



# MERUS™ 2.0



FOR USE IN ORGANIC PRODUCTION

For control of adult mosquitoes in Outdoor Residential, Recreational and Agricultural Areas  
Contains pyrethrins - a botanical insecticide derived from chrysanthemums



STATE OF HAWAII  
Department of Agriculture

**ACCEPTED**

LICENSE NO. **8002.12**

LOT NO.

ACTIVE INGREDIENT:	
Pyrethrins, a botanical insecticide.....	5.0%
OTHER INGREDIENTS*.....	95.0%
	100.0%

Contains 0.41 pounds Pyrethrins per gallon

\* contains petroleum distillate

PEEL BACK BOOK HERE AND RESEAL AFTER OPENING

NET CONTENTS: [ ] 2.5 GAL [ ] 5 GAL

## KEEP OUT OF REACH OF CHILDREN CAUTION

### FIRST AID

Have product container or label with you when calling a poison control center or doctor, or going for treatment. **For medical emergencies or information on health concerns for this product, you may call 1-800-214-7753.**

#### IF SWALLOWED:

- Immediately call a poison control center or doctor. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give **any** liquid to the person. Do not give anything by mouth to an unconscious person.

NOTICE TO PHYSICIAN: Contains petroleum distillate. Vomiting may cause aspiration pneumonia.

MANUFACTURED FOR  
**CLARKE MOSQUITO CONTROL PRODUCTS, INC.**  
159 N. GARDEN AVE - ROSELLE, ILLINOIS 60172  
For more information call: 1-800-323-5727

EPA Est. No.: 1021-MN-02  
EPA Reg. No.: 8329-94  
AL0409J

MERUS™ is a Trademark of Clarke Mosquito Control Products, Inc.

Refer to inside of label booklet for Precautionary Statements and Directions for Use including Storage and Disposal.

**PRECAUTIONARY STATEMENTS  
HAZARDS TO HUMANS AND DOMESTIC ANIMALS**

**CAUTION. Contains petroleum distillate.** Harmful if swallowed. Wash hands thoroughly with plenty of soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet. Remove and wash contaminated clothing before reuse. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals.

**Personal Protective Equipment (PPE):** Mixers, loaders, applicators and other handlers must wear the following: long-sleeve shirt, long pants, shoes and socks. In addition, all handlers, except for applicators using truck-mounted or aerial application equipment, must wear chemical resistant gloves (such as barrier laminate, nitrile rubber, neoprene rubber, Viton, Selection Category E). See engineering controls for additional requirements.

**User Safety Requirements:** Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables 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 the product's concentrate. Do not reuse them.

**User Safety Recommendations:** Users should wash hands before eating, drinking, chewing gum, 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. 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 170.240(d)(6)]. Human flagging is prohibited. Flagging to support aerial application is limited to use of the Global Positioning System (GPS) or mechanical flaggers.

**ENVIRONMENTAL HAZARDS**

This pesticide is 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. 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 wash waters.

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.

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 treatment 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.

**DIRECTIONS FOR USE**

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

**USE RESTRICTIONS**

Apply this product only as specified on this label. This product is not for use in outdoor residential misting systems. Do not apply this product with thermal fogging equipment. Do not apply this product in enclosed spaces using hand-held or portable backpack spray equipment. Do not make applications during rain.

Apply this product only as an aerial or ground ULV (vehicle-mounted, backpack, or hand-held ULV) mosquito adulticide.

For use only by federal, state, tribal or local government 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.

IN CALIFORNIA: This product is to be applied by County Health Department, State Department of Health Services, Mosquito and Vector Control or Mosquito Abatement District personnel, or persons under contract to these entities only.

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

The maximum application rate for wide-area mosquito adulticide applications is 0.0025 lb a.i. /acre per day. When targeting *Aedes taeniorhynchus* and other difficult species, applications may be made up to 0.008 lb a.i./acre/day.

Do not apply more than 0.2 lb a.i. per acre per year in any treated area. 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.

**WIND SPEED:** Apply only when wind speed is greater than 1 mph.

MERUS 2.0 may be used undiluted or diluted with suitable light mineral oil and applied as an ultra low volume (ULV) non-thermal aerosol (cold fog) or in suitable mechanical spray equipment. MERUS 2.0 cannot be diluted in water.

MERUS 2.0 may be used to control adult mosquitoes in mosquito control programs including residential, industrial, recreational, and agricultural areas, in vegetation surrounding swamps, marshes, overgrown waste areas, roadsides and pastures and other areas adult mosquitoes occur. For best results, treat when mosquitoes are most active. Application during the cool hours of the night or early morning is usually preferable, with a minimum application temperature of 50°F.

**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) can influence pesticide drift. The applicator must evaluate all factors and make appropriate adjustments when applying this product.

**GROUND-BASED WIDE-AREA MOSQUITO ABATEMENT APPLICATION:** Spray equipment must be adjusted so that the volume median diameter is less than 30 microns (Dv 0.5 < 30 µm) and that 90% of the spray is contained in droplets smaller than 50 microns (Dv 0.9 < 50 µm). 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.

To control mosquitoes, apply MERUS 2.0 using any standard ULV vehicle-mounted applicator capable of producing a non-thermal (cold fog) aerosol spray cloud with appropriately sized droplets. Apply undiluted at a flow rate of 3.0 to 4.7 fluid ounces per minute at an average vehicle speed of 10 mph. If a different vehicle speed is used, adjust rate accordingly. These rates are equivalent to 0.0016 to 0.0025 pounds active ingredient per acre. Within this range, vary flow rate according to vegetation density and mosquito population. Use higher rate in heavy vegetation or when pest population numbers are high.

