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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

DEC 23 1996

Ms. Barbara Brown
Registration Specialist
Drexel Chemical Company
P.O. Box 13327
Memphis, TN 38113-0327

Dear Ms. Brown:

Subject: Supplemental Labeling For Mosquito Control
Drexel Malathion ULV Concentrate
EPA Reg. No. 19713-288
Your Corrected Supplemental Labeling
Dated December 18, 1996

The supplemental labeling referred to above, submitted in connection with registration under the Federal Insecticide, Fungicide, and Rodenticide Act, As Amended (FIFRA), is acceptable, provided that you:

Submit one copy of your final printed label incorporating the following correction before you release the product for shipment.

Under item 3 of the directions for determining the droplet size for nonthermal aerosols, correct the 6th sentence to read as it appears on your supplier's label; i. e. "An accurate method is to measure all droplets that pass through the micrometer scale as the slide is moved from one edge to the other by using the mechanical stage. Measurements should be taken along the margins of the slide."

If this condition is not complied with, the registration will be subject to cancellation in accordance with FIFRA sec. 6(e). Your release for shipment of the product bearing the amended label constitudes acceptance of this condition.

A stamped copy of the supplemental label is enclosed for your records.

Sincerely,

William W. Jacobs, Ph. D.
Acting, Product Manager Team 14
Insecticide-Rodenticide Branch
Registration Division (7505C)

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DREXEL
MALATHION ULV CONCENTRATE
PREMIUM GRADE INSECTICIDE

SUPPLEMENTAL LABELING FOR MOSQUITO CONTROL
All Applicable Directions, Restrictions and Precautions
On The EPA Registered Label Are To Be Followed

MOSQUITO CONTROL

MOSQUITO CONTROL IN POPULATED AND RURAL AREAS IMPORTANT NOTICE: To be applied only by the trained personnel of public health organizations, mosquito abatement districts or pest control operators.

AERIAL APPLICATION: Adult mosquito control over cities, towns and other areas where automobiles, trailers, trucks, and pleasure boats are present: Apply 2.6 to 3.0 fluid ounces of MALATHION ULV per acre. Apply only when weather conditions are favorable. Wind and rising air currents may cause undesirable spray drift and reduce insect control.

IMPORTANT - Undiluted spray droplets of MALATHION ULV will permanently damage vehicle paint finishes unless the aircraft used for the ultra low volume application meets all of the specifications listed below:

FIXED WING AIRCRAFT

1. Aircraft is operated at 150 mph or more.
2. There are no leaks in the ultra low volume spray system.
3. Nozzles are placed on the boom at a 45 degree angle down and into the wind.
4. Diaphragm check valve are used on all nozzles to insure positive cut-off of the spray.
5. Dosage of MALATHION ULV does not exceed 3 fluid ounces per acre.
6. The spray system produces droplets of this product in the 50 to 60 mass median diameter (MMD) micron range, with no more than 10% of the droplets exceeding 100-microns, as determined by readings made from microscope slides coated with DRI-FILM* or TEFLON**

HELICOPTER Equipment specifications:

1. Rotary nozzle equivalent to Beecomist Spray Head Assembly Model No. 350 equipped with:
   a. a direct reading RPM tachometer or low RPM signal light readily visible to operator;
   b. a stainless steel porous metal sleeve, 20 micron pore size, dynamically balanced to the nozzle;
   c. a diaphragm check valve as near to the rotary nozzle as possible to insure positive cut off to the spray;
   d. nozzle on-off switch separate from main switch and pump switch.
2. Minimum no-load nozzle speed of 10,500 RPM.
3. A continuos non-plusating metered flow must be maintained by a variable speed metering pump equipped with:
   a. a positive cut off valve between tank and pump;
   b. a flow gauge or tachometer visible to operator;
   c. a pump on-off switch separate from main switch and nozzle switch.
4. Maximum flow rate of 0.5 gallon per minute per nozzle.
5. Rotary nozzle must be mounted behind and below the boom with sleeve directed toward the rear of the aircraft and parallel to the ground during flight. Nozzle must be positioned to minimize air turbulence and the collection of MALATHION ULV droplets on mounting brackets, feed lines, fittings, etc., or any part of the aircraft.

