PM 14 10163-44 PGA 4 6

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

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APR 12 1993

Ms. Bethany G. Huley
Registration Specialist
Gowan Company
P.O. Box 5569
Yuma, AZ 85366

Dear Ms. Huley:

Subject: Prokil Malathion ULV
EPA Registration No. 10163-44
Labeling Submitted January 8,1993

The amendment referred to above, submitted in connection with registration under FIFRA, is acceptable, provided that you:

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

Add a livestock grazing and feeding restriction for the forage, hay or straw of the following crops: beans, sorghum, and cotton.

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 labeling constitutes acceptance of this condition.

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

Sincerely yours,

Robert A. Forrest
Product Manager (14)
Insecticide-Rodenticide Branch
Registration Division (H7504C)

2 9 6

Prokil Malathion ULV

ACTIVE INGREDIENT: Malathion;
O,O-dimethyl phosphorodithioate of diethyl mercaptosuccinate 95%
INERT INGREDIENTS: 5%
Contain 9.79 pounds of Malathion per gallon. TOTAL 100%

KEEP OUT OF REACH OF CHILDREN

CAUTION

PRECAUCION

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

STATEMENT OF PRACTICAL TREATMENT

IF SWALLOWED: Call a physician or Poison Control Center. Drink 1 or 2 glasses of water and induce vomiting by touching back of throat with finger. Do not give anything by mouth to an unconscious person.
IF ON SKIN: Wash with plenty of soap and water. Get medical attention.
IF IN EYES: Flush with plenty of water. Call a physician if irritation persists.
IF INHALED: Remove victim to fresh air.
NOTE TO PHYSICIAN: This product may cause cholinesterase inhibition. Atropine is antidotal. 2-PAM may be effective as an adjunct to atropine.

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

CAUTION

Harmful if swallowed, inhaled or absorbed through skin. Avoid breathing spray mist. Avoid contact with skin, eyes, or clothing. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash before reuse. Do not contaminate food or feed products.

ENVIRONMENTAL HAZARDS

This product is toxic to fish, aquatic invertebrates and aquatic life stages of amphibians. Do not apply directly to water except as specified on this label. Drift and runoff may be hazardous to aquatic organisms in areas near the application site. Do not contaminate water when disposing of equipment washwaters.
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 if bees are visiting the treatment area.

See attached booklet for Directions For Use

Net Contents_____Gallons

Gowan Company

AGRICULTURAL CHEMICALS

EPA Reg. No. 10163-44-AA
EPA Est. No. 10163-AZ-1

P.O. Box 5569
Yuma, AZ 85366-5569

ACCEPTED
with COMMENTS
In EPA Letter Dated:
APR 12 1993
Under the Federal Insecticide, Fungicide, and Rodenticide Act as amended, for the pesticide registered under EPA Reg. No. 10163-44

BEST AVAILABLE COPY

IMPORTANT

Consult your state experiment station or state extension service for proper timing of sprays.

These products are highly toxic to bees exposed to direct treatment of residues on crops. Protective information may be obtained from your Cooperative Agricultural Extension Service.

All applicable directions, restrictions and precautions on the EPA registered labels are to be followed.

Operator should inspect and calibrate equipment to assure that the proper amounts of pesticide are being applied, and that uniform coverage is obtained.

This label must be in the possession of the user at time of pesticide application.

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 direction of Federal/State personnel for quarantine treatments.

NOTICE ON CONDITIONS OF SALE

Our recommendations for use of this product are based upon tests believed to reliable. The use of this product being beyond the control of the manufacturer, no guarantee, expressed or implied, is made as to the effects of such or the results to be obtained if not used in accordance with directions or established safe practice. The buyer must assume all responsibility, including injury or damage, resulting from its misuse as such, or in combination with other materials.

Prokil Malathion ULV

Directions For Use

Gowan Company

P O Box 5569
Yuma, AZ 85366-5569

EPA Reg No 10163-44-AA
EPA Est No 10163-AZ-1

DIRECTIONS FOR USE

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

Prokil Malathion ULV may only be used in accordance with the directions in this labeling or approved supplementary labeling. Read all directions carefully before using

Undiluted spray droplets of Prokil Malathion ULV will permanently damage synthetic paint. If accidental exposure does occur, the vehicle should be washed immediately

STORAGE AND DISPOSAL

Do not store in any premises occupied by humans or animals

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

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: Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill or by other procedures approved by state and local authorities.

