551-223 9-23-1977

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BAIRD'S MALATHION LV* CONCENTRATE

Insecticide

*Trademark of American Cyanamid Company

Active Ingredient:

Malathion** 91.0%

Inert Ingredients 9.0%

**O,O-dimethyl phosphorodithioate of diethyl mercaptosuccinate

(1 gallon contains 9.33 pounds of malathion)

CAUTION! KEEP OUT OF REACH OF CHILDREN

Harmful by swallowing, inhalation or skin contact

Avoid Breathing Spray Mist • Avoid Contact With Skin
Wash Thoroughly After Handling • Change Contaminated Clothing
Do Not Contaminate Food Or Feed Products

PRECAUCION

AL USUARIO: Si usted no lee inglés, no use este producto hasta que la etiqueta le haya sido explicada ampliamente.
(TO THE USER: If you cannot read English, do not use this product until the label has been fully explained to you.)

IN CASE OF AN EMERGENCY ENDANGERING LIFE OR PROPERTY INVOLVING THIS PRODUCT, CALL COLLECT, DAY OR NIGHT, AREA CODE 201-835-3100.

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

This product is toxic to fish. Keep out of lakes, streams, ponds, tidal marshes and estuaries. Do not apply where runoff is likely to occur. Do not apply when weather conditions favor drift from areas treated. Do not contaminate water by cleaning of equipment, or disposal of wastes. Shrimp and crab may be killed at application rates recommended on this label. Do not apply where these are important resources. Apply this product only as specified on this label.

DISCLAIMER

The label instructions for the use of this product reflect the opinion of experts based on field use and tests. The directions are believed to be reliable and should be followed carefully. However, it is impossible to eliminate all risks inherently associated with use of this product. Crop injury, automobile paint damage, ineffectiveness or other unintended consequences may result because of such factors as weather conditions, presence of other materials, or the manner of use or application all of which are beyond the control of Baird & McGuire, Inc. All such risks shall be assumed by the user.

Baird & McGuire, Inc warrants only that the material contained herein conforms to the chemical description on the label and is reasonably fit for the use therein described when used in accordance with the directions for use, subject to the risks referred to above.

Any damages arising from a breach of this warranty shall be limited to direct damages and shall not include consequential commercial damages such as loss of profits or values or any other special or indirect damages.

Baird & McGuire, Inc. makes no other express or implied warranty, including any other express or implied warranty of FITNESS or of MERCHANTABILITY.

DIRECTIONS FOR USE

MALATHION LV CONCENTRATE may be used for the preparation of malathion insecticides. Before using for this purpose, manufacturers should consult Baird & McGuire, Inc. for manufacturing and safe handling instructions.

The sale of this product does not include a license under any patent owned by the Baird & McGuire, Inc.

Mosquito Control with Thermal Aerosols or Fogs Applied by Ground Equipment

DISTRIBUTED BY
BAIRD & McGUIRE, INC.
HOLBROOK, MASS'

IMPORTANT NOTICE

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

DIRECTIONS FOR USE

For control of adult mosquitoes with thermal aerosols or fogs, apply MALATHION LV CONCENTRATE at the rate of 6-8 oz. actual/gallon (3.9-5.2 gallons MALATHION LV CONCENTRATE 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 300-400 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 LV CONCENTRATE.

AGRICULTURAL USES
Directions For Use
For Ultra Low Volume Applications

Do not use this product for any uses other than those specified in this label.

MALATHION LV CONCENTRATE is used undiluted in specially designed aircraft or ground equipment capable of applying ultra low volumes for control of the insects indicated. Aerial applications are most effective when made at a boom height of 5 feet and a swath width of 50 feet. Do not make application when winds exceed 5 mph.

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 to 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 to 8002, placed 30° into air blast or rotary atomizers into the air blast that produce an efficient spray particle with a mass median diameter of 40 to 100 microns. Swath widths should not exceed 30 feet, and application should not be made when winds exceed 5 mph.

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 to 100 microns. Applications should not be made when winds exceed 5 mph.

Repeat applications should be made as necessary unless otherwise specified.

EPA Reg. No. 551-223 EPA Est. 551-MA-1

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IMPORTANT

Undiluted spray droplets of MALATHION will permanently damage automobile paint. Cars should not be sprayed. If accidental exposure does occur, the car 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 your Cooperative Agricultural Extension Service.