EPA REG. NO. 19713-288
EPA EST. NO. 19713-GA-1

Manufactured By: Drexel Chemical Company, P. O. Box 13327, Memphis, TN 38113-0327
DATE: DECEMBER 18, 1996

OPERATING PROCEDURES

1. MALATHION ULV must be pre-filtered through a 10 micron filter prior to transfer into helicopter tank. A 50 mesh stainless steel line strainer must be installed in the pump feed line.
2. Entire system, including tank, pump, nozzle and feed lines, to be used only for application of MALATHION ULV.
3. Entire system must be inspected daily to insure that there are no leaks.
4. Sleeve must be removed and cleaned immediately after each use by washing with hot water and blowing dry from outside in with clean air.
5. Rotating nozzle must be turned on and operating before turning on pump. For shut-off, pump must be shut off and lines cleaned prior to stopping nozzle rotation.
6. Dosage of MALATHION ULV does not exceed 3 fluid ounces per acre.
7. The spray system must produce droplets of MALATHION ULV with a mass median diameter (MMD) of less than 50 microns, with no more than 2.5% of the droplets exceeding 10 microns, as determined by readings made from microscope slides coated with DRI-FILM* or TEFLON**

*Trademark of General Electric Company
**Registered Trademark of E.I. duPont de Nemours & Co. Inc.

GROUND APPLICATION

Thermal Aerosols or Fogs for control of adult mosquitoes with thermal aerosols or fogs, apply MALATHION ULV at the rate of 6 to 8 0z. actual/gallon (3.9-5.2 gallons MALATHION ULV in 100 gallons finished solution*) by ground equipment delivering 40 gallons per hour at a vehicle speed of 5 miles per hour to treat a swath width of 300 to 400 feet.
There is a great variation in the chemical composition of fuel oils which may be used as thermal fog solvents. These differences may cause sludge and/or affect the solubility of the MALATHION ULV.

NON-THERMAL AEROSOLS

ADULT MOSQUITO CONTROL - For control of adult mosquitoes over a 300-foot swath with non thermal aerosols of MALATHION ULV using the following rates at the indicated vehicle speeds:

Vehicle Speed Rate per hour	Flow Rate of MALATHION ULV Fluid Ounces per Minute	Maximum Flow Rate per Hour
5	1.0 to 2.1	1 gallon
10	2.0 to 4.3	2 gallons
15	3.0 to 6.3	3 gallons
20	4.0 to 8.6	4 gallons

ADULT STABLE FLY CONTROL - For control of adult stable flies over a 300 - foot swath with non thermal aerosols of MALATHION ULV using the ultra low-volume method, us the following flow rates at the indicated vehicle speeds.

Vehicle Speed Rate per hour	Flow Rate of MALATHION ULV Fluid Ounces per Minute	MAXIMUM Flow Rate per hour
5	2.1	1 gallon
10	4.3	2 gallons

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DROPLET SIZE

1. The Mass Median Diameter (MMD) of the droplets should not exceed 17 microns. The MMD is the drop diameter which divides the spray volume into two equal parts; i.e., 50% of the volume is in the drop sizes below the MMD and 50% is above the MMD.
2. Spray droplets should not exceed 32 microns in size. Three percent of the spray droplets (6 droplets out of 200) can exceed 32 microns providing the MMD does not exceed 17 microns and no droplets exceed a maximum of 48 microns. Larger droplets, when transported by a natural air currents, impinge more readily on objects in their pathway and will permanently damage automobiles type paints.
3. More than one-half of the total spray mass must consist of droplets in the 6 to 18 micron range to achieve adequate dispersal of insecticide over a 300-foot swath.
4. A minimum of two-thirds, preferably four-fifths of the total spray mass must consist of droplets not exceeding 24 microns in range.

