DUET™

Dual-action Adulticide

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

ACTIVE INGREDIENTS:
Pallethrin: (RS)-2-methyl-4-oxo-3-(2-propynyl) cyclopent-2-enyl-(1RS)-cis, trans-chrysanthemic acid.............................. 1.00%
Sumithrin® 3-Phenoxysbenzyl-(1RS, 3RS, 1RS, 3SR)-2,2-dimethyl-3-(2-methylprop-1-enyl) cyclopropanecarboxylate.................................................. 5.00%
Piperonyl Butoxide, Technical ............................................. 5.00%
Other Ingredients ** .......................................................... 89.00%

*Equivalent to 4.00% (by weight) (6-propylpiperonyl) ether and 1.00% related compounds.
**Contains petroleum distillate
Contains 0.075 pounds of Pallethrin/Gallon, 0.375 pounds of Sumithrin®/Gallon, and 0.375 pounds Technical Piperonyl Butoxide/Gallon

CAUTION
KEEP OUT OF REACH OF CHILDREN
PRECAUCION AL USUARIO: Si usted no le ingles, no use este producto hasta que la etiqueta haya sido explicado ampliamente.

EPA EST. No. 1021-MN-2
EPA Reg. No. 1021-1795-8329
AL0162.J

NET CONTENTS: □ 2.5 GAL
□ 5 GAL

MANUFACTURED FOR
CLARKE MOSQUITO CONTROL PRODUCTS, INC.
159 N GARDEN AVE., ROSELLE, ILLINOIS 60172 U.S.A.
Refer to inside of label booklet for additional precautionary information and Directions for Use including Storage and Disposal.

PEEL BACK BOOK HERE AND RESEAL AFTER OPENING
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 drink. 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 1-888-494-9172.

NOTE TO PHYSICIAN: Contains petroleum distillates – 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 mosquitoes are present, and weather conditions will facilitate movement of applied material beyond the body of water in order to reduce indirect or direct impact on the aquatic body. Do not contaminate bodies of water when disposing of equipment parts or waste. SEE WARNING. This product is highly toxic to bees exposed to direct treatment on blooming crop 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.

BEFORE THE FIRST APPLICATION IN A SEASON, it is advisable to consult with the state or tribal or local government agency responsible for public health or vector control, or its persons certified in the appropriate category or otherwise authorized by the state or tribal or local health sanitary and medical regulations, 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 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.

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

Do not contaminate food, feed or drinking water. Do not spray this product on or allow it to drift onto pasturized, rangeland, cropland, poultry ranges or potable water supplies. In treatment of cornfields, cotton, rice, tobacco, citrus and nursery and groves crops. For best results, apply when mosquitoes are most active and meteorological conditions are conducive to keeping the spray cloud close to the ground. Apply in calm air conditions in as low volume as possible. Apply only when ground wind speed is greater than 1 mph. An temperature should be greater than 50°F when conducting aerial application. So treat a site with more than 0.500 pounds of Sumithrin® or 0.0020 pounds of Permethrin per-acre in a 2-day period. More frequent applications may be made if adult mosquitoes have refilled 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 0.004 pounds of Sumithrin® or 0.019 pounds of prallethrin in any one site in a year.

When targeting Aedes aegypti and other difficult species, applications may be made at rates, up to 0.007 lb active/cr/Sumithrin and Piperonyl Butoxide.

SPRAY DROplet SIZE DETERMINATION

Ground-based Application: Spray material must be adjusted so that the volume median diameter (VMD) is between 10 and 30 microns (Dv 0.5 = 10 to 30 microns) and that 90% of the spray is contained in droplets smaller than 60 microns (Dv 0.9 = 60 microns). Directs from the equipment manufacturer or vendor, pesticide registrant or a test facility using a laser-based measurement instrument must be used to calibrate the equipment at each site application. Application equipment must be tested at least annually to confirm pressure and nozzle flow rates are properly calibrated.

Aerial Application: Spray material must be adjusted so that the volume median diameter produced less than 30 microns (Dv 0.5 = 30 microns) and that 90% of the spray is contained in droplets smaller than 115 microns (Dv 0.9 = 115 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 and nozzle flow rate(s) are properly calibrated.

