



MARC 4 – 4 ULV

Mosquito, Fly and Gnat Control

A Specially Formulated Low Odor, Non-Corrosive, Synergized Synthetic Pyrethroid With Quick Knockdown, for Controlling Adult Mosquitoes, Biting and Non-Biting Midge and Black Flies in Residential, Recreational, and Other Areas.

For use only 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.

ACTIVE INGREDIENTS:

- * **Permethrin:** 4.6%
- ****Piperonyl Butoxide:** 4.6%

OTHER INGREDIENTS*: 90.8%

TOTAL 100.0%

*(3-phenoxyphenyl) methyl (+/-) Cis/trans 2,2-Dimethylcyclopropane carboxylate. Cis/trans ratio: min.35% ((+/-)cis and max. 65% (+/-) trans)

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

*Contains Petroleum Distillate Solvent

Contains 0.3344 lb. of Permethrin and 0.3344 lb. of Piperonyl Butoxide per gallon.

KEEP OUT OF REACH OF CHILDREN

CAUTION

See Label Booklet For Additional Precautionary Statements.

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

First Aid	
If on skin:	-Take off contaminated clothing. -Rinse skin immediately with plenty of water for 15-20 minutes. -Call a poison control center or doctor for treatment advice.
If swallowed:	-Call a poison control center or doctor immediately for treatment advice. -Have a person sip a glass of water if able to swallow. -Do not induce vomiting unless told to by a poison control center or doctor. -Do not give anything to an unconscious person.
If in Eyes:	-Hold eye open and rinse slowly and gently with water for 15 to 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.
Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact Safety Call at 1-866-897-8050 for emergency medical treatment information.	
Note to Physician: May pose an aspiration pneumonia hazard. Contains petroleum distillate.	

EPA Reg. No. 53883-300-12204; EPA Est. No. 12204-NE-1

Lot #: _____

Net Contents: 55 Gallons

M-18

Manufactured for:
Mid-American Research Chemical Corp.
P. O. Box 927 • Columbus, NE 68602-0927 • 800-228-8508

PRECAUTIONARY STATEMENTS
CAUTION
HAZARDS TO DOMESTIC ANIMALS AND HUMANS

Contains Petroleum Distillate.

CAUTION. Harmful if absorbed through skin. Harmful if swallowed. Causes moderate eye irritation. Avoid contact with skin, eyes or clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet. Wear long-sleeved shirt and long pants, socks, shoes, and chemical-resistant gloves (such as Barrier Laminate, Nitrile Rubber, Neoprene Rubber, Viton, Selection Category E). Remove and wash contaminated clothing before reuse.

Prolonged or frequently repeated skin contact may cause allergic reaction in some individuals.

Personal Protective Equipment (PPE):

Some materials that are chemical-resistant to this product are listed below. If you want more options, follow the instructions for category E on the EPA chemical resistance category selection chart.

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 \leq 14 mils. or nitrile rubber \leq 14 mils for all handlers except for applicators using motorized ground equipment, pilots and flaggers.
- Chemical-resistant apron for mixers/loaders, persons cleaning equipment and persons exposed to concentrate.

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

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

See engineering controls for additional requirements.

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.

ENGINEERING CONTROLS

Pilots must use an enclosed cockpit that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.24(d)(6)].

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

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 permits or 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 drift 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 or 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. Applications should be timed to provide the maximum possible interval between treatment and the next period of bee activity.

PHYSICAL AND CHEMICAL HAZARDS

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

DIRECTIONS FOR USE

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

Do not allow spray treatment to drift on cropland (other than crops listed) or potable water supplies.

Not for use in outdoor residential misting systems.

Not for use in metered systems.

Application is prohibited directly into sewers or drains, or to any area like a gutter where drainage to sewers, storm drains, water bodies, or aquatic habitat can occur. Do not allow the product to enter any drain during or after application.

MOSQUITO CONTROL RATES AND METHODS OF USE

As a thermal or non-thermal fog **MARC ULV MOSQUITO, FLY AND GNAT CONTROL** may be applied either diluted or undiluted.

