



OFFICE OF CHEMICAL SAFETY AND POLLUTION PREVENTION

WASHINGTON, D.C. 20460

November 25, 2025

Nandita Chowdhury
Global Regulatory Manager
Clarke
675 Sidwell Ct.
St. Charles, IL 60174

Subject: Label Amendment - Registration Review Mitigation for Permethrin
Product Name: BIOMIST 31+66 ULV
EPA Registration Number: 8329-43
Case Number: 483125
Application Dates: 3/25/2021

Dear Nandita Chowdhury:

The Agency, in accordance with the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), as amended, has completed reviewing all the information submitted with your application to support the Registration Review of the above referenced product in connection with the Permethrin Interim Decision, and has concluded that your submission is acceptable. The label referred to above, submitted in connection with registration under FIFRA, as amended, is acceptable.

Should you wish to add/retain a reference to the company's website on your label, then please be aware that the website becomes labeling under the Federal Insecticide, Fungicide, and Rodenticide Act and is subject to review by the Agency. If the website is false or misleading, the product would be misbranded and unlawful to sell or distribute under FIFRA section 12(a)(1)(E). 40 CFR 156.10(a)(5) list examples of statements EPA may consider false or misleading. In addition, regardless of whether a website is referenced on your product's label, claims made on the website may not substantially differ from those claims approved through the registration process. Therefore, should the Agency find or if it is brought to our attention that a website contains false or misleading statements or claims substantially differing from the EPA approved registration, the website will be referred to the EPA's Office of Enforcement and Compliance Assurance.

A stamped copy of your labeling is enclosed for your records. This labeling supersedes all previously accepted labeling and must be used at your next label printing. You must submit one copy of the final printed labeling before you release the product for

shipment with the new labeling. In accordance with 40 CFR 152.130(c), you may distribute or sell this product under the previously approved labeling for 12 months from the date of this letter. After 12 months, you may only distribute or sell this product if it bears this new revised labeling or subsequently approved labeling. "To distribute or sell" is defined under FIFRA section 2(gg) and its implementing regulation at 40 CFR 152.3.

If you have any questions about this letter, please contact Alex McKee by phone at 202-566-1939, or via email at mckee.alex@epa.gov.

Sincerely,

A handwritten signature in blue ink that reads "Dana L. Friedman". The signature is fluid and cursive, with the first name "Dana" and last name "Friedman" clearly legible.

Dana L. Friedman, Chief
Risk Management and Implementation Branch 1
Pesticide Re-Evaluation Division
Office of Pesticide Programs
U.S. Environmental Protection Agency

ENCLOSURE: Stamped label

BIOMIST® 31+66 ULV

{Alternate Brand Name: CLARKE BIOMIST 31+66 ULV"}

PERMETHRIN**GROUP****3A****INSECTICIDE**

For Use Outdoors as an Ultra-Low Volume (ULV) Application to Control Adult Mosquitoes in Residential and Recreational Areas. Also For Use Against Biting and Non-Biting Midges and Blackflies.

*[For Aerial or Ground Application]**[For the control of adult mosquitoes within or adjacent to listed growing crops and range grasses]***Active Ingredients**

Permethrin (3-Phenoxyphenyl) methyl (+/-) cis,	
trans-3-(2,2-dichloroethenyl)-2,2-dimethyl cyclopropanecarboxylate	31.28%
Piperonyl Butoxide *	66.00%
Other Ingredients	2.72%
	100.00%

Contains 2.85 pounds of Permethrin and
6.01 pounds of Piperonyl Butoxide [PBO] per gallon

* PBO, (butyl carbityl) (6-propylpiperonyl) ether and related compounds.

**KEEP OUT OF REACH OF CHILDREN
CAUTION**

Manufactured For
CLARKE MOSQUITO CONTROL PRODUCTS, INC.
159 N. GARDEN AVENUE
ROSELLE, ILLINOIS 60172

ACCEPTED
Nov 25, 2025
Under the Federal Insecticide, Fungicide
and Rodenticide Act as amended, for the
pesticide registered under
EPA Reg. No. 8329-43

EPA Reg. No.: 8329-43

EPA Est. No.: _____

NET CONTENTS: _____

BATCH/LOT NO.: _____

FIRST AID

Have product container or label with you when calling a poison control center or doctor, or going for treatment. For Medical Emergencies, call the International Poison Control Center at 1-800-214-7753.