GROUND ULV APPLICATION

To control mosquitoes and other listed insects, apply DUEXT® Dual-action Adulcide at a rate of 2.8 to 7.4 fluid ounces per minute at an average vehicle speed of 10 mph using a swath width of 300 feet for average 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 0.0032 to 0.0068 pounds of Pallethrin® and 0.013 to 0.026 pounds of Sumithrin® and piperonyl butoxide per acres. Very fast flow rates according to vegetation density and population. Use higher flow rates in heavy vegetation or when population is high. For proper application, mount the application so the nozzle is at least 4.5 feet above ground level and directed out the back of the vehicle. Failure to follow the above directions may result in reduced effectiveness. DUEXT® Dual-action Adulcide may also be diluted with a suitable solvent such as mineral oil and applied by GROUND ULV equipment. The dilution rate should not exceed 1.23 fluid ounces per acre or DUEXT® Dual-action Adulcide is not exceeded. Refer to the tables below for flow rate calculations for diluted end-use formulations of DUEXT® Dual-action Adulcide. Use the following table to calculate application rates.

<table>
<thead>
<tr>
<th>Pallethrin®</th>
<th>Sumithrin®</th>
<th>PBO</th>
<th>Flow Rates in fluid oz./minute at truck speeds of:</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 MPH</td>
<td>10 MPH</td>
<td>15 MPH</td>
<td>20 MPH</td>
</tr>
<tr>
<td>0.00072</td>
<td>0.0036</td>
<td>0.0036</td>
<td>1.23</td>
</tr>
<tr>
<td>0.00044</td>
<td>0.0022</td>
<td>0.0022</td>
<td>0.75</td>
</tr>
<tr>
<td>0.00036</td>
<td>0.0018</td>
<td>0.0018</td>
<td>0.61</td>
</tr>
</tbody>
</table>

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<tr>
<th>Pallethrin®</th>
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<tr>
<td>5 MPH</td>
<td>10 MPH</td>
<td>15 MPH</td>
<td>20 MPH</td>
</tr>
<tr>
<td>0.00026</td>
<td>0.0012</td>
<td>0.0012</td>
<td>0.42</td>
</tr>
</tbody>
</table>

DUEXT® Dual-action Adulcide may also be applied undiluted with non-toxic, portable, motorized backpack equipment adjusted to deliver ULV particles of 50 to 100 microns VMD. Use 0.41 to 1.33 lbs. of the undiluted spray per acre (equal to 0.0032 to 0.0068 lbs. Sumithrin®) as a 50:1 (15:1) solution while walking at a speed of 5 mph (3.2 kph). DUEXT® Dual-action Adulcide may be applied for urban ULV mosquito control. For control of resting or flying adult mosquitoes, being flies and biting midges in areas such as utility tunnels, sewers, storm drains and catch basins, pipe chases, underground basements, underground passageways, parking decks, crawl spaces or uninhabited buildings. DUEXT® Dual-action Adulcide may be applied using mechanical backpacks, hand-held or truck mounted ULV equipment, non-thermal foggers or other spray equipment suitable for this application. DUEXT® Dual-action Adulcide at rates up to but not exceeding 0.008 pounds Sumithrin per acre in a 3 day period (not to exceed 0.004 pounds Sumithrin per acre in any one site in any year).

AERIAL APPLICATION

Aerial 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 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 0.1 to 0.25 fluid ounces of DUEXT® Dual-action Adulcide per acre. Appropriate spray systems include rotary atomizers, flat fan nozzles, high pressure, and high pressure air induction nozzles characterized and oriented to achieve the droplet characteristics above. DUEXT® Dual-action Adulcide may also be diluted with a suitable solvent such as mineral oil and applied by aerial ULV equipment so long as 1.23 fluid ounces per acre of DUEXT® Dual-action Adulcide is not exceeded. Refer to the tables below for flow rate calculations for diluted end-use formulations of DUEXT® Dual-action Adulcide.

DILUTION CALCULATIONS

For a 4% Sumithrin product, dilute 1 gallon DUEXT® Dual-action Adulcide with 2.5 gallon oil. Finished spray contains 0.3 lbs Sumithrin® PBO and 0.06 pounds Pallethrin® per gallon.