Ultra low volume (ULV) non-thermal aerosol (cold fog) application of **MARC ULV MOSQUITO, FLY AND GNAT CONTROL** is beneficial to control adult mosquitoes, flies and gnats. Use sites include, but are not limited to: athletic fields, campsites, gardens, golf courses, municipalities, overgrown waste areas, parks, playgrounds, recreational areas, residential areas, and woodlands. Treatment when insects are most active and conditions are favorable for keeping the fog close to the ground provide best results.

Ground and aerial applications should be made when meteorological conditions, such as an air temperature inversion, are favorable to keeping the spray cloud close to the ground. The cool hours of early morning or evening are the most beneficial application times. Air temperatures should be greater than 50° F when conducting all types of applications. Avoid application in calm air conditions. Apply only when ground wind speed is greater than 1 mph. Do not apply when wind speeds exceed 10 mph. Applications cannot exceed the specified rates.

Do not treat a site with more than 0.007 lbs of each active ingredient, permethrin and piperonyl butoxide per acre in a 3-day period. Retreatments within a 3-day period must not exceed 0.007 total lbs of permethrin in any site/ Do not exceed 25 applications of 0.007 lbs permethrin or piperonyl butoxide per acre at any site in one calendar year, or exceed 0.18 lbs of permethrin or piperonyl butoxide per acre per site per year. When rotating this product with other insecticides containing piperonyl butoxide, do not exceed 2 lbs piperonyl butoxide per acre per site 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 disease in animal or human populations, or if specifically approved by the state or tribe during a natural disaster recovery effort.

For control of adult mosquitoes and biting flies, application is allowed over listed growing crops prior to harvest and range grasses within or adjacent to these areas:

Alfalfa	Celery	Peaches/Nectarines
Almonds	Cherry	Pears
Apples	Corn field	Pepper, bell
Artichoke	Pop and sweet	Pistachios
Asparagus	Eggplant	Potatoes
Avocado	Filberts (Hazelnuts)	Soybeans
Broccoli	Garlic	Spinach
Brussels Sprouts	Horseradish	Tomatoes
Cabbage	Lettuce	Walnuts
Cantaloupe	Onions	
Cauliflower	Papayas (FL ONLY)	

Cucurbit vegetables, including Chayote (fruit), Chinese waxgourd (Chinese preserving melon), Citron melon, Cuban pumpkin, Cucumber, Gherkin, Gourd (edible, includes hyotan, cucuzza, hechima, Chinese okra), Momordica spp. (includes balsam apple, balsam pear, bitter melon, Chinese cucumber), Muskmelon (hybrids and/or cultivars of Cucumis melo including true cantaloupe, cantaloupe, casaba, Crenshaw melon, golden pershaw melon, honeydew melon, honey balls, mango melon, Persian melon, pineapple melon, Santa Claus melon, snake melon and Winter melon), Pumpkin, Squash (includes summer squash types such as: butternut squash, calabaza, crookneck squash, Hubbard squash, scallop squash, straightneck squash, vegetable marrow and zucchini, and winter squash types such as acorn squash and spaghetti squash), Watermelon (includes hybrids and/or varieties of Citrullus lanatus).

Leafy Vegetables, including Leafy vegetables (except brassica), Amaranth (leafy amaranth, Chinese spinach, tampala), Arugula (Roquette), Chervil, Chrysanthemum (edible leaved and garland), Corn salad, Cress (garden), Cress (upland, yellow rocket, winter cress), Dandelion, Dock (sorrel), Endive (escarole), Lettuce (head and leaf), Orach, Parsley, Purslane (garden and winter), Radicchio (red chicory), Spinach (including New Zealand and vine – Malabar spinach, Indian spinach).

Cover any exposed drinking water, drinking fountains and animal feed before application/treatment of animal housing, corrals, feedlots, poultry ranges, swine pens, or zoos.

SPRAY DROPLET SIZE DETERMINATION

Ground Equipment: Spray equipment must be adjusted so that the volume median diameter is less than 30 microns ($Dv\ 0.5 < 30\ \mu m$) and that 90% of the spray is contained in droplets smaller than 50 microns ($Dv\ 0.9 < 50\ \mu m$). Directions from the equipment manufacturer or vendor, 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.