IF ON SKIN OR CLOTHING:	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:	Immediately call a poison control center or doctor. Do not induce vomiting unless told to do so by a poison control center or doctor. Have person sip a glass of water if able to swallow. Do not give anything by mouth to an unconscious person.
IF INHALED:	Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth. Call a poison control center or doctor for further treatment advice.
IF IN EYES:	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 the eye. Call a poison control center or doctor for treatment advice.

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

CAUTION. Harmful if absorbed. Avoid contact with skin, eyes, or clothing. Avoid Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals.

Personal Protective Equipment (PPE): Some materials that are chemical-resistant to this product are: barrier laminate, nitrile rubber, neoprene rubber, or Viton. Mixers, loaders, applicators, and other handlers must wear long-sleeve shirt and long pants, shoes plus socks. In addition, all handlers except for applicators using motorized ground equipment, pilots and flaggers, must wear chemical-resistant gloves. In addition, mixers/loaders, persons cleaning equipment, and other persons exposed to the concentrate must wear a chemical-resistant apron. 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 material that have been drenched or heavily contaminated with the product's concentrate. Do not reuse them.

Engineering Controls: Pilots must use an enclosed cockpit that meet 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 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.

PHYSICAL OR CHEMICAL HAZARDS

Do not use 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.

Insecticide Resistance Management (IRM) Recommendations

For resistance management, BIOMIST® 31+66 ULV contains a Group 3A insecticide. Any insect population may contain individuals naturally resistant to BIOMIST® 31+66 ULV and other Group 3A insecticides. The resistant individuals may dominate the insect population if this group of insecticides are used repeatedly in the same area. Appropriate resistance-management strategies should be followed.

To delay insecticide resistance, take the following steps:

- Rotate the use of BIOMIST® 31+66 ULV or other Group 3A insecticides with other labeled effective mosquito adulticides that have a different mode of action.
- Adopt an integrated pest management program for insecticide use that includes surveillance, uses historical information related to pesticide use, record keeping, and which considers biological and other chemical control practices.
- Monitor after application for unexpected target pest survival. If the level of survival suggests the presence of resistance, contact your local university specialist or Clarke representative.

- Contact your local extension specialist, technical advisor, and/or Clarke representative for any additional pesticide resistance-management and/or IPM recommendations for the specific site and pest problem in your area.
- For further information or to report suspected resistance, contact your local Clarke representative by calling 1-800-323-5727.

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

MANDATORY SPRAY DRIFT MANAGEMENT

Ultra Low Volume Applications

- Apply when ground wind speeds are equal to or greater than 1 mph.
- All types of applications should be conducted when temperatures at ground level are at or above 50°F.

For Ground Applications:

- Create an optimum swath when possible. An optimum swath width can be achieved when BIOMIST® 31+66 ULV is applied from a truck that is being driven perpendicular to the wind direction. Direct the spray head of equipment to ensure even distribution of the spray cloud throughout the area.
- FOR BEST RESULTS treat when mosquitoes or other labeled insects are most active and weather conditions are conducive to keeping the spray cloud in the air column close to the ground.
- An inversion of air temperatures and a light breeze is preferable. Application during the cooler hours of the night or early morning is recommended.

For Aerial Applications:

- Do not apply by fixed wing aircraft at a nozzle height less than 100 feet (30.5 m) above ground or canopy, or by helicopter at a height less than 75 feet (22.9 m) above the ground or canopy, unless specifically approved by the state or tribe based on public health needs.

Adult mosquito control applications should be limited to trained personnel.

- 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 supervision, or as allowed by state regulations for persons treating private property.
- This pesticide is extremely toxic to aquatic organisms. Runoff from treated areas or deposition of spray droplets into a body of water may be hazardous to aquatic organisms.
- 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 beyond the body of water 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.
- Do not treat a site with more than 0.007 lbs of permethrin and 0.015 lbs of piperonyl butoxide [PBO] per acre in a single application or in any 24-hour period. Do not exceed 0.18 lbs of permethrin or 0.38 lbs piperonyl butoxide [PBO] per acre in any site in one year. More frequent applications 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.

Not for use in metered release systems.

Not for use in outdoor residential misting systems.

Do not contaminate crop land (other than crops listed) or potable water supplies with spray drift.

Do not make applications during rain.

USE INFORMATION

BIOMIST® 31+66 ULV is approved for application as a thermal aerosol and an ultra low volume (ULV) nonthermal aerosol (cold fog) to control adult mosquitoes in residential and recreational areas and other areas these insects occur, such as but not limited to parks, campsites, woodlands, athletic fields, golf courses, residential areas and municipalities, gardens, playgrounds, and overgrown waste areas.

BIOMIST® 31+66 ULV can be applied over specific growing crops and range grasses prior to harvest for the control of adult mosquitoes within or adjacent to these areas. Application can be made where the following crops are present:

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

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

In the treatment of corrals, feedlots, swine lots, poultry ranges and zoos cover any exposed drinking water, drinking fountains and animal feed before application.

When rotating this product with other insecticides containing [piperonyl butoxide][PBO], do not exceed 2 lbs [piperonyl butoxide][PBO] per acre per site per year.

SPRAY DROPLET SIZE DETERMINATION

Ground-based Application: Spray equipment must be adjusted so that the volume median diameter (VMD) 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, 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 or below 200 feet above ground elevation: Spray equipment must be adjusted so that the volume median diameter produced is less than 60 microns ($D_v 0.5 < 60 \mu m$) and that 90% of the spray is contained in droplets smaller than 100 microns ($D_v 0.9 < 100 \mu m$). 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 greater than 200 feet above ground elevation: Spray equipment must be adjusted so that the volume median diameter produced is less than 70 microns ($D_v 0.5 < 70 \mu m$) and that 90% of the spray is contained in droplets smaller than 145 microns ($D_v 0.9 < 145 \mu m$). 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.

GROUND ULV APPLICATION

Apply BIOMIST® 31+66 ULV through standard ULV cold aerosol or non-thermal aerosol (Cold Fog) generators undiluted at a flow rate of 1.0 to 3.8 fluid ounces per minute, and an average vehicle speed of 20 MPH. If a different vehicle speed is used, adjust rate accordingly. These rates are equivalent to 0.00175 to 0.007 pounds of permethrin and 0.0037 to 0.015 lbs piperonyl butoxide [PBO] per acre. BIOMIST® 31+66 ULV may also be applied by diluting with a suitable solvent such as mineral oil and applying so as not to exceed 0.007 lbs Permethrin or 0.015 lbs piperonyl butoxide [PBO] per acre. The following charts represent suggested dilution and application rates for ground ULV applications. If an alternate dilution rate is used, adjust flow rate accordingly.

Vary flow rate according to vegetation density and mosquito population. Use higher flow rate in heavy vegetation or when populations are high.

CONDITIONS and RATES to USE for MOSQUITO CONTROL

Permethrin/PBO Pounds per Acre	Application Rates Fl. oz./Minute				Fl.oz. Biomist 31+66 ULV per Acre
	5 MPH	10 MPH	15 MPH	20 MPH	
0.007/0.015	1.0	1.9	2.9	3.8	0.31
0.0035/0.0074	0.5	1.0	1.4	1.9	0.16
0.00175/0.0037	0.2	0.5	0.7	1.0	0.08

FOR A 1:2 BIOMIST 31+66 ULV/SOLVENT DILUTION RATIO

Mix one (1) part BIOMIST® 31+66 with two (2) parts solvent and apply at the following rates.

Permethrin/PBO Pounds per Acre	Application Rates Fl. oz./Minute				Fl.oz. Finished Spray per Acre
	5 MPH	10 MPH	15 MPH	20 MPH	
0.007/0.015	2.9	5.7	8.6	11.4	0.94
0.0035/0.0074	1.4	2.9	4.3	5.7	0.47
0.00175/0.0037	0.7	1.4	2.1	2.9	0.24

FOR A 1:4 BIOMIST 31+66 ULV/SOLVENT DILUTION RATIO

Mix one (1) part BIOMIST® 31+66 with four (4) parts solvent and apply at the following rates.