If dilution is preferred, adjust the flow rate accordingly to achieve 0.0016 to 0.0025 pounds a.i./Acre. Applicable flow rates for a 1 part concentrate to 1 part oil dilution are presented. If an alternate dilution rate is used, adjust the flow rate accordingly.

**Rates to use MERUS 2.0 Undiluted for mosquito control**

a.i./Acre (lb)	Application Rates (Fl.oz./Minute) at vehicle speeds of:				MERUS 2.0/ Acre (Fl.oz.)
	5 MPH	10 MPH	15 MPH	20 MPH	
0.0025	2.4	4.7	7.1	9.5	0.78
0.0021	2.0	4.0	6.0	7.9	0.66
0.0018	1.7	3.4	5.1	6.8	0.56
0.0016	1.5	3.0	4.5	6.1	0.50

**Rates to use a 2.5% pyrethrins dilution (1 to 1 dilution ratio) for mosquito control:**

a.i./Acre (lb)	Application Rates (Fl.oz./Minute) at vehicle speeds of:				MERUS 2.0/ Acre (Fl.oz.)
	5 MPH	10 MPH	15 MPH	20 MPH	
0.0025	4.7	9.5	14.2	18.9	1.56
0.0021	4.0	7.9	11.9	15.9	1.31
0.0018	3.4	6.8	10.2	13.6	1.12
0.0016	3.0	6.1	9.1	12.1	1.00

**Applications up to 2.50 fl.oz. (0.008 lb a.i.) per acre may be made when targeting *Aedes taeniorhynchus* or other difficult to control species.**

a.i./Acre (lb)	Application Rates (Fl.oz./Minute) at vehicle speeds of:				MERUS 2.0 / Acre (Fl.oz.)
	5 MPH	10 MPH	15 MPH	20 MPH	
0.008	7.6	15.1	22.7	30.3	2.50

Urban ULV mosquito control: for control of resting or flying adult mosquitoes in areas such as utility tunnels, pipe chases, underground basements, underground passages, parking decks, crawl spaces or uninhabited buildings. Apply using handheld or truck-mounted ULV equipment, or other spray equipment suitable for this application. Apply at rates up to but not exceeding 0.0025 pounds a.i. per acre per day (0.78 fluid ounces of undiluted spray per acre per day). Do NOT use hand-held equipment for this type of application in enclosed spaces.

MERUS 2.0 may also be applied with non-thermal, portable, motorized backpack equipment adjusted to deliver ULV particles of less than 100 microns VMD. Use 0.50 to 0.78 fl.oz. of the undiluted spray per acre (equal to 0.0016 to 0.0025 lb.ai./acre) as a 50 ft (15.2 m) swath while walking at a speed of 2 mph (3.2 kph). Dilute with a suitable mineral oil if dilution is preferred. Do NOT use portable backpack equipment for application in enclosed spaces.

**AERIAL WIDE-AREA MOSQUITO ABATEMENT APPLICATION:**

Spray equipment must be adjusted so that the volume median diameter produced is less than 60 microns (Dv 0.5 < 60 µm) and that 90% of the spray is contained in droplets smaller than 80 microns (Dv 0.9 < 80 µm). 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.

Apply using nozzle height of no less than 100 feet for fixed wing aircraft or 75 feet for rotary wing aircraft above the ground or canopy, unless specifically approved by the state or tribe based on public health needs.

Apply by suitable fixed wing or rotary aircraft equipped with nozzles capable of producing a non-thermal (cold fog) aerosol spray cloud with appropriately sized droplets. Flow rate and swath width should be set so as to achieve 0.50 to 0.78 fluid ounces of undiluted MERUS 2.0 per acre.

a.i./Acre (lb)	MERUS 2.0 / Acre (Fl.oz.)
0.0025	0.78
0.0021	0.66
0.0018	0.56
0.0016	0.50

MERUS 2.0 may also be diluted with suitable diluent light mineral oil and applied by suitable aircraft at appropriate flow rates to achieve a dosage of 0.0016 to 0.0025 lb a.i. per acre. Diluted or undiluted, applications up to 2.50 fl.oz. MERUS 2.0 (0.008 lb a.i.) per acre/day may be made when targeting *Aedes taeniorhynchus* or other difficult to control species.

**STORAGE AND DISPOSAL**

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

**PESTICIDE STORAGE AND SPILL PROCEDURES:** Keep this product in its tightly closed original container when not in use. Store upright at room temperature in a dry (preferably locked) area that is inaccessible to children and animals. 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 must be disposed of on site or at an approved waste disposal facility.

**CONTAINER HANDLING:** Nonrefillable container. Do not reuse or refill this container. Triple rinse container (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 1/4 full with mineral oil and recap. Shake for 10 seconds. Pour rinsate into application equipment or a rinse 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. Offer for recycling if available or reconditioning if appropriate, or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities.

**NOTICE:** To the extent consistent with applicable law, Clarke Mosquito Control Products, Inc. makes no other warranties, express or implied, of merchantability or of fitness for a particular purpose or otherwise, that extend beyond the statements made on this label. To the extent consistent with applicable law, Buyer assumes all risk of use/handling of this material when use and/or handling is contrary to label instructions.



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