OPERATING EQUIPMENT

Each Non-thermal Aerosol Generator used for dispersal of MALATHION ULV to control adult mosquitoes must have minimum capability of producing the droplet spectrum described under DROPLET SIZE. The initial determination of droplet size is made after the unit is installed in a vehicle and prior to its use in mosquito control operations. The unit should be rechecked as frequently as necessary to insure that proper droplet size is maintained for each operation.

Determination of droplet size every two months is usually sufficient if the unit has been maintained in good operating condition. Equipment manufacturer's instructions setting forth cleaning and maintenance of the unit must be followed. The unit must be inspected before each operation to correct any leaks or obstruction in the spray system; to detect whether the nozzle, hoses, or other parts are worn and in need of replacement; to ensure that the flow meter is properly calibrated; and to determine that the pressure recommended by the manufacturer is being maintained.

FLOW RATE - must be regulated by accurate flow meter - not greater that 1 gallon per hour at 5 mph or 2 gallons per hour at 10 mph or 3 gallons per hour at 15 mph, or 4 gallons per hour at 20 mph.

NOZZLE DIRECTION - rear of the vehicle - upward at an angle of 45 degrees or more.

VEHICLE SPEED - not greater than 20 miles per hour - shut off spray equipment when vehicle is stopped.

IMPORTANT - Spray droplets of undiluted MALATHION ULV will permanently damage automobile paint unless all the conditions described and recommended in this leaflet are met.

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DIRECTIONS FOR DETERMINING THE DROPLET SIZE OF MALATHION ULV
Non thermal Aerosols

Permanent records of each droplet size determination must be kept and made available to Drexel Chemical Company, upon request.

1. PREPARATION OF SLIDES WITH DRI-FILM MALATHION ULV droplet sizes are determined by depositing a sample of the aerosol on a coated glass slide and measuring the droplets under a high-power microscope. Ordinary 3" x 1" glass slides must be coated with silicone (General Electric SC-87 DRI-FILM) prior to sampling to prevent excessive spreading or coalescence of the droplets. The slides are dipped into a 10 percent solution of DRI-FILM in toluene, drained and dried at about 200 degrees F, for 30 minutes after which they are dipped in acetone, allowed to dry and stored in a tight slide box. Coating solution must be freshly prepared. Do not store coating solution because it will deteriorate. Slides are lightly polished with a soft tissue before using to remove any foreign particles.

2. Deposition of MALATHION ULV droplets on slides: Droplets should be collected under ideal operating conditions to ensure representative sampling of droplets in the aerosol. A sample of the MALATHION ULV aerosol is deposited on a slide by waving the slide as rapidly as possible perpendicular through the aerosol cloud at a distance of 25 feet from the point discharge. The slide velocity may be increased by attaching it to a 3 or 4 foot stick by means of a spring paper clip. At least two slides should be exposed to insure an adequate sample. Store slides in a tight slide box for transfer to a location where measurements can be made. Avoid excessive heat during transit and store in a cool place until measurements can be made. Although label specifications require the aerosol nozzle to be angles upward at 45 degrees or more during operation, it is more convenient to position the nozzle parallel to the ground for droplet sampling. If this is not possible it will be necessary to be positioned at a sufficient height to obtain a representative sample of the aerosol.

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3. Determination of MALATHION ULV droplet sizes: A microscope with mechanical stage and an eyepiece micrometer are used to determine the size of the individual aerosol droplets. Prior to taking measurements, the divisions of the eyepiece micrometer must be calibrated into microns by means of a stage micrometer. In the example represented in TABLE I, droplets were measured at 400x magnification. At that magnification each division of the eyepiece was calibrated to equal 3.5 microns. At least 200 droplets should be measured. Usually this is easily accomplished on one slide. An accurate method is to measure all droplets that pass through the micrometer scale as the slide is moved from one edge to the other by using the margins of the slide. It is more convenient to measure in terms of the divisions of the eyepiece micrometer and then convert these divisions into microns. The measurements converted into microns must then be corrected for the amount of spread that occurs on the slides. The MALATHION ULV spread factor for the silicone-coated slides is 0.5. therefore, in TABLE I each division of the eyepiece actually equals 1.75 microns (3.5 microns times the 0.5 spread factor). The spread factor for TEFLON-coated slides is 0.69. The following procedures are given for silicone-coated slides, would be the same for TEFLON-coated slides once the value for each eyepiece division has been determined. The measurements are tabulated and processed as in TABLE 1. The Maximum Diameter is calculated by converting the diameter of the largest droplet measured into microns. In TABLE 1, the largest droplet measured has a diameter of 19 eyepiece divisions.

Representative Count of MALATHION ULV Aerosol Droplets impinged on Microscope Slides Coated with DRI-FILM*.

TABLE 1

Eyepiece Divisions (D)*	Number of Droplets (N)	D X N	% of Total $\frac{D X N}{(D X N)}$	Accumulative Percentages
1	5	5	0.31	0.31
2	10	20	1.22	1.53
3	9	27	1.65	3.18
4	12	48	2.93	6.11
5	15	75	4.58	10.69
6	12	72	4.40	15.09
7	25	175	10.70	25.79
8	14	112	6.85	32.64
9	28	252	15.40	48.04
10	19	190	11.61	59.65
11	14	154	9.41	65.06
12	10	120	7.33	76.39
13	6	78	4.77	81.16
14	4	56	3.42	84.58
15	11	165	10.09	94.67
16	2	32	1.96	96.63
18	2	36	2.20	98.83
19	1	19	1.16	99.99
Total	199	1636		

* Measurements were taken at 400 X magnification. Each eyepiece division equals 1.75 microns (3.5 microns times the 0.5 spread factor).

Also for use in accordance with the recommendations and instructions issued by the United States Department of Agriculture for quarantine programs. To be used only by or under the directions of Federal / State personnel for quarantine treatments.

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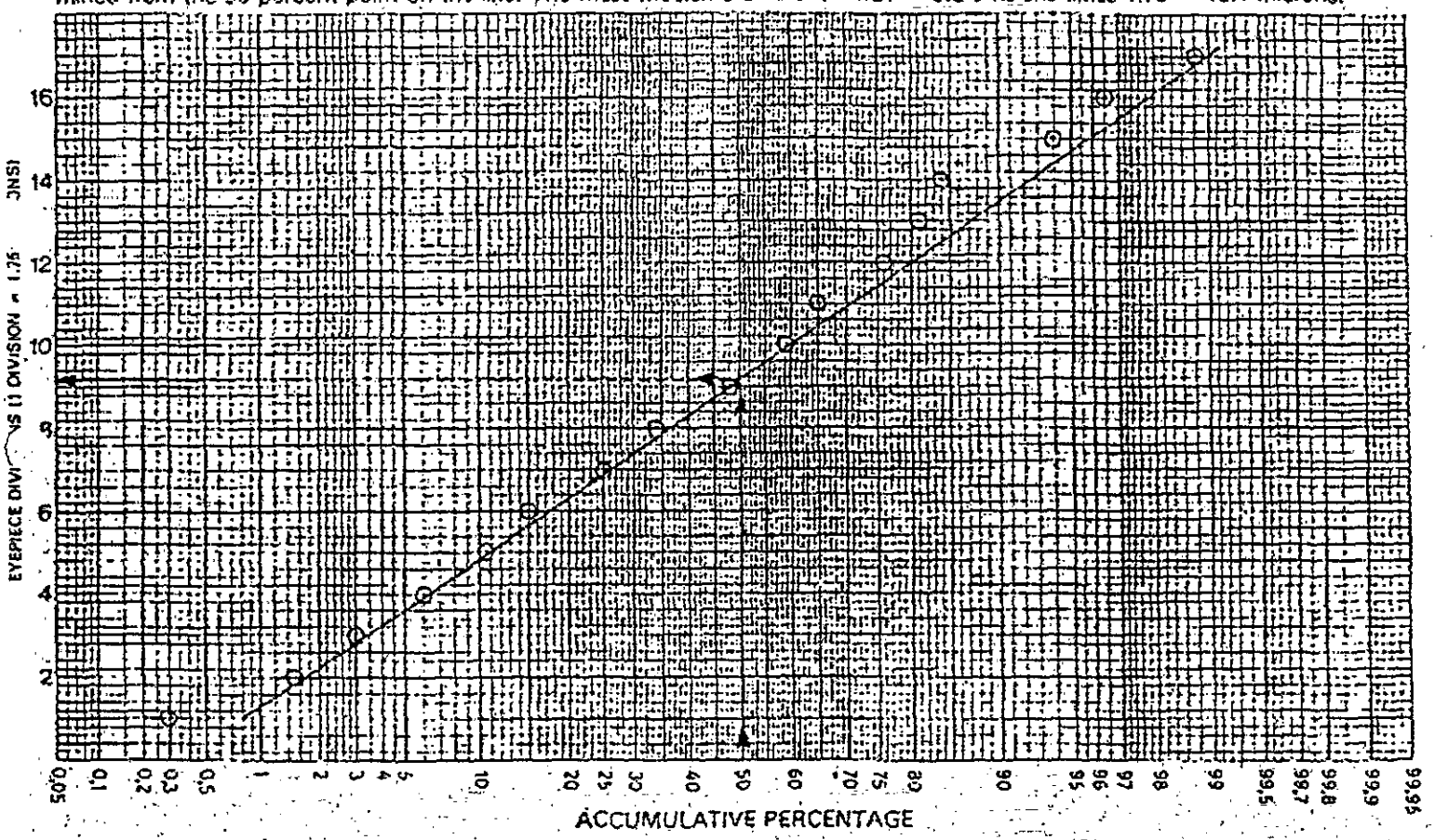
Therefore, the Maximum Diameter is 33.3 microns (17 x 1.76 -= 33.3). To determine the Mass Median Diameter (MMD), the accumulative percentages from the largest column in TABLE 1 are plotted against the eyepiece division (D) on arithmetic probability paper as in FIGURE 1.

Directly across from the 50% point on the line is the median droplet size in eyepiece divisions which must be converted to microns. In FIGURE 1, 9.2 eyepiece divisions times the conversion factor of 1.75 equals a Mass Median Diameter of 16.1 microns.

Figure 1.
