

# DUET<sup>®</sup>

## Dual-action Adulticide

A quick knockdown oil soluble synergized synthetic pyrethroid for effective control of adult MOSQUITOES, GNATS, BITING and NON-BITING MIDGES, and BLACK FLIES in outdoor residential and recreational areas.



www.clarke.com

### Active Ingredients

Prallethrin: (RS)-2-methyl-4-oxo-3-(2-propynyl) cyclopent-2-enyl-(1RS)-cis,trans-chrysanthemate .....	1.00%
Sumithrin®: 3-Phenoxybenzyl-(1RS, 3RS; 1RS, 3SR)-2, 2-dimethyl-3-(2-methylprop-1-enyl) cyclopropanecarboxylate .....	5.00%
Piperonyl Butoxide, Technical * .....	5.00%
Other Ingredients ** .....	89.00%

100.00%

Contains 0.075 pounds of Prallethrin/Gallon, 0.375 pounds of Sumithrin®/Gallon, and 0.375 pounds Technical Piperonyl Butoxide/Gallon

\* Equivalent to 4.00% (butylcarbityl) (6-propylpiperonyl) ether and 1.00% related compounds.

\*\* Contains petroleum distillate

## CAUTION

### KEEP OUT OF REACH OF CHILDREN

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

### FIRST AID

**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 a doctor. Do not give any liquid to the person. Do not give anything by mouth to an unconscious person.

**Have the product container or label with you** when calling a poison control center or doctor, or going for treatment. For information regarding medical emergencies or pesticide incidents, call 1-888-740-8712.

**NOTE TO PHYSICIAN:** Contains petroleum distillate – vomiting may cause aspiration pneumonia.

### PRECAUTIONARY STATEMENTS

#### HAZARDS TO HUMANS AND DOMESTIC ANIMALS

**CAUTION** Harmful if swallowed. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, or using tobacco. Remove and wash contaminated clothing before reuse.

#### ENVIRONMENTAL HAZARDS

This product 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 beyond the body of 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.

**BEE WARNING:** This product is highly toxic to bees exposed to direct treatment on blooming crops or weeds. Do not apply to or allow drift onto blooming crops or weeds when bees are 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.

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.

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.

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 only.

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

Do not contaminate food, feed or drinking water. Do not spray this product on or allow it to drift onto pastureland, rangeland, cropland, poultry ranges, or potable water supplies. In treatment of corrals, feed lots, swine lots and zoos, cover any exposed drinking water, drinking water fountains and animal feed before application.

Wear long sleeved shirt and long pants, socks and shoes.

DUET™ Dual-action Adulticide cannot be diluted in water. Dilute this product with light mineral oil if dilution is preferred.

USE AREAS: For use in mosquito adulticiding programs involving outdoor residential and recreational areas where adult mosquitoes are present in annoying numbers, and in vegetation surrounding parks, woodlands, swamps, marshes, overgrown areas and golf courses. For best results, apply when mosquitoes are most active and meteorological conditions are conducive to keeping the spray cloud close to the ground. Application in calm air conditions is to be avoided. Apply only when ground wind speed is greater than 1 mph. Air temperature should be greater than 50 F when conducting all types of applications. Do not treat a site with more than 0.0036 pounds of sumithrin or 0.00072 pounds of prallethrin per acre in a 7-day period. More frequent applications may be made if adult mosquitoes have reinfested the treatment area and 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. Do not exceed 0.094 pounds of sumithrin or 0.019 pounds of prallethrin in any site in a year.

When targeting *Aedes taeniorhynchus* and other difficult species, applications may be made at rates up to 0.007 lbs each a.i./acre for Sumithrin and Piperonyl Butoxide.