Permethrin/PBO Pounds per Acre	Application Rates Fl. oz./Minute				Fl.oz. Finished Spray per Acre
	5 MPH	10 MPH	15 MPH	20 MPH	
0.007/0.015	4.8	9.5	14.3	19.1	1.57
0.0035/0.0074	2.4	4.8	7.2	9.5	0.79
0.00175/0.0037	1.2	2.4	3.6	4.8	0.39

FOR A 1:8 BIOMIST 31+66 ULV/SOLVENT DILUTION RATIO

Mix one (1) part BIOMIST® 31+66 with eight (8) parts solvent and apply at the following rates.

Permethrin/PBO Pounds per Acre	Application Rates Fl. oz./Minute				Fl.oz. Finished Spray per Acre
	5 MPH	10 MPH	15 MPH	20 MPH	
0.007/0.015	8.6	17.2	25.8	34.3	2.83
0.0035/0.0074	4.3	8.6	12.9	17.2	1.42
0.00175/0.0037	2.1	4.3	6.4	8.6	0.71

FOR A 1:14 BIOMIST 31+66 ULV/SOLVENT DILUTION RATIO

Mix one (1) part BIOMIST® 31+66 with fourteen (14) parts solvent and apply at the following rates.

Permethrin/PBO Pounds per Acre	Application Rates Fl. oz./Minute				Fl.oz. Finished Spray per Acre
	5 MPH	10 MPH	15 MPH	20 MPH	
0.007/0.015	14.3	28.6	-	-	4.72
0.0035/0.0074	7.2	14.3	21.5	28.6	2.36
0.00175/0.0037	3.6	7.2	10.7	14.3	1.18

Failure to follow the above directions may result in reduced effectiveness.

BIOMIST 31+66 ULV may be applied through truck-mounted thermal fogging equipment. Do not exceed the maximum rates listed above. To reduce oil requirement and sludge buildup in equipment, use a 60 - 100-second viscosity mineral "fog" oil or other fuel-type oil. Use a clean, well-maintained and properly calibrated fogger. Do not wet foliage since oil base formulations may be phytotoxic. For use with hand carried foggers, use same rates of active ingredient per acre and a swath width of 50 ft with a walking speed of 2 mph. Do NOT use hand carried thermal fogger for application in enclosed spaces. Fog downwind, with the wind at your back.

AERIAL APPLICATION

BIOMIST® 31+66 ULV may be applied undiluted at rates 0.16 to 0.31 fl.oz. BIOMIST® 31+66 ULV per acre by fixed wing or rotary aircraft equipped with suitable ULV application equipment. BIOMIST® 31+66 ULV may also be diluted with a suitable solvent such as mineral oil and applied by aerial ULV equipment so long as 0.31 fluid ounce per acre of BIOMIST® 31+66 ULV is not exceeded.

[Storage and Disposal for non-refillable containers, capacity 5 gallons or less]

STORAGE & DISPOSAL

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

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 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 (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 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, or puncture and dispose of in a sanitary landfill, or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

*[Storage and Disposal for non-refillable containers, capacity greater than 5 gallons]***STORAGE & DISPOSAL**

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

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 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 (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. 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 rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times. Then 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.

*[Storage and Disposal for refillable containers]***STORAGE & DISPOSAL**

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

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 must be disposed of on site or at an approved waste disposal facility.

CONTAINER HANDLING: 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 this container into application equipment or mix tank. Fill the container about 10 percent full with water. Agitate vigorously or recirculate water with the pump for 2 minutes. Pour or pump rinsate into rinsate collection system. Repeat this rinsing procedure two more times. Then 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.

IN CASE OF MEDICAL EMERGENCY, CALL THE INTERNATIONAL POISON CONTROL CENTER

1-800-214-7753

IN CASE OF TRANSPORTATION EMERGENCY, CALL INFO-TRAC 1-800-535-5053

FOR MORE INFORMATION CALL: 1-800-323-5727

NOTICE: To the extent provided by law, seller makes no warranty, expressed or implied, concerning the use of this product other than as indicated on the label. Buyer assumes all risk of use and/or handling of this material when use and/or handling is contrary to label instructions.

BIOMIST® is a Registered Trademark of Clarke Mosquito Control Products, Inc.