CHEMIGATION STATEMENT

Do not apply this product through any type of irrigation system

Before using, read the directions contained in this label for the proper methods and precautions which must be followed to achieve effective weed control and avoid permanent damage to automobile and other paint finishes

MOSQUITO CONTROL IN POPULATED AND RURAL AREAS

IMPORTANT NOTICE

TO BE APPLIED ONLY BY TRAINED PERSONNEL OF PUBLIC HEALTH ORGANIZATIONS, MOSQUITO ABATEMENT DISTRICTS OR PEST CONTROL OPERATORS

AERIAL APPLICATION

FOR MOSQUITO CONTROL OVER CITIES, TOWNS AND OTHER AREAS WHERE AUTOMOBILES, TRAILERS, TRUCKS AND PLEASURE CRAFTS ARE PRESENT: Apply 2.6 to 3 fluid ounces of Prokil Malathion ULV per acre. Apply only when weather conditions are favorable. Wind and rising currents may cause undesirable spray drift and reduce insect control.

IMPORTANT—Undiluted spray droplets of this product will permanently damage synthetic paint. If accidental exposure does occur, the vehicle should be washed immediately.

BEST AVAILABLE COPY

Fixed Wing Aircraft

1. Aircraft is operating at 150 mph or more
2. There are no baffles in the ultra low volume spray system
3. Nozzles are pointed on the boom at a 45° angle down and into the wind.
4. Diaphragm check valves are used on all nozzles to insure positive cutoff of the spray
5. Dosage of this product does not exceed 3 fluid ounces per acre
6. The spray system produces droplets of this product in the 50 to 80 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®

®Trademark of General Electric Company
®Trademark of E I duPont de Nemours & Co Inc

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 visibly visible to operator,
   b. a stainless steel gamma mesh sleeve 28 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 of 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 continuous rate-pulsating 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 the sleeve oriented rear and the rear of the aircraft and be shielded to the ground during flight. Nozzles must be positioned to maximize air turbulence and the deflection of Prokil Malathion ULV droplets on mounting brackets, feed lines, fittings, etc or any part of the aircraft

Operating Procedures

1. Prokil Malathion ULV must be pre-filtered through a 16 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 Prokil 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 cleared prior to stopping nozzle rotation
6. Dosage of Prokil Malathion ULV shall not exceed 3 fluid ounces per acre
7. The spray system must produce droplets of Prokil Malathion ULV in a mass median diameter (MMD) of less than 50 microns, with no more than 2.5% of the droplets exceeding 100 microns, as determined by readings made from microscope slides coated with DRI-FILM or TEFLON

GROUND APPLICATION

Thermal Aerosols or Fogs

For control of adult mosquitoes with thermal aerosols or fogs, apply Prokil Malathion ULV at the rate of 6 to 8 oz. (chub gallon (3.9 to 5.2 gallons Prokil Malathion ULV at 128 gallons finished spray/acre) by ground equipment delivering 30 gallons per hour at a vehicle speed of 5 miles per hour to treat a swath width of 300-400 feet.

There is a great reduction in the chemical compression of fuel oils when mixed as thermal fog solvents. These differences may cause sludge and/or affect the solubility of Prokil Malathion ULV.

Nonthermal Aerosols

Over a 300 foot swath can be produced using the nonthermal ultra low volume aerosol method with Prokil Malathion ULV. Use the following rates at the indicated vehicle speeds:

Vehicle Speed Miles per Hour	Flow Rate of Prokil Malathion ULV Fluid Ounces per Minute	Maximum Flow Rate per Hour
5	1.2-1.6 fluid ounces	1 gallon
10	2.4-3.2 fluid ounces	2 gallons
15	3.6-4.8 fluid ounces	3 gallons
20	4.8-6.4 fluid ounces	4 gallons

For control of adult mosquitoes by ultra low volume aerosol methods with nonthermal

Vehicle Speed Miles per Hour	Flow Rate of Prokil Malathion ULV Fluid Ounces per Minute	Maximum Flow Rate per Hour
5	2.1 fluid ounces	1 gallon
10	4.3 fluid ounces	2 gallons

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 that MMD does not exceed 17 microns and no droplets exceed a maximum of 48 microns. Larger droplets, which transported by no wind as currents, impinge more readily on objects in their pathway and are appropriately damage automobile-type paints.
3. More than one half of the total spray mass should consist of droplets in the 6-16 micron range to achieve adequate dispersal of particles 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 Nonthermal Aerosol Generator used for dispersal of Prokil Malathion ULV to control adult mosquitoes must have maximum capability of producing the droplet spectrum described under DROPLET SIZE. The initial determination of droplet size is made after the unit is installed on 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 obstructions in the spray system. To detect whether the nozzle, rotary or other parts are worn and need replacement, to insure 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 than 1 gal. per hour at 5 mph, 2 gals. per hour at 10 mph, 3 gals. per hour at 15 mph or 4 gals. per hour at 20 mph.