#### SPRAY DROPLET SIZE DETERMINATION

Ground-based Application: Spray equipment must be adjusted so that the volume median diameter (VMD) is between 8 and 30 microns (Dv 0.5 < 30 um) and that 90% of the spray is contained in droplets smaller than 50 microns (Dv 0.9 < 50 um). 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: Spray equipment must be adjusted so that the volume median diameter produced is less than 60 microns (Dv 0.5 < 60 um) and that 90% of the spray is contained in droplets smaller than 115 microns (Dv 0.9 < 115 um). 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

To control Mosquitoes and other listed insects, apply DUET™ Dual-action Adulticide at a flow rate of 2.5 to 7.4 fluid ounces per minute at an average vehicle speed of 10 mph using a swath width of 300 feet for acreage calculations (see chart below). Under normal residential conditions a flow rate of 4.6 fluid ounces per minute is recommended. If a different vehicle speed is used, adjust rate accordingly. These rates are equivalent to 0.00024 to 0.00072 pounds of Prallethrin and 0.0012 to 0.0036 pounds of Sumithrin® and piperonyl butoxide per acre. Vary flow rate according to vegetation density and mosquito population. Use higher flow rate in heavy vegetation or when populations are high. For proper application, mount the applicator so the nozzle is at least 4 ½ feet above ground level and directed out the back of the vehicle. Failure to follow the above directions may result in reduced effectiveness. DUET™ Dual-action Adulticide may also be diluted with a suitable solvent such as mineral oil and applied by GROUND U.L.V. equipment so long as 1.23 fluid ounces per acre of DUET™ Dual-action Adulticide is not exceeded. Refer to the tables below for flow rate calculations for diluted end-use formulations of DUET™ Dual-action Adulticide.

Use the following table to calculate application rates:

Pounds a.i./Acre	DUET™ Fl.oz./Acre	Flow Rates in fluid oz./minute at truck speeds of:					
		5 MPH	10 MPH	15 MPH	20 MPH		
0.00072	0.0036	0.0036	1.23	3.7	7.4	11.2	14.9
0.00044	0.0022	0.0022	0.75	2.3	4.6	6.8	9.1
0.00036	0.0018	0.0018	0.61	1.9	3.7	5.6	7.4
0.00024	0.0012	0.0012	0.41	1.2	2.5	3.7	5.0

DUET Dual-action Adulticide may also be applied undiluted with non-thermal, portable, motorized backpack equipment adjusted to deliver ULV particles of 50 to 100 microns VMD. Use 0.41 to 1.23 fl.oz. of the undiluted spray per acre (equal to 0.0012 to 0.0036 lb. sumithrin/acre) as a 50 ft (15.2 m) swath while walking at a speed of 2 mph (3.2 kph).

DUET Dual-action Adulticide may be applied for urban ULV mosquito control. For control of resting or flying adult mosquitoes, biting flies and biting midges in areas such as utility tunnels, sewers, storm drains and catch basins, pipe chases, underground basements, underground passages, parking decks, crawl spaces or uninhabited buildings. DUET Dual-action Adulticide may be applied using mechanical foggers, hand-held or truck mounted ULV equipment, non-thermal foggers or other spray equipment suitable for this application. Apply DUET Dual-action Adulticide at rates up to but not exceeding 0.0036 pounds sumithrin per acre in a 7-day period (not to exceed 0.094 pounds sumithrin per acre in any site in any year).

### AERIAL APPLICATION

Application shall be made when ground wind speed is equal to or greater than 1 mph. Applications shall be made when surface temperature exceeds 50°F. Application shall be made at 75 feet to 300 feet for rotary aircraft and 100 to 300 feet for fixed-wing aircraft. Flow rate and swath width shall be set so as to achieve 0.41 to 1.23 fluid ounces of DUET™ Dual-action Adulticide per acre. Appropriate spray systems include rotary atomizers, flat fan, high pressure, and high pressure impaction nozzles characterized and oriented to achieve the droplet characteristics above.