CROP	PESTS CONTROLLED	FLUID OUNCES PER ACRE	DAYS TO HARVEST or GRAZING and COMMENTS
Alfalfa	Alfalfa caterpillar Western yellow striped armyworm	8	0 day. Apply when larvae are small
		12	5 days. Apply when larvae are large or when foliage is dense.
	Alfalfa weevil larvae	16	5 days. Apply when day temperatures are expected to exceed 65°F and when 50-70% of leaves show feeding damage.
	Beet armyworm	8	0 day. Apply when larvae are small
		16	5 days. Apply when larvae are large or when foliage is dense.
	Grasshoppers	8	0 day
	Do not apply to alfalfa in bloom. Do not apply to seed alfalfa.		
Beans (lima, green, snap, Navy, red kidney, wax, dry, black-eye)	Mexican Bean Beetle Leafhoppers Green Cloverworm Japanese Beetle Lygus Bug	8	1 day.
Blueberries	Blueberry Maggot	10	0 day
Cherries	Cherry Fruit Fly	12 16	1 day. Apply by aircraft only. Use higher rate when foliage is heavy or infestation is severe. Make first application as soon as flies appear.
Cereal Crops, (barley, corn, oats, wheat) and grasses	Cereal leaf beetle	4 8	Barley, oats, wheat: 7 days. Corn: 5 days. Grasses: 0 day.
Clover, Pasture and Range Grass, Grass, Grass Hay, Nonagricultural Land (wastelands, roadsides)	Grasshoppers	8	0 day. Do not apply to clover in bloom.
Corn	Adult Corn Rootworm	4	5 days.
Cotton	Early Season Insects Thrips, Fleahoppers Leafhoppers	4 - 8	0 day.
	Boll Weevil	8 - 12	Early to midseason } 0 day.
		16	Late season } 0 day.
	Grasshoppers	8	0 day.
	Lygus Bugs	8 - 12	0 day.
		16	Very heavy migrating populations. } 0 day.
Grain Crops (barley, corn, oats, rye, rice, grain sorghum and wheat)	Grasshoppers	8	7 days, except corn. Corn: 5 days

CROP	PESTS CONTROLLED	FLUID OUNCES PER ACRE	INTERVAL BETWEEN LAST APPLICATION AND HARVEST
Grain Sorghum	Sorghum Midge	8 - 12	7 days. Apply during the bloom stage.
Peas (Northwest)	Pea Weevil	8	14 days.
Rice – Grain Form (Louisiana, Texas)	Rice Stink Bug	8	7 days. Apply by aircraft only. Apply during early milk and dough stage of growing rice.
Safflower	Grasshoppers Lygus Bugs	8	3 days of harvesting seeds
Soybeans	Mexican Bean Beetle Grasshoppers Japanese Beetle Green Cloverworm	8	7 days of harvest or forage use
Sugar Beets	Grasshoppers Sugar Beet Root Maggot Adults	8	0 day. 7 days. If tops are to be used for food or feed
Nonagricultural Lands	Beet Leafhopper (on wild host plants)	8	0 day.
Beef Cattle Feed Lots and Holding Pens	Adult flies and Mosquitoes	6 - 8	0 day

OTHER AGRICULTURAL USES

Alfalfa, Clover, Pasture and Range Grass, Grass and Grass Hay, Grain Crops, Beans, Rice, Tomatoes and Nonagricultural Lands (wasteland): Adult mosquitoes and flies - Apply MALATHION LV CONCENTRATE at the rate of 2 to 4 fluid ounces for control of adult mosquitoes and at 6 to 8 fluid ounces per acre for control of adult flies and mosquitoes. Repeat applications as necessary. On alfalfa, clover, pasture and range grass, grass and grass hay, may be applied on day of harvest or grazing. Do not apply to alfalfa and clover in bloom. Do not use on seed alfalfa. On grain crops, make no application within 7 days of harvest or forage use; on corn, within 5 days of harvest or forage; on rice, within 7 days of harvest; on beans and tomatoes, within 1 day of harvest.

FOREST INSECTS

Apply with aircraft equipped for ultra low volume application. Make application when air is calm and temperature is below 68°F. Do not allow spray to contact ferns, hickory and maples as injury may result. Do not spray on elms under extreme heat, drought and disease conditions.

TREE	PESTS CONTROLLED	FLUID OUNCES PER ACRE	DIRECTIONS
Douglas Fir True Fir Spruce	Spruce Budworm	13	Apply when highest percentage of larvae are in the fifth instar.
Hemlock	Hemlock Looper	8	Apply when most larvae are in third and fourth instar.
Pines	European Pine Sawfly	10	Apply when larvae are in the first or second instar or before they reach ½ in length.
	Saratoga Spittlebug	10	Apply when 95% of the population has become adult.
Larch	Larch Casebearer	8	Apply in spring as soon as larvae break hibernation and begin feeding on new foliage.

Table 1 Representative Count of MALATHION LV CONCENTRATE Aerosol Droplets Impinged on Microscope Slides Coated with DRI FILM

Eyepiece Divisions (D)*	Number of Droplets (N)	DXN	% of Total DXN / Σ(DXN)	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 400x 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 direction of Federal, State personnel for quarantine treatments.

ACCEPTED

SEP 23 1977

UNDER ... INSECTICIDE ... FUNGICIDE AND RODENTICIDE ACT FOR ECONOMIC POISON REGISTERED UNDER NO. 5?1-223

Ultra Low Volume Aerial Application where automobiles, trailers, trucks and pleasure boats are present

IMPORTANT NOTICE

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

DIRECTIONS FOR USE

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 LV CONCENTRATE per acre. Aerial spraying should not be attempted when the wind is at or above 10 mph or temperatures are above 82°F.

IMPORTANT — Undiluted spray droplets of MALATHION LV CONCENTRATE 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° angle down and into the wind.
4. Diaphragm check valves are used on all nozzles to insure positive cut-off of the spray.
5. **Dosage of MALATHION LV CONCENTRATE 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 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 nonpulsating 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 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 LV CONCENTRATE droplets on mounting brackets, feed lines, fittings, etc., or any part of the aircraft.**

Operating Procedures

6. **MALATHION LV CONCENTRATE must be prefiltered 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.**
7. **Entire system, including tank, pump, nozzle and feed lines, to be used only for application of MALATHION LV CONCENTRATE.**
8. Entire system must be inspected daily to insure that there are no leaks.
9. Sleeve must be removed and cleaned immediately after each use by washing with hot water and blowing dry from outside in with clean air.
10. 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.

*Trademark of General Electric Company

*Registered Trademark of E. I. duPont de Nemours & Co., Inc.

11. **Dosage of MALATHION LV CONCENTRATE does not exceed 3 fluid ounces per acre.**
12. **The spray system must produce droplets of MALATHION LV CONCENTRATE with 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.**

Ultra Low Volume Application
NONTHERMAL AEROSOLS
Applied by
GROUND EQUIPMENT

IMPORTANT NOTICE

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

DIRECTIONS FOR USE

Adult Mosquito Control — For control of adult mosquitoes over a 300-foot swath with nonthermal aerosols of MALATHION LV CONCENTRATE using the following rates at the indicated vehicle speeds:

Vehicle Speed Rate per Hour	Flow Rate of MALATHION Fluid Ounces per Minute	Maximum Flow Rate per Hour
5	1.0 to 2.1 fluid ounces	1 gallon
10	2.0 to 4.3 fluid ounces	2 gallons

Adult Stable Fly Control — For controlled adult stable flies over a 300-foot swath with nonthermal aerosols of MALATHION LV CONCENTRATE using the ultra low volume method, use the following flow rates at the indicated vehicle speeds.

Vehicle Speed Miles per Hour	Flow Rate of MALATHION 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 the MMD does not exceed 17 microns and no droplets exceed a maximum of 48 microns. Larger droplets, when transported by natural air currents, impinge more readily on objects in their pathway and will permanently damage automobile-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 Nonthermal Aerosol Generator used for dispersal of MALATHION LV CONCENTRATE to control adult mosquitos 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 obstructions in the spray system; to detect whether the nozzle, hoses, 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 gallon per hour at 5 mph or 2 gallons per hour at 10 mph.

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

Vehicle Speed—not greater than 10 miles per hour.
—shut off spray equipment when vehicle is stopped.

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

Directions for Determining the droplet size of MALATHION Ultra Low Volume nonthermal aerosols

Permanent records of each droplet size determination must be kept and made available to Baird & McGuire, Inc. upon request.

I. Preparation of Slides with DRI-FILM

MALATHION LV CONCENTRATE 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°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.

II. Deposition of MALATHION LV CONCENTRATE Droplets on Slides

Droplets should be collected under ideal operating conditions to insure representative sampling of droplets in the aerosol. A sample of the MALATHION LV CONCENTRATE 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 of 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 angled upward at 45° 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.

III. Determination of MALATHION LV CONCENTRATE 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 1, 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 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 slides. The CYTHION or 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 0.69. The following procedure as 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 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 arithmetic probability paper as in Figure 1. Directly across from the 50 percent 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.