Aerial Application made at <200 above ground elevation: Spray equipment must be adjusted so that the volume median diameter produced is less than 60 microns ($Dv\ 0.5 < 60\ \mu m$) and that 90% of the spray is contained in droplets smaller than 100 microns ($Dv\ 0.9 < 100\ \mu m$). 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 above ground elevation: Spray equipment must be adjusted so that the volume median diameter produced is less than 70 microns ($Dv\ 0.5 < 70\ \mu m$) and that 90% of the

spray is contained in droplets smaller than 145 microns (Dv 0.9 < 145 microns). 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 APPLICATION

ULV Non-Thermal Aerosol (cold fog) Application: To control mosquitoes, midges and black flies, apply **MARC ULV MOSQUITO, FLY AND GNAT CONTROL** using any standard ULV ground equipment with a swath width of 300 feet capable of producing a non-thermal aerosol spray. If applying the product undiluted, apply at a flow rate of 2.28 to 16.08 ounces per minute at an average vehicle speed of 10 mph. These rates are equivalent to 0.001 to 0.007 pounds of permethrin and the same amount of 0.001 to 0.007 pounds of synergist piperonyl butoxide per acre. If 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 populations are high. An accurate flow control system must be used to ensure proper flow rate. **MARC ULV MOSQUITO, FLY AND GNAT CONTROL** may also be applied by diluting with a suitable solvent such as mineral oil and applying so as not to exceed the maximum pounds of active ingredient per acre as shown in the first column of the ULV table shown below. That table represents some suggested application rates for ground ULV applications. If an alternative dilution rate is used, adjust the flow rate accordingly.

Thermal Aerosol Fogging: Apply diluted or undiluted with suitable Thermal Fogging equipment such as truck-mounted fog generators or other equipment capable of making thermal fogging applications. Do not exceed the maximum rate of 0.007 lbs. a.i./acre. May be applied at speeds of 5 to 20 mph, using a 300 ft. swath width for calculations. To reduce oil requirement and sludge buildup in equipment, use a suitable mineral oil of 60 – 100 second viscosity. For use with handheld, backpack or lawn mower thermal fogging equipment, do not exceed the maximum rate of 0.007 lbs. a.i./acre. Use a walking speed of 2 mph (3.2 kph) and a swath width of 300 feet for calculations.

Barrier Applications: For use in non-thermal ULV, motorized, portable, backpack, handheld or truck-mounted fogging equipment, apply **MARC ULV MOSQUITO, FLY AND GNAT CONTROL** with a mist blower adjusted to deliver droplets with a volume median diameter of 50 – 100µm. Use undiluted or diluted to achieve an application of 0.001 / 0.001 # a.i./acre. Do not use more than 0.007 lbs. a.i./acre. Use a 300 ft. (15.2 m) swath width for calculations. For backpack or handheld applications, use a walking speed of 2 mph (3.2 kph) and a 300 ft. swath width for calculations. If using a different speed, swath or dilution, do not exceed the maximum a.i./acre. Direct spray onto foliage at the perimeter of areas where mosquitoes or flies are to be excluded or into harborage areas where adult mosquitoes or flies may be found. May be used to treat abandoned buildings, residential buildings, warehouses, storm drains, underground drainage pipes and other areas where adult mosquitoes find harborage.

Rates to use MARC ULV MOSQUITO, FLY AND GNAT CONTROL Undiluted for Mosquito Control

PERMETHRIN/PBO LBS. A.I./ACRE	APPLICATION RATES/FLUID OUNCES PER MINUTE PER MPH				Fluid Ozs. (ml) per Acre
	5 mph	10 mph	15 mph	20 mph	
0.007/0.007	8.04	16.08	24.12	32.16	2.68 fl. oz. (79.24 ml)
0.0035/0.0035	4.02	8.04	12.06	16.08	1.34 fl. oz. (39.62 ml)
0.001/0.001	1.14	2.28	3.42	4.56	0.38 fl. oz. (11.32 ml)

Rates to use MARC ULV MOSQUITO, FLY AND GNAT CONTROL Diluted 1 Part with 2 Parts Mineral Oil