Nozzle Direction—rear of the vehicle
—upward at an angle of 45° or more

Vehicle Speed—not greater than 20 miles per hour
—shutoff spray equipment when vehicle is stopped.

IMPORTANT—Spray droplets of undiluted Prokil Malathion ULV will permanently damage automobile paint unless all the conditions described and recommended in this label are met.

Directions for Determining the Droplet Size of Prokil Malathion ULV Nonthermal Aerosols

1. Preparation of Slides with DRI-FILM

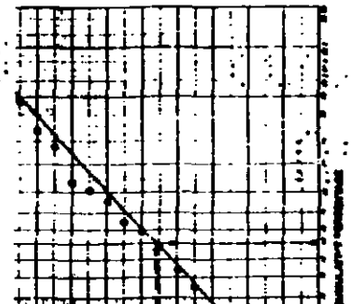
Prokil Malathion ULV droplet sizes are determined by dispensing a sample of the aerosol on a coated glass slide and measuring the droplets under a high-power microscope. Ordinary 3"x1" glass slides must be coated with silicone. General Electric SC-87 DRI-FILM® prior to sampling to prevent excessive spreading or coalescence of the droplets. The slides are dipped into a 10% solution of DRI-FILM in kerosene, drained and dried at about 200°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. Collection of Prokil Malathion ULV Droplets on Slides

Droplets should be collected under ideal operating conditions to insure representative sampling in the aerosol. A sample of the Prokil Malathion ULV aerosol is obtained on a slide by passing the slide as rapidly as possible perpendicular through the aerosol cloud at a distance of 25 feet from the point of discharge. The slide velocity may be increased by attaching it to a 3-4 foot stick by means of a spring paper clip. At least two slides should be exposed to insure an adequate sample. Slides stored 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 requires the aerosol nozzle to be angled upward at 45° or more during dispersion, 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

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% point on the line. The Mass Median Diameter (MMD)=8.2 divisions times 1.7=16.1 microns.



3. Determination of Prokil Malathion ULV Droplet Sizes

A microscope with micrometer 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 1, droplets were measured at 400x magnification. All of magnification each division of the eyepiece was calibrated to be equal to 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 mechanical stage. Measurements should not be taken along 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 occurred on the slide. The Prokil Malathion ULV spread factor for silicone coated slides is 0.5. Therefore, in Table 1 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 0.63. The following procedure 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 considering the diameter of the largest droplet measured into microns. In Table 1, the largest droplet measured had a diameter of 19 eyepiece divisions. Therefore, the Maximum Diameter is 33.3 microns (19 x 1.75=33.3).

To determine the Mass Median Diameter (MMD), the accumulative percentages from the last column in Table 1 are plotted against the eyepiece divisions (D) on semi-[illegible] paper as in Figure 1. Directly across from the 50% point on the [illegible] on the line is the eyepiece divisions which must

		PER ACRE	RESTRICTION & COMMENTS
ALFALFA CLOVER [redacted] LESPEDEZA LUPINE [redacted] BIRDSFOOT TREFOIL [redacted] VETCH (including seed crops)	Alfalfa Caterpillar Grasshoppers	8	(0) For control of caterpillars, apply when larvae are small.
	Beet Armyworm	8	(0) Apply when larvae are small
		16	(5) Apply to larger larvae or when foliage is dense.
	Western Yellow-Striped Armyworm	12	(5) Apply to larger larvae or when foliage is dens.
	Alfalfa Weevil larvae	16	(5) Apply when day temperatures are expected to exceed 65°F and when 50-70% of leaves show feeding damage.
			Do not apply when crops are in bloom. Do not apply to seed Alfalfa.
BARLEY, OATS WHEAT	Grasshoppers	8	(7)
	Cereal Leaf Beetle	4-8	
BEANS (LIMA, GREEN, SNAP, NAVY, RED, KIDNEY, WAX, DRY, BLACKEYE)	Mexican Bean Beetle Leafhoppers Green Cloverworm Japanese Beetle Lygus Bug	8	(1)
BLUEBERRIES	Blueberry Maggot	10	(0)
CHERRIES	Cherry Fruit Fly	12-16	(1) Apply by aircraft only. Use higher rate when foliage is heavy or infestation is severe. Make first application as soon as flies appear
CORN (GRAIN or FORAGE)	Adult Corn Rootworm	4	(5)
	Grasshoppers	8	
	Cereal Leaf Beetle	4-8	
COTTON*	Green Peach Aphid Cotton Aphid	14-16	(0)
	Boll Weevil	8-16	For late season application on Boll weevils, use 16 oz
	Grasshoppers	8	
	Fleahoppers Leafhoppers	4-8	
	Lygus Bugs Tarnished Plant Bugs	8-12 16	Use the 16 oz rate for heavy migrating populations of Lygus bugs.
	Thrips	4-8	
GRASSES	Blackgrass Bugs Grasshoppers	8-12	(0)
	Cereal Leaf Beetle	4-8	
PASTURE, RANGE GRASS, GRASS HAY	Blackgrass Bugs Grasshopper	8-12	(0)
RICE (DOMESTIC & WILD)	Grasshoppers	8	(7)
RICE (GRAIN) Louisiana & Texas only	Stink Bugs	8	(7) Apply by aircraft only. Apply during early milk and dough stage of growing rice.
RYE	Grasshoppers	8	(7)
SORGHUM (GRAIN)	Grasshoppers Sorghum Midge	8 8-12	(7) For control of Midge, apply during during bloom stage.
SWEET CORN	Japanese Beetle	13	(5) CAUTION- Injury may occur in whorl and silk stages