<table>
<thead>
<tr>
<th>Dosage Description</th>
<th>Pallethrin®</th>
<th>Sumithrin®</th>
<th>PBO</th>
<th>Fluid oz. finished spray/ Acre</th>
<th>Flow Rates in fluid oz./minute at truck speeds of:</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Population</td>
<td>0.00072</td>
<td>0.0036</td>
<td>0.0028</td>
<td>1.54</td>
<td>4.7</td>
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<tr>
<td>Recommended</td>
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<td>0.0022</td>
<td>0.94</td>
<td>2.8</td>
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<td>0.0018</td>
<td>0.0018</td>
<td>0.51</td>
<td>1.6</td>
</tr>
</tbody>
</table>
For a 2.5% Sumithrin product, dilute 1 gallon Duet™ Dual-action Adulcide with 1 gallon oil. Finished spray contains 0.1975 lbs Sumithrin & PBO and 0.038 pounds Permethrin per gallon.

<table>
<thead>
<tr>
<th>Dosage Description</th>
<th>Pounds a.i./Acre</th>
<th>Fluid oz/finished spray/ Acre</th>
<th>Flow Rates in fluid oz/minute at truck speeds of:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Permethrin</td>
<td>Sumithrin</td>
<td>PBO</td>
</tr>
<tr>
<td>High Population</td>
<td>0.0072</td>
<td>0.0036</td>
<td>0.0036</td>
</tr>
<tr>
<td>Recommended</td>
<td>0.0044</td>
<td>0.0022</td>
<td>0.0022</td>
</tr>
<tr>
<td>Light Population</td>
<td>0.0024</td>
<td>0.0012</td>
<td>0.0012</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Dosage Description</th>
<th>Pounds a.i./Acre</th>
<th>Fluid oz/finished spray/ Acre</th>
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<tr>
<td></td>
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<td>0.0012</td>
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</tbody>
</table>

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: 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 stop. Fill the container 1/4 full with mineral oil and recap. Shake for 10 seconds. Pour rinse into application equipment or a mix tank or store inside for later use or disposal. Drain for 10 seconds after the flow begins to stop. 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 provided by law, seller makes no warranty, expressed or implied concerning the use of this product other than 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.

FOR MORE INFORMATION CALL: 1-800-933-5727
Duet™ is a Trademark of Clarke Mosquito Control Products, Inc.
Sumithrin™ is a Trademark of Sumitomo Company, Ltd.

ACTIVE INGREDIENTS:
Permethrin: (RS)-2-methyl-4-cyclohexyl-2-propynyl cyclopent-2-enyl (1RS)-cis.trans-chrysanthemate 1.00%
Sumithrin: 3-Phenoxacyncarboxylate 5.00%
Piperonyl butoxide: Technical 89.00%
Other ingredients: 100.00%

*Equivalent to 4.00% (butoxycarbonyl) (6-propylpiperonyl) ether and 1.00% related compounds.
**Contains petroleum distillate.
Contains 0.075 pounds of Permethrin/Gallon, 0.375 pounds of Sumithrin/Gallon, and 0.375 pounds Technical Piperonyl Butoxide/Gallon

CAUTION
KEEP OUT OF REACH OF CHILDREN
PRECAUTION AL USUARIO: Si usted no lee ingles, no use este producto hasta que la etiqueta haya sido explicado ampliamente.

EPA EST. No. 1021-MN-2
EPA Reg. No. 1021-1995-8329
AL0162.J

MANUFACTURED FOR
Clarke Mosquito Control Products, Inc.
159 N Garden Ave., Roseville, Illinois 60172 U.S.A.

Refer to inside of label booklet for additional precautionary information and Directions for Use including Storage and Disposal.
**CAUTION**

**KEEP OUT OF REACH OF CHILDREN**

**PRECAUTIONAL STATEMENTS**

**Hazardous to humans and domestic animals**

**CAUTION**. Inhaled fumes, including some that may be released when the product is used, can irritate the respiratory tract. The product may be hazardous if inhaled. 

**ENVIRONMENTAL HAZARDS**

This product is toxic to aquatic organisms, including fish and aquatic invertebrates. Runoff from treated areas or areas of spray drifts into a body of water may be hazardous to fish and aquatic invertebrates. Do not allow waste water from baths, showers, or any other discharge to enter streams, ponds, or other bodies of water. Do not contaminate water sources with the product or used containers. 

**BEE HABITAT**

This product is highly toxic to bees exposed to direct contact on blooming crops or weeds. Do not apply to or allow drift onto blooming crops or weeds when bees are visiting the treatment areas, except when applications are made to control or prevent a threat to public or animal health determined by state, local, or federal health or vector control agency on the basis of documented evidence of disease causing species in vector mosquitoes or the occurrence of mosquito-borne disease in animal or human populations, or if specifically approved by the state or tribe in an area of 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 tribe to use federal/tribal/veterinary regulatory agency to perform mosquito control applications, or to 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.

**INFLUENCE ON AIR QUALITY**

Use for aerial applications in Florida unless specifically authorized by the Florida Department of Agriculture and Consumer Services.

Do not contaminate feed, food, drink, or drinking water. Do not spray this product on or near it to drip onto livestock, poultry, crops, pastures, or grasslands. Do not apply to livestock, poultry, crops, pastures, or grasslands. Do not apply this product or allow it to drift onto livestock, poultry, crops, pastures, or grasslands. Do not apply this product to livestock, poultry, or crops when livestock, poultry, crops, pastures, or grasslands are present. Do not apply this product or allow it to drift onto livestock, poultry, crops, pastures, or grasslands.

**DUET**

**Applications**

- **Dual-Action Additive**
- **Liquid concentrate**
- **Dual-Action Additive with Ultradead Additive**

**Dilution Calculations**

<table>
<thead>
<tr>
<th>Product</th>
<th>Concentration</th>
<th>Rate of Application (g/a)</th>
<th>Rate of Dilution (g/a)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duet</td>
<td>200 mL/pail</td>
<td>100 g/a</td>
<td>0.2 g/a</td>
</tr>
<tr>
<td>Ultradead Additive</td>
<td>500 mL/pail</td>
<td>100 g/a</td>
<td>0.2 g/a</td>
</tr>
</tbody>
</table>

**Spray Drop Size Determination**

**Ground-based Application**

1. **Spray equipment must be calibrated to produce acceptable droplet size spectra.** Application equipment must be tested at least annually to confirm that pressure at the nozzle and nozzle flow rates are properly calibrated.

**Aerial Application**

1. **Spray equipment must be adjusted so that the volume median diameter produced is less than 100 microns (D50 < 100 μm) and that 80% of the spray is contained in droplets smaller than 150 microns (D50 < 150 μm).** Directories 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.

**Ground-based Application**

1. **Spray equipment must be calibrated to produce acceptable droplet size spectra.** Application equipment must be tested at least annually to confirm that pressure at the nozzle and nozzle flow rates are properly calibrated.

**Aerial Application**

1. **Spray equipment must be adjusted so that the volume median diameter produced is less than 100 microns (D50 < 100 μm) and that 80% of the spray is contained in droplets smaller than 150 microns (D50 < 150 μm).** Directories 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.

**GROUND UV APPLICATION**

To control Mosquitoes and other biting insects, apply **DUET** Duet-Action Additive at a rate of 2.5 to 7.0 fluid ounces per minute at a speed of 10 mph using a nozzle width of 500 feet for acreage calculations (or area below). Under normal residential conditions a flow rate of 4.0 fluid ounces per minute is recommended. If different vehicle speed is used, adjust rate accordingly. These rates are equivalent to 0.0304 to 0.0702 pounds of Palmetto (Duet) or 0.014 to 0.038 pounds of Sumitomo and powered broadcast per acre. Very light flow rates according to vegetation density and mosquito population. Use higher flow rates in heavy vegetation or when population is high. For proper application, must adjust the application so the nozzle is at least 12 to 15 feet above ground level and directed from the back of the vehicle. Failure to follow these directions may result in reduced effectiveness. **DUET** Duet-Action Additive can also be diluted with a suitable solvent such as mineral oil and applied by BENDIX UV Equipment so as to produce 1.25 fluid ounces per acre of **DUET** Duet-Action Additive is not required. Refer to the table below for flow rates calculated for diluted mist-nozzle formulations of **DUET** Duet-Action Additive.

**STORAGE & DISPOSAL**

- **Duet** Disposal: Results in loss of use of this product and at the approved waste disposal facility.

**NOTICE**

The product described by this label makes no warranty, expressed or implied concerning the use of this product other than as indicated on the label. Buyer assumes all risk of handling or application of this material when care and handling is contrary to label instructions.

**SUMITOMO** is a Trademark of Sumitomo Chemical Company, Ltd.

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

Manufactured for

CLARKE MOSQUITO CONTROL, INC.

1501 Avenue H

Rosedale, New York 11422 U.S.A.

Net Contents:

Lot/Batch: