

Perm-X™ UL 31-66

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

CONTROLS: Adult Mosquitoes, Biting and Non-biting Midges, Black Flies and other outdoor flying insects as listed on this label which cause public health annoyance in residential, municipal, and recreational areas.

FOR USE AS A: ULV thermal or non-thermal aerosol using ground or aerial equipment in areas including: residential, recreational areas, parks, campsites, woodlands, athletic fields, golf courses, municipalities, gardens, playgrounds, and non-crop waste areas and over listed growing crops and range grasses prior to harvest for the control of adult mosquitoes and biting flies within or adjacent to these areas.

Refer to label for additional use sites.

SPECIMEN LABEL

ACTIVE INGREDIENTS:

Permethrin (CAS# 52645-53-1).....	31%
Piperonyl Butoxide (CAS# 52645-53-1).....	66%
OTHER INGREDIENTS:	3%
TOTAL:	100%

*Contains 2.8025 lb. A.I. Permethrin plus 5.9668 lbs. A.I. Piperonyl Butoxide per gallon.

KEEP OUT OF REACH OF CHILDREN CAUTION

PRECAUCION AL USUARIO: Si usted no lee ingles, no use este producto hasta que la etiqueta haya sido explicado ampliamente. (If you do not understand the label, find someone to explain it to you in detail.) See Precautionary Statements First Aid, Precautionary Statements and Directions for Use including Storage and Disposal instructions.

EPA Reg.No. 89459-45
EPA Est. No. 2724-TX-1

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

CAUTION: Harmful if swallowed. Harmful if absorbed through skin. Avoid contact with eyes, skin, or clothing. Prolonged or repeated skin contact may cause allergic reactions in some individuals. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, or the toilet. Remove contaminated clothing and wash before reuse.

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 do so by a poison control center or doctor. Do not give anything by mouth to an unconscious or convulsing person.
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.

(continued)

If on skin or clothing	<ul style="list-style-type: none"> Call a poison control center or doctor for advice.
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. Call a poison control center or doctor for treatment advice.
If inhaled	<ul style="list-style-type: none"> 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.
HOT LINE NUMBER: Have this product container or label with you when calling a poison control center or doctor, or going for treatment. You may contact 1-800-248-7763 for information including health concerns, medical emergencies or pesticide incidents.	

PERSONAL PROTECTIVE EQUIPMENT (PPE):

Some materials that are chemical-resistant to this product are listed below. Mixers, loaders, applicators and other handlers (including during mixing/loading, repair and cleaning of equipment and disposal of pesticide) must wear the following:

- Long-sleeved shirt and long pants
- Shoes plus socks
- Chemical-resistant gloves such as barrier laminate, viton, neoprene rubber or nitrile rubber
- Chemical-resistant apron for mixers/loaders, persons cleaning equipment and persons exposed to the concentrate

In addition to the above PPE, mixers and loaders supporting aerial applications to forests must wear at least a NIOSH-approved respirator with:

- A dust/mist filter with MSHA/NIOSH approval number prefix TC-21C, or any R, P, or HE filter.

See Engineering Controls for additional requirements.

USER SAFETY REQUIREMENTS

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.

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them.

ENGINEERING CONTROLS

Pilots must use an enclosed cockpit that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240(d)(6)].

Human flagging is prohibited. Flagging to support aerial application is limited to use of the Global Positioning System (GPS) or mechanical flaggers.

USER SAFETY RECOMMENDATIONS

- Users should wash hands 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.
- 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.

ENVIRONMENTAL HAZARDS

This product is extremely toxic to aquatic organisms including fish and invertebrates. Runoff from treated areas or deposition of spray droplets into a body of water may be hazardous to fish and other aquatic organisms. Before making the first application of the 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 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 actively visiting the treatment area.

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.

PRECAUTIONS AND USE RESTRICTIONS

- Apply this product only as specified on this label.
- For use only by federal, state, tribal or local government officials responsible for public health or vector control or by persons certified by the state or tribal lead pesticide regulatory agency to perform adult mosquito control applications or by persons under their direct supervision.
- Apply this product at temperatures greater than 50°F and when wind speed equals or exceeds 1 mph.
- Not for use in metered release systems.
- Not for use in outdoor residential misting systems.
- Do not make applications during rain.
- 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.
- For hand carried and/or lawn mower foggers: Do not fog wet foliage. Do not fog when wind conditions exceed 10 mph. Only use a clean, well maintained and properly calibrated fogger, known to give excellent performance. Fog down wind.
- Do not re-treat a site more than once in 3 days.
- Do not apply by fixed wing aircraft at a height less than 100 feet, or by helicopter at a height less than 75 feet unless specifically approved by the state or tribe based on public health needs.

Do not retreat the site more than once in three days. Do not exceed 25 applications at 0.007 lbs. permethrin per acre per application or 0.0149 lbs piperonyl butoxide per acre per application, or 0.18 lbs of permethrin per acre per season or 0.383 lbs piperonyl butoxide per acre 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.

Spray Droplet Size Determination

Ground-Based Application: Spray equipment must be adjusted so that the volume median diameter is less than 30 microns ($D_{v0.5} < 30 \mu\text{m}$) and that 90% of the spray is contained in droplets smaller than 50 microns ($D_{v0.9} < 50 \mu\text{m}$). Directions from the equipment manufacturer or vendor, pesticide registrant or a test facility using laser based equipment must be used to produce acceptable droplet spectra. Application equipment must be tested at least annually to confirm that pressure at the nozzle and nozzle flow rate(s) are properly calibrated.

Aerial Application made at ≤ 200 feet above ground elevation: Spray equipment must be adjusted so that the volume median diameter produced is less than 70 microns ($D_{v0.5} < 70 \mu\text{m}$) and that 90% of the spray is contained in droplets smaller than 145 microns ($D_{v0.9} < 145 \mu\text{m}$). 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, 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.

Aerial Application made at > 200 feet above ground elevation: Spray equipment must be adjusted so that the volume median diameter produced is less than 70 microns ($D_{V0.5} < 70 \mu\text{m}$) and that 90% of the spray is contained in droplets smaller than 145 microns ($D_{V0.9} < 145 \mu\text{m}$). 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, 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.

GROUND BASED APPLICATIONS

ULV NON-THERMAL AEROSOL (COLD FOG): To control Mosquitoes, Midges and Black flies, apply PERM-X™ UL 31-66 using truck-mounted ground ULV (cold fog) equipment. When applying this product undiluted, apply at a flow rate of 0.4794 to 1.91183 fluid ounces per minute at an average speed of 10 mph. These rates are equivalent to 0.00175 to 0.007 pounds of permethrin a.i. and 0.0038 to 0.0149 pounds of piperonyl butoxide a.i. per acre. If a different vehicle speed is used, adjust the rate accordingly. Vary flow rates accordingly to vegetation density and mosquito population. Use higher flow rates in heavy vegetation or when insect populations are high. An accurate flow rate control system must be used to ensure proper flow rate. PERM-X™ UL 31-66 may also be applied by diluting, 1 part to 1 part of a 60 to 100 second mineral oil or another suitable solvent, applied so as not to exceed the maximum a.i. rates per acre as shown in the rates charts. If an alternate dilution rate is required, adjust the flow rate accordingly, provided the droplet size and spectrum remain within label specifications. Do not exceed a flow rate of 20 oz/minute unless recommended and required by equipment manufacturers and/or Public Health Officials for vehicle speeds of 10 to 20 mph and when the fogging equipment is capable of such higher rates of output per minute.

THERMAL FOGGING: Apply PERM-X™ UL 31-66 diluted or by suitable Thermal Foggers mounted on trucks. If diluted, use a 60 to 100 second viscosity mineral oil, or another suitable non-phytotoxic diluent to reduce oil requirement and sludge buildup in equipment. May be applied at truck speeds of 5 to 20 mph but do not exceed the maximum active ingredient application rates. For use with Hand Carried and/or Lawn Mower thermal foggers, adjust the sprayer to apply the desired a.i. per acre based on a 50 foot swath and walking speed of 2 mph. Do not fog to wet foliage. Thermal fogging applications of PERM-X™ UL 31-66 can be made to deliver 0.00175 to 0.007 lb of permethrin a.i. per acre and 0.00175 to 0.01490 piperonyl butoxide per acre.

USE AS AN INSECT BARRIER TREATMENT: For use in non-Thermal ULV, motorized, portable, backpack, and fog type mist blower equipment, apply PERM-X™ UL 31-66 with equipment adjusted to deliver ULV size droplets with a volume median diameter of 50–100 microns. PERM-X™ UL 31-66 may be applied undiluted or diluted (see application rates tables section). If diluted, use a 30 to 100 second mineral oil, or another, (if recommended by Public Health Officials), suitable non-phytotoxic diluent. Use 0.00175 pounds permethrin a.i. per acre at a 50 ft. (15.2 m) swath width, while walking at a speed of 2 mph (3.2 kph). Whether applied undiluted or diluted, or at a different speed, make sure that the same amount of permethrin a.i. is applied per acre.

**AERIAL APPLICATION

Make Ultra-Low Volume aerial applications of PERM-X™ UL 31-66 according to the application rate table on this label. Application should be made by suitable aerial ULV equipment at an altitude ranging from 120-175 feet depending on the terrain and weather conditions. The recommended airspeed

for fixed wing aircraft with flat fan nozzles is from 120 to 160 mph. For aircraft equipped with rotary nozzles, apply at sufficient airspeed to deliver the appropriate amount of PERM-X™ UL 31-66 a.i. per acre. Do not exceed 0.007 lbs. permethrin a.i. and 0.01490 lbs. piperonyl butoxide per acre. Do not apply greater than 0.3197 fluid oz. of undiluted PERM-X™ UL 31-66 per acre as listed in the rates chart.

IN FLORIDA: Aerial applications of this product require trained personnel to perform industry accepted assays to monitor resistance formation in targeted mosquitoes.

PERM-X™ UL 31-66 HOW TO APPLY AND WHEN TO USE

Conditions and Rates To Use Perm-X™ UL31-66 Undiluted						
Pounds A.I. Per Acre		Application Rates				Fl. Oz. of Perm-X™ UL 31-66 per Acre
		Fl. Oz. per Minute at Vehicle Speeds				
Permethrin	PBO	5 mph	10 mph	15 mph	20 mph	
0.00700	0.01490	0.9591	1.9183	2.8773	3.8364	0.3197
0.00350	0.00750	0.4797	0.9054	1.4391	1.9188	0.1599
0.00175	0.00380	0.2398	0.4794	0.7191	0.9588	0.0799

DILUTION RATES FOR PERM-X™ UL 31-66 FOR A 1:4 DILUTION

Mix 1 part PERM-X™ UL 31-66 with 4 parts Suitable Mineral Oil: Apply as follows:						
Pounds of A.I. Per Acre		Application Rates				Fl. Oz. Finished Spray Per Acre
		Fl. Oz. Per Minute At Vehicle Speeds				
Permethrin	PBO	5 mph	10 mph	15 mph	20 mph	
0.00700	0.01490	4.4727	9.5454	14.3181	19.0908	1.5909
0.00350	0.00750	2.3865	4.7730	7.1595	9.5460	0.7955
0.00175	0.00380	1.1934	2.3868	3.5803	4.7736	0.3978

DILUTION RATES FOR PERM-X™ UL 31-66 FOR A 1:8 DILUTION

Mix 1 part PERM-X™ UL 31-66 with 8 parts Suitable Mineral Oil: Apply as follows:						
Pounds of A.I. Per Acre		Application Rates				Fl. Oz. Finished Spray Per Acre
		Fl. Oz. Per Minute At Vehicle Speeds				
Permethrin	PBO	5 mph	10 mph	15 mph	20 mph	
0.00700	0.01490	8.4000	16.8000	25.2000	33.6000	2.8000
0.00350	0.00750	4.2000	6.4000	12.6000	16.8000	1.4000
0.00175	0.00380	2.1000	4.2000	6.3000	8.4000	0.7000

DILUTION RATES FOR PERM-X™ UL 31-66 FOR A 1:2 DILUTION

Mix 1 part PERM-X™ UL 31-66 with 2 parts Suitable Mineral Oil: Apply as follows:						
Pounds of A.I. Per Acre		Application Rates				Fl. Oz. Finished Spray Per Acre
		Fl. Oz. Per Minute At Vehicle Speeds				
Permethrin	PBO	5 mph	10 mph	15 mph	20 mph	
0.00700	0.01490	2.8767	5.7534	8.6302	11.5068	0.9589
0.00350	0.00750	1.4385	2.8770	4.3255	5.7540	1.4795
0.00175	0.00380	0.7184	1.4388	2.1582	2.8770	0.2398

For proper ground application, mount the fog applicator so that the nozzle is at least 4 ½ feet above ground level and directed out the back of the vehicle. May be applied at speeds of 5 mph up to 20 mph. Failure to follow these label directions may result in reduced effectiveness. For **Aerial Application, refer to the **Aerial Application section on this label. PERM-X™ UL 31-66 may be used as is, or diluted with a suitable solvent such as a 60 to 100 second viscosity mineral oil and applied at a rate not to exceed 0.3197 fl. oz. of PERM-X™ UL 31-66 per acre. Both aerial and ground applications

should be made when the wind is less than 10 mph. For exact rates, see the "UNDILUTED" or the "DILUTION" Rates charts on this label.

PERM-X™ UL 31-66 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 parks, campsites, woodlands, athletic fields, golf courses, municipalities, gardens, playgrounds, and non-crop waste areas. Treat when mosquitoes or insects are most active and weather conditions are conducive to keeping the fog close to the ground, e.g., cool temperatures and wind speeds are not greater than 10 mph. Applications during the cool hours of night or early morning are usually preferable.

URBAN ULV MOSQUITO APPLICATIONS

For control of resting or flying adult mosquitoes, biting flies and biting midges in application sites of residential, municipal and recreational areas such as: utility tunnels, sewers, storm drains and catch basins, pipe chases, underground basements, underground passages, parking decks, crawlspaces or underground buildings. This product may be applied using mechanical foggers, hand-held or truck-mounted ULV equipment suitable for these applications. Apply at rates, up to but not exceeding, 0.007 lbs active ingredient permethrin per acre. See Rate(s) charts.

MAY BE APPLIED OVER THE FOLLOWING CROPS

PERM-X™ UL 31-66 may 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, grain	Onion, bulb
Almond	Corn, stover	Peach
Apple	Corn, sweet, kernel + cob with husks removed	Pepper, bell
Artichoke	Eggplant	Pistachio
Asparagus	Fruit, pome, group 11	Potato
Avocado	Garlic	Soybean, seed
Broccoli	Range grasses	Spinach
Brussels sprouts	Horseradish	Tomato
Cabbage	Leaf petioles, subgroup 4B	Vegetable, cucurbit, group 9*
Cauliflower	Leafy greens, subgroup 4A	Walnut
Celery	Lettuce, head	Watercress
Cherry	Mushroom	
Corn, forage		

*40 CFR 180.41 Crop Group 9: Cucurbit Vegetables, includes Crop Subgroup 9A (melon) and Crop Subgroup 9B (squash/cucumber)

STORAGE & DISPOSAL

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

PESTICIDE STORAGE: Store product in its original labeled container in a cool, dry, locked place designated for such insecticides and out of reach of children. Do not expose to extreme temperatures. In case of spillage, soak up with absorbent material such as sawdust or fuller's 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 Containers 5 gallons or less - Nonrefillable container. Do not refill or reuse this container. Triple rinse (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 mineral oil (or other solvent used to dilute the product) 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. Once triple rinsed, recycle if available. Some agricultural 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 manufacturer, or contact your local solid waste agency for disposal instructions. If recycling is not available, dispose of in a sanitary landfill or by incineration if allowed by state and local ordinances. **Nonrefillable Containers over 5 gallons to 55 gallons -** Nonrefillable container. Do not reuse or refill this container. Triple rinse (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container ¼ full with mineral oil (or other solvent used to dilute the product). 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. Once triple rinsed, recycle if available. Some agricultural 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 manufacturer, or contact your local solid waste agency for disposal instructions. If recycling is not available, dispose of in a sanitary landfill or by incineration if allowed by state and local ordinances. **Refillable bulk containers over 55 gallons -** Refillable container. Refill this container with pesticide only. Do not reuse this container for any other purpose. Cleaning the container before 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 of mineral oil. Agitate vigorously or recirculate mineral oil with pump for two minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times.

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NOTE: This specimen label is for informational purposes only. All uses may not be approved in all states. See product labeling for use directions. Perm-X is a trademark of Wellmark International. © 2015, 2018 Wellmark International.

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