available as provided in this standard.

NOTICE: The information herein is presented in good faith and believed to be accurate as of the effective date shown above. However, no warranty, expressed or implied, is given. Regulatory requirements are subject to change and may differ from one location to another; it is the buyer's responsibility to ensure that its activities comply with federal, state, and local laws and regulations. See SDS for health and safety information.