* On Cotton: Malathion ULV can be used alone as a ULV concentrate spray or diluted in once refined cottonseed or vegetable oil sufficient to make at least one quart of finished spray per acre.

Table 1-Representative Count of Prokil Malathion ULV Aerosol Droplets Impinged on Microscope Slides Coated with DRI-FILM

Eyepiece Divisions (D*)	Number of Droplets (N)	Dn	% of Total DnN	Accumulative Σ (DnN) 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	:636		

*Measurements were taken at 400x magnification. Each eyepiece division equals 1.75 microns (3 5 microns times the 0.5 spread factor).

AGRICULTURAL USES

OPERATING INSTRUCTIONS

Do not apply this product in such a manner as to directly or through drift, expose workers or other persons. The area being treated must be vacated by unprotected persons.

Do not enter treated areas without protective clothing until sprays have dried Because certain states may require more restrictive reentry intervals for various crops treated with this product, consult you State Department of Agriculture for further information.

Written or oral warnings must be given to workers who are expected to be in a treated area or in an area about to be treated with this product When oral warnings are given, warnings shall be given in a language customarily understood by workers Oral warnings must be given if there is reason to believe that written warnings cannot be understood by workers Written warnings must include the following information CAUTION Area treated with Prokil Malathion ULV (date of application). Do not enter without appropriate protective clothing.

Prokil Malathion ULV is used undiluted in specially designed aircraft or ground equipment capable of apping ultra low volumes for control of the insects indicated Aerial applications are most effective when made at a boom height of 5 ft. and a swarth width of 50 ft. Apply only when weather conditions are favorable. Wind and rising air currents may cause undesirable spray drift and reduce insect control.

Mist blowers and boom sprayers utilizing a controlled air flow to facilitate particle size and spray deposition may be used at a vehicle speed of 4-10 mph Mist blowers with a pump capable of producing up to 40 psi and blower speeds of 2600 rpm are satisfactory Use flat fan nozzles, 8001-8002 place 30° into air blast or rotary atomizers into the air blast that produce an efficient spray particle with a mass median diameter of 40-100 microns Swath widths should not exceed 30 ft Apply only when weather conditions are favorable Wind and rising air currents may cause undesirable spray drift and reduce insect control.

Boom sprayers with a filtered rotary air compressor, either PTO or gas engine driven or an air pump capable of producing at least 12 psi are satisfactory Use air pressure on chemical tanks and an accurate metering valve to assure a calibrated flow of the pesticide Air should be regulated with relief valve and gauge for proper air and liquid mixture Pneumatic-type spray nozzles, as suggested by equipment manufacturer, should be used for spray particles with mass median diameter of 30-100 microns Apply only when weather conditions are favorable Wind and rising air currents may cause undesirable spray drift and reduce insect control.

Repeat applications should be made as necessary unless otherwise specified.

IMPORTANT-Undiluted spray droplets of Prokil Malathion ULV WILL PERMANENTLY damage automobile paint. If accidental exposure does occur, the vehicle should be washed immediately.

Consult your state experiment station or state extension service for proper timing of sprays.

This product is highly toxic to bees exposed to direct treatment or residues on crops. Protective information may be obtained from you Cooperative Agricultural Extension Service.

IMPORTANT

Instructions when contents are to be used in ultra low volume spraying over cities, towns and other populated areas.

Spray droplets of this product undiluted will permanently damage automobile paint unless all of the following conditions are met:

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 angle down and into the wind.
4. Diaphragm check valves are used on all nozzles to insure positive cutoff of the spray.
5. Dosage of this product does not exceed 3 2 fluid ounces per acre (40 acres per gal), over cities, towns, and other populated areas.
6. The spray system produces droplets of this product in the 50-60 mass median diameter (MMD) micron range, with not more than 10% of the droplets exceeding 100 microns, as determined by readings made from microscope slides coated with DRI-FILM.