PERMETHRIN/PBO LBS. A.I./ACRE	APPLICATION RATES/FLUID OUNCES PER MINUTE PER MPH				Diluted Fluid Ozs. (ml) per Acre
	5 mph	10 mph	15 mph	20 mph	
0.007/0.007	24.12	48.24	72.36	96.48	8.04 fl. oz. (237.77 ml)
0.0035/0.0035	12.06	24.12	36.18	48.24	4.02 fl. oz. (118.89 ml)
0.001/0.001	3.42	6.84	10.26	13.68	1.14 fl. oz. (11.32 ml)

AERIAL APPLICATION

MARC ULV MOSQUITO, FLY AND GNAT CONTROL may be applied either diluted or undiluted by fixed wing or rotary aircraft at rates not to exceed 0.007 lb. a.i./acre. Apply at a sufficient airspeed to deliver the appropriate amount of a.i./acre (from 0.001 to 0.007 # a.i./acre) and to achieve the appropriate droplet range. Apply only when ground wind speed is equal to or greater than 1 mph. 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.

For best results, treat when insects are most active and meteorological conditions are conducive to keeping the spray cloud in the air column close to the ground. In order to compensate for windy conditions and ensure drift onto the target area, aerial application with aircraft equipped with Global Positioning Systems (GPS) is recommended.

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

STORAGE AND DISPOSAL

Do not contaminate water, food or feed by storage or disposal. Open dumping is prohibited.

Pesticide Storage and Spill Procedures: Store upright at room temperature. Avoid exposure to extreme temperatures. In case of spill or leakage, soak up with an absorbent material such as sand, sawdust, earth, fuller's earth, etc. Dispose of with chemical waste.

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

Container Handling: Nonrefillable Container: Metal or Plastic Container. Do not reuse or refill container. Triple rinse or pressure rinse container (or equivalent) promptly after emptying. Offer for recycling, if available, or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities, such as burning of plastic containers. If burned, stay out of smoke. Triple rinse as follows:

Containers 5 gallons or less: Empty the remaining contents into application equipment and drain for 10 seconds after the flow begins to drip. Fill the container ¼ full with mineral oil and recap. Shake for 10 seconds. Pour rinsate into 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 cleaned, offer for recycling or reconditioning if appropriate, or puncture and dispose of in a sanitary landfill or by other procedures approved by State and local authorities. Do not cut or weld metal containers.

Containers larger than 5 gallons: Empty the remaining contents into application equipment. Fill the container ¼ full with mineral oil. Replace and tighten closures. Tip container on its side and roll 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. 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 cleaned, offer for recycling or reconditioning if appropriate.

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.

Return container to point of purchase for reuse with seal intact and in salable condition. Before refilling, inspect thoroughly for damage such as cracks, punctures, bulges, dents, abrasions, and damaged or worn threads on closure devices. After filling and before transporting, check for leaks. Do not refill or transport damaged or leaking container.

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.

BULK STORAGE AND DISPOSAL

AGITATE BEFORE USE

Do not contaminate water, food or feed by storage or disposal. Open dumping is prohibited.

Storage: Ground water contamination may be reduced by diking and flooring of permanent liquid bulk storage sites with an impermeable material.

Pesticide Disposal: Pesticide spray mixture or rinsate that cannot be used according to label instructions must be disposed of according to Federal and local procedures under Subtitle C or the Resource Conservation and Recovery Act.

WARRANTY STATEMENT

NOTICE: Read the entire Directions for Use and Conditions of Sale and Limitation of Warranty and Liability before buying or using this product. If the terms are not acceptable, return the product at once, unopened, and the purchase price will be refunded.

The Directions for Use of this product must be followed carefully. It is impossible to eliminate all risks inherently associated with the use of this product. Ineffectiveness or other unintended consequences may result because of such factors as manner of use or application, weather, presence of other materials or other influencing factors in the use of the product, which are beyond the control of Mid-American Research Chemical Corp. or Seller. To the extent consistent with applicable law, all such risks shall be assumed by Buyer and User, and Buyer and User agree to hold Mid-American Research Chemical Corp. and Seller harmless for any claims relating to such factors.

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