Percentage of the total volume of aerosol samples below each stated droplet size (from Table 1). The Mass Median Diameter is determined from the 50 percent point on the line. The Mass Median Diameter (MMD) = 9.2 divisions times 1.75 = 16.1 microns.



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STORAGE AND DISPOSAL

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

STORAGE: MALATHION ULV should be stored at temperatures not exceeding 25 degrees C (77 degrees F). It should never be heated above 55 degrees C (131 degrees F), and also local heating above this temperature should be avoided.

PESTICIDE DISPOSAL: Waste resulting from the use of this product maybe disposed of on site or at an approved waste disposal facility.

CONTAINER DISPOSAL: Triple rinse (or equivalent). Then offer for recycling for reconditioning, or puncture and dispose of in a sanitary landfill, or incineration, or, if allowed by state and local authorities, by burning. If burned, spray out of smoke.

WARRANTY - CONDITION OF SALE

OUR RECOMMENDATIONS FOR USE of this product are based upon tests believed reliable. Follow directions carefully. Timing and method of application, weather and crop conditions, mixtures with other chemicals not specifically recommended, and other influencing factors in the use of this product are beyond the control of the Seller. Buyer assumes all risks of use, storage and handling of this material not in strict accordance with directions given herewith. In no case shall Drexel or the Seller be liable for consequential, special or indirect damages resulting from the use or handling of this product when such use and/or handling is not in strict accordance with directions given herewith. The foregoing is a condition of sale by Drexel Chemical Company and is accepted as such by the Buyer.