DUET™ Dual-action Adulticide may also be diluted with a suitable solvent such as mineral oil and applied by aerial U.L.V. equipment so long as 1.23 fluid ounces per acre of DUET™ Dual-action Adulticide is not exceeded. Refer to the tables below for flow rate calculations for diluted end-use formulations of DUET™ Dual-action Adulticide.

### DILUTION CALCULATIONS

For a 4% Sumithrin product, dilute 1 gallon DUET Dual-action Adulticide with 0.25 gallon oil. Finished spray contains 0.3 lbs Sumithrin & PBO and 0.06 pounds Prallethrin per gallon.

Dosage Description	Pounds a.i./Acre			Fluid oz. finished spray/Acre	Flow Rates in fluid oz./minute at truck speeds of:			
	Prallethrin	Sumithrin®	PBO		5 MPH	10 MPH	15 MPH	20 MPH
High Population	0.00072	0.0036	0.0036	1.54	4.7	9.3	14.0	18.6
Recommended	0.00044	0.0022	0.0022	0.94	2.8	5.7	8.5	11.4
Light	0.00036	0.0018	0.0018	0.77	2.3	4.7	7.0	9.3
Population	0.00024	0.0012	0.0012	0.51	1.6	3.1	4.7	6.2

For a 2.5% Sumithrin product, dilute 1 gallon DUET Dual-action Adulticide with 1 gallon oil. Finished spray contains 0.1875 lbs Sumithrin & PBO and 0.038 pounds Prallethrin per gallon

Dosage Description	Pounds a.i./Acre			Fluid oz. finished spray/Acre	Flow Rates in fluid oz./minute at truck speeds of:			
	Prallethrin	Sumithrin®	PBO		5 MPH	10 MPH	15 MPH	20 MPH
High Population	0.00072	0.0036	0.0036	2.46	7.4	14.9	22.3	29.8
Recommended	0.00044	0.0022	0.0022	1.50	4.6	9.1	13.7	18.2
Light	0.00036	0.0018	0.0018	1.23	3.7	7.4	11.2	14.9
Population	0.00024	0.0012	0.0012	0.82	2.5	5.0	7.4	9.9

For a 2% Sumithrin product, dilute 1 gallon DUET Dual-action Adulticide with 1.5 gallons oil. Finished spray contains 0.15 lbs Sumithrin & PBO and 0.03 pounds Prallethrin per gallon

Dosage Description	Pounds a.i./Acre			Fluid oz. finished spray/Acre	Flow Rates in fluid oz./minute at truck speeds of:			
	Prallethrin	Sumithrin®	PBO		5 MPH	10 MPH	15 MPH	20 MPH
High Population	0.00072	0.0036	0.0036	3.07	9.3	18.6	27.9	37.2
Recommended	0.00044	0.0022	0.0022	1.88	5.7	11.4	17.1	22.8
Light	0.00036	0.0018	0.0018	1.54	4.7	9.3	14.0	18.6
Population	0.00024	0.0012	0.0012	1.02	3.1	6.2	9.3	12.4

### STORAGE & DISPOSAL

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

PESTICIDE STORAGE: Store in a cool, dry place. Keep container closed.

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 FOR REFILLABLE DRUMS AND TOTES: Refillable container. Refill this container with pesticide only. Do not reuse this container for any other purpose. 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. 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.

CONTAINER DISPOSAL FOR NONREFILLABLE CONTAINERS: Nonrefillable container. Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. 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.

TRIPLE RINSE AS FOLLOWS: (CONTAINERS 5 GALLONS CAPACITY OR SMALLER): 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 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. (CONTAINERS LARGER THAN 5 GALLONS CAPACITY): Empty the remaining contents into the 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 the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times.

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.

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

Sumithrin™ is a Trademark of Sumitomo Company, Ltd.

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

Manufactured For

**CLARKE MOSQUITO CONTROL PRODUCTS, INC.**

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Net Contents:

EPA Est. No.: 8329-IL-01

Lot/Batch: