

21307

ACCEPTED
FEB 20 1968
UNDER THE FEDERAL INSECTICIDE
FUNGICIDE AND RODENTICIDE ACT
FOR ECONOMIC POISON REGISTERED
ED UNDER NO. 2139.51 SUBJECT
TO ATTACHED COMMENTS.

INSTRUCTIONS

for the use of

Larvacide[®]
CHLOROPICRIN

For the Control of

- INSECTS**
- RODENTS**
- SOIL FUNGI**

With

- CONVENIENCE**
- ECONOMY**

**Leaves no harmful residue when
used as instructed.**

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OTHER MORTON GRAIN AND SPACE FUMIGANTS

- Larvacide 100—non-pressurized—in steel cylinders
- Larvacide 100—self discharging for grain and general fumigation
- Larvacide 85—aerosol for flat storage grain fumigation
- Larvacide 70—aerosol for general space fumigation
- Larvacide 15—liquid grain fumigant
- Panik—concentrated grain fumigant for convenient farm application
- Fumigant application equipment

Instruction Sheet For

Larvacide

CHLOROPICRIN

FUMIGATION

2139-51
 ACCEPTED
 Feb 20 1968
 FEDERAL INSECTARY
 SERVICE
 WASHINGTON, D.C.

- ... for Insect Fumigation in Warehouses and Homes
- ... for Rodent Control in Buildings and Outside Burrows
- ... for Soil Fumigation to Control Many Harmful Organisms

Fumigation is a process of sanitary significance in which a poisonous gas is released in an enclosed space to destroy pests.

Built-in Tear Gas Warning. LARVACIDE evaporates into a self-announcing gas which always warns of its presence. Without mask protection no one can willingly enter or remain in concentrations considered dangerous to human life.

Penetrating. The ability of this fumigant to penetrate into dense materials is well known to industrial users. This killing power in hard-to-reach places helps LARVACIDE to do your job better.

Safe for Property. No fire or explosion hazard.

LARVACIDE is completely volatile and leaves no residue of oily or other nature. Under proper aeration, it readily disappears from grain. Its fungicidal properties tend to leave premises with a clean, sweet smell.

Characteristics. LARVACIDE is a heavy liquid—about 14 lbs. to the gallon. Upon exposure to air, it evaporates into a powerful penetrating tear gas. It is commercially pure chloropicrin.

In addition to one-pound bottles, LARVACIDE brand chloropicrin is also shipped in steel cylinders of varying sizes, pressurized or non-pressurized. Also, two aerosol formulations are available. It can be stored in closed containers without fear of deterioration.

MORTON CHEMICAL COMPANY

Division of Morton International, Inc.

110 North Wacker Drive
 Chicago 6, Illinois

BEFORE USING, READ WARNINGS AND PRECAUTIONS

BEFORE USING LARVACIDE, READ THESE INSTRUCTIONS FOR INSIDE FUMIGATION

Before application, see that all persons have left building. Do not permit reoccupancy until aeration is complete.

Comply with any local fumigation ordinances.

Remove from building (and perhaps also from adjoining buildings) all useful animals, fish, birds and plant life. Don't allow them to be exposed to any concentration of fumes whatsoever. Poultry are especially susceptible to injury.

In case of adjoining buildings, be sure gas cannot possibly reach into them through walls, floors, ceilings or otherwise—if not sure, allow no persons, animals or plant life in adjoining buildings.

LARVACIDE is approved only for fumigation of the following raw agricultural commodities: barley, buckwheat, corn, oats, rice, rye, grain sorghum and wheat. Remove any processed food or feed, such as flour, mixed feed or processed food products.

Post warning signs at all entrances. Lock all doors.

Don't permit liquid to contact painted, varnished or shellacked surfaces, polished metal or composition flooring.

Metal Corrosion. Humidity in the presence of LARVACIDE fumes can corrode metals and may injure electrical equipment. Avoid damp conditions and sources of dampness such as gas pilot lights and dripping faucets. Metal surfaces can be protected by coating of vaseline or grease to prevent moisture contact. If unavoidably damp, remove metal equipment from fumigation area.

DANGER POISON KEEP OUT OF REACH OF CHILDREN

When subject to exposure use full face gas mask

DANGER: POISONOUS LIQUID AND VAPOR! Do not breathe vapor. Do not get in eyes or on skin or on clothing. In case of contact, immediately wipe off skin and flush skin or eyes with plenty of water for at least 15 minutes; for eyes get medical attention. Promptly remove shoes or garments contacted by liquid and wash before reuse. Do not wear rings on fingers while handling LARVACIDE.

ANTIDOTE: If inhaled, get patient into fresh air. Have him lie down and keep warm and quiet. Give artificial respiration if breathing has stopped. Call a physician immediately when exposed to LARVACIDE vapors. ~~Use full face gas mask with canister designed for organic vapors (black or yellow canister).~~

LARVACIDE gives off pungent tear gas vapors, self-announcing even at very low concentrations. Keep screw cap with liners securely in place, except when in actual use. Store bottle until empty in absorbent packing in the can. Dispose of empty bottle out-of-doors. Transfer liquid from one container to another in the open air.

Don't allow LARVACIDE to get in the hands of children or irresponsible persons.

SPACE FUMIGATION

Preparation. Seal all windows, doors, and other openings to make building gas tight. This is particularly important because of the penetrating power of this fumigant.

Dosage. 1 lb. per 1000 cu. ft. of empty space when comparatively small amounts of stored commodity grains are present. Increase dosage to 1 1/4 or 1 1/2 lbs. for 1000 cu. ft. when larger amounts of absorbent materials are present.

Application. Use 3 crumpled sacks on which to pour pound bottle of LARVACIDE 100 or use absorbent packing material that is around bottle. Place sacks or packing material on shallow pans to avoid absorption of fumigant by floors and other surfaces. Have temperature at 60° to 80° or higher.

Exposure. 24 hours—preferably longer when sacked materials are to be penetrated.

Aeration. Twelve to 24 hours before resuming operations under ordinary weather conditions, throw open doors and windows. Fans may be used to facilitate aeration. Keep in mind that dryness and high temperature speed airing.

VAULT FUMIGATION

Vaults need not be expensive nor of complicated construction. The important thing is to have them air tight. For instance, a closed semi-trailer body can be conveniently used.

Dosage. For sacked grains and seed, furniture and clothing, use 1 1/2 lbs. per 1000 cu. ft. of space. For packaged commodity grains use 1 1/2 to 2 lbs. In heavily loaded vaults, it is best to increase dosage by about 1 lb. per 1000 cu. ft.

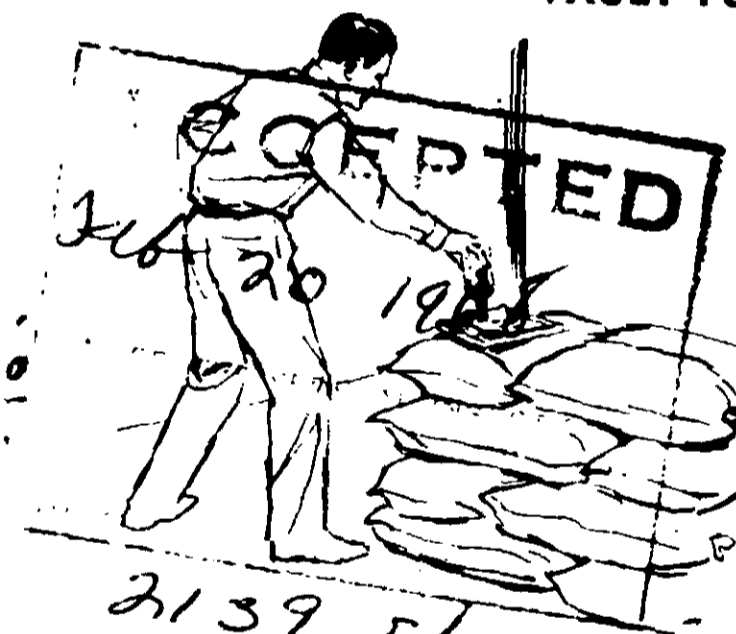


Figure 1

Application. Pour through roof onto crumpled sacks in pan suspended from ceiling, or pour onto empty sacks laid over goods to be fumigated.

Exposure. Under usual conditions expose for 24 hours.

Aeration. Outdoor vaults can have doors at both ends, this giving excellent ventilation. In small vaults, goods can usually be removed shortly after opening for aeration outside. With larger chambers, a ventilating fan system is desirable. If vault is opened for aeration at close of work day, escaping fumes will help expel rodents on adjacent floor areas.

with canister designed for organic vapors (black or yellow canister)

BOX CARS

Box cars tend to be of loose construction, and thus should be sealed carefully around doors and other openings. Refrigerator cars are usually easier to seal because of their tighter construction. In steel cars, the dosage is 6-9 lbs. according to tightness; wooden cars, a few pounds more. 24 hours exposure. Apply with sprayer, or sprinkle on empty sacks laid over surface of goods.

Two to four pounds applied in a box car will generally assure that insects present in the car will work their way out of the car rather than onto the commodity grains which may be in the car. Several users place heavy paper over a portion of the commodity in each end of the car and dash LARVACIDE 100 onto this protective paper immediately before closing and locking the car doors. To help protect against infestation in transit for several days, fill two 1/2 gallon cardboard ice cream containers (or similar) with bran to within an inch of top. Nail one inside of each door a few feet toward end of car and pour a pint of LARVACIDE 100 over the surface of each. Wedge doors and apply warning placards. Usually movement of the car in shipment will allow it to aerate before arriving at the destination.

RETURNED BAGS

Treat returned bags for insect control by placing folded bags in 55-gallon drum with 1 fl. oz. LARVACIDE 100 and clamping lid in position. For aeration, remove lid after 24 hours and lay drum on side in open air on dock.

MACHINERY TREATMENT IN EMPTY FLOUR AND FEED MILLS

Controlling insects in mill machinery is the backbone of successful, economical mill fumigation. When treating the entire machinery system, application should be made on a weekend. Run the mill empty, and disconnect fans leading to outside.

It is not necessary to dismantle machines.

Two machinery treatments a year are generally recommended, but for the Mediterranean flour moth, one such treatment is often sufficient. Occasional spot treatments should be made, if needed. Pay particular attention to the tail end of the mill.

Because of loose construction of many small mill buildings, machinery treatment is often the only method of fumigation that can yield satisfactory results.

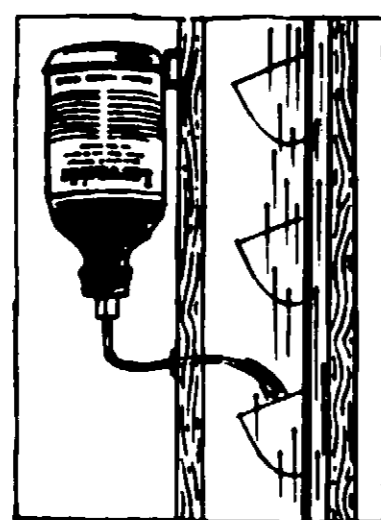


Figure 2

FUMALEG with Dispenser bottle swung into inverted position in upside of leg.

The FUMALEG System of application is used to fumigate all machinery at one time, or only small sections, as necessary. The FUMALEG is furnished at a cost of only a few cents, and is designed to permit liquid LARVACIDE 100 to flow into the machinery at the proper point, without the operator coming into contact with the gas. It has a metal screw cap which fits the Dispenser Bottle, replacing the original screw cap.

To Assemble. Drill 1/4" hole in upside of elevator leg at convenient

height (about face height), and insert flange end of unit. Then nail wire bottle holder in position with staple furnished, so that wire will hold bottle upright (inverted) and also permit it being swung downward when loop holder is lifted.

With unit swung to down position, screw neck of Dispenser Bottle into metal cap. Leave filled bottle in down position until ready to start fumigation. Start machinery running at slow speed. Have two men, working from center and moving towards each end, swing bottles into inverted position and slip wire loop holders over bottoms of bottles. Liquid LARVACIDE 100 flows slowly against moving belts and into cups, and is distributed to downside and into other machinery through spout from elevator head. When treating all machinery, run mill four to five minutes, but for elevator legs alone, two minutes is sufficient.

For individual machines, or for re-building concentration in other machines with the FUMALEG System, treat as follows. To underside of purifier or reel roof, about in center of head end, tack burlap sack folded double. Stuff another sack folded double, between first sack and roof. Bore hole about 1 1/2" diameter into roof directly over the crumpled sack. In treating, invert full Dispenser Bottle quickly into this hole, and leave in position.

Midget Mills—Have one or two sack locations on underside of roof as described above. For additional tightness, place heavy paper across door openings, and hold in position by replacing canvas frames. Always treat legs last.

Leave immediately! Lock all doors and post Fumigation Notices. Keep mill closed at least overnight. For airing, open windows and doors. Clear

packer tubes, pull boot slides, remove leg windows. When building is comfortably cleared of gas, operate mill several times for 10 or 15 minutes each. Open mill 12 to 24 hours before start-up.

EMPTY STORAGE HOUSES: Potato, Sweet Potatoes, Etc.

LARVACIDE fumigates tight empty storage houses killing most fungus organisms causing storage rots. Have temperature at approximately 70° and saturate house atmosphere to approximately 100% relative humidity. If steam is not available, inside of

store house may be sprayed with fine mist of water until walls and ceiling are wetted to run-off. Fumigating in humid or rainy weather is helpful. Apply water early in morning—LARVACIDE 4 to 6 hours later in heat of day, at rate of at least 1/2 lb. per 1000 cu. ft. Pour on dry crumpled sacks as recommended under "RODENTS." Before closing door and sealing throw a couple of sacks with LARVACIDE 100 over any high piles of crates.

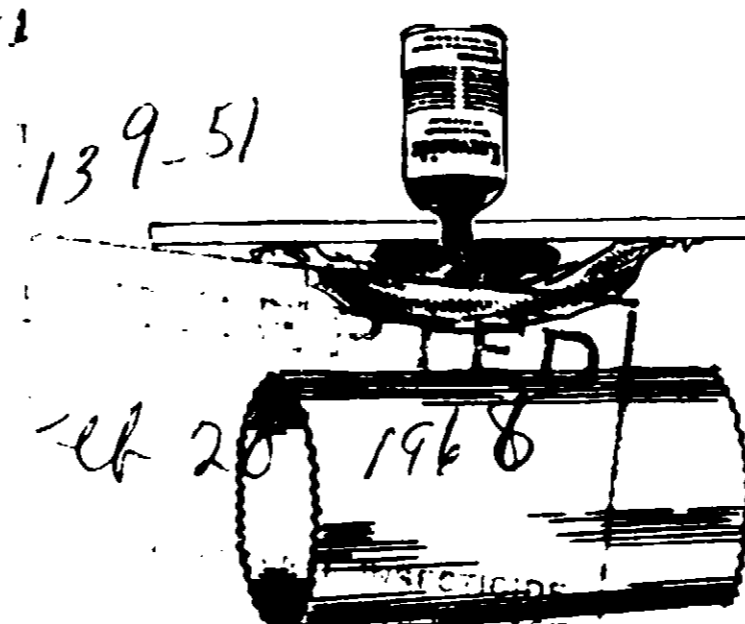


Figure 3

Treatment of reels, purifiers and midget mills. Crumpled burlap sack is stuffed under retaining sack tacked to roof.

For large storage warehouses, aerosol type LARVACIDE is available and may be applied through a convenient piping system.

HOME FUMIGATION Pest Control

Home fumigation should be done by an experienced fumigator. **Operators only.**

Remove all plant, animal and fish life, also any fresh fruit, vegetables and other foods that might be damaged.

Pour LARVACIDE 100 onto crumpled burlap in shallow pan or plate or on backs of rugs, using about 1/2 lb. at each location. It is good practice to have a pan on a shelf in each closet.



Figure 4

In building fumigation, pour 1/2 pound or so onto crumpled sack at each location, keeping head well away from fumes and working rapidly toward exit.

Dosage for most insects is 1 lb. per 1000 cubic feet, but, for buffalo moth or carpet beetle, increase this to 1 1/2 lb.

Post poison gas signs at all entrances and leave house under gas for 24 hours. Air thoroughly before permitting persons to return.

Warning. Even if fumigating only part of building, entire premises should be vacated until aeration is complete. Don't let liquid fall on polished metal, shellac, varnish, stain or paint. Avoid dampness. Turn off gas pilot lights.

CLOTHES MOTH CONTROL

For moth protection in seasonal clothes storage, use LARVACIDE in cabinet easily made at home. Proper treatment will not only kill adult moths, but also eggs and larvae inside.

Cabinet size may be about 6' x 2' x 2', with wood frame and fiberboard construction. For this a dosage of 1 to 1 1/2 oz. of LARVACIDE 100 applied onto piece of burlap is usually ample. Treat cabinet in attic, and do not open until ready for re-use of contents (no sooner than 24 hours).

ROOMS AND CLOSETS

When the entire house will not be fumigated, infested rugs, clothing, and furniture can be treated in a closet or vacant room. Because of high absorption use 2 lbs. of LARVACIDE 100 per 1000 cu. ft. Seal space thoroughly and apply onto crumpled burlap sacks as in Home Fumigation.

Seal door and leave for 24 hours, after which door and windows should be opened for aeration. When part of house is being fumigated, persons should leave entire house until aeration is complete.

FLY AND FLEA CONTROL

Sprinkling onto burlap as in space treatment, 1 1/2 to 2 fl. oz. of LARVACIDE 100 per 1000 cu. ft. around or over stored materials kills adult flies. Treat only in closed spaces.

Fleas are killed with 1/4 lb. per 1000 cu. ft., with 12-hour exposure, applied as for homes or buildings. Seal doors, windows and other openings as above.

RODENT CONTROL

Warehouses, Seed Corn Dryers, Seed Storage and Other Buildings.

Preparation of Building. First treat any burrows outside, in basement, or in walls. Plug any openings or burrows through which rodents might leave building, to return later. Repair any broken window panes and close off any major openings or cracks which might allow gas to escape. Stuff smaller holes with wet burlap sacks or newspapers. Cover larger openings with plastic sheeting.

Have space as warm as possible. If furnace or dryer is used shut down fire just before applying LARVACIDE. This will stop gas loss due to draft to outside. **NOTE: LARVACIDE WILL NOT BURN OR EXPLODE.**

Have ready at least three empty burlap sacks for each pound of LARVACIDE 100 to be used. Crumple each sack (as in Figure 4) so it will not lie flat on the floor. To prevent fumigant from being absorbed into flooring from which it will be released slowly and may cause discomfort for a considerable period of time, it is usually wise to place crumpled sacks, etc., on metal pans or sheets of metal. This will greatly facilitate complete aeration of fumes from the building. Distribute crumpled sacks near outside wall and on piles convenient to reach without climbing. Figure 5 shows distribution of nine sacks for 3 lbs. of LARVACIDE in room of about 2000 square feet. Notice that gas will form a ring around the room, the better to trap the rodents before it diffuses to the center.

Dosage: For mice . . . 1 1/2 to 2 lbs. per 1000 square feet of floor area. For rats . . . 2 to 2 1/2 lbs. per 1000 square feet. Use slightly higher dosages under unusual conditions of solid stacking of sacked commodity grains, or loose construction. In large commercial type warehouses LARVACIDE 70 aerosol obtainable in steel cylinders is especially well adapted. Area of room is calculated by multiplying length by width. A room 40 feet long by 25 feet wide has an area of 1000 square feet.

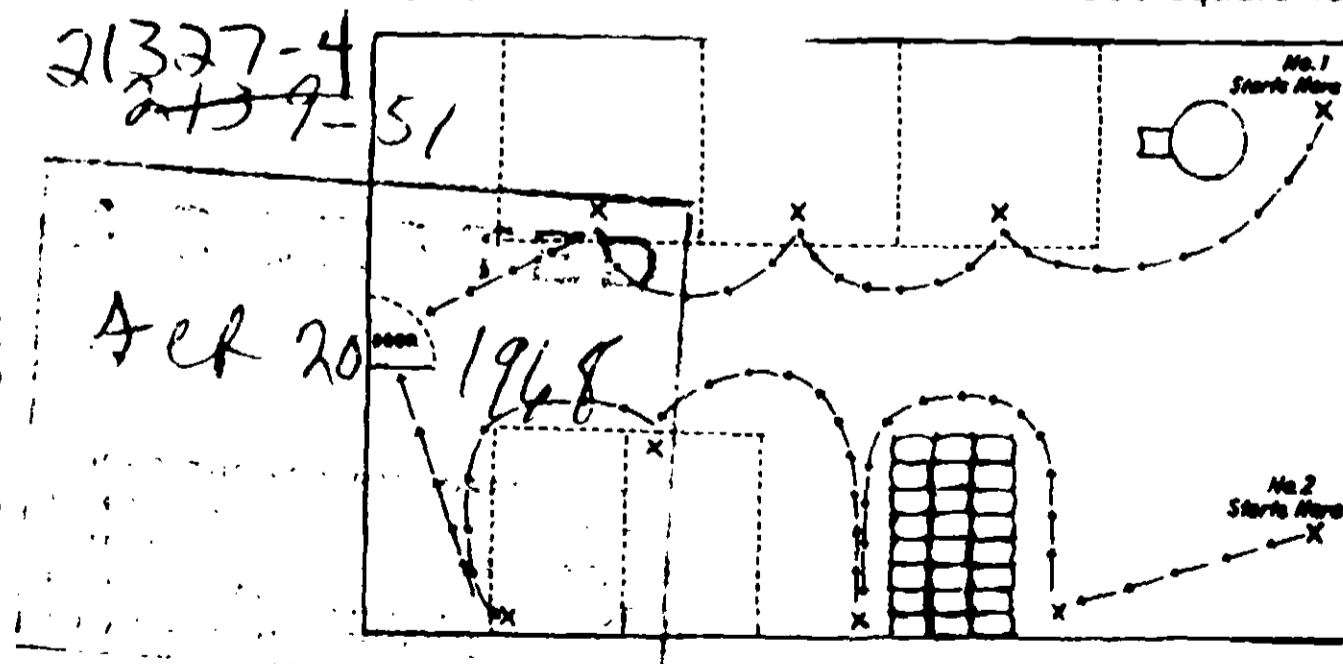


Figure 5

Two men start pouring on sack locations in rear. They advance toward exit door, always working away from wetted sacks.

Use LARVACIDE in calm weather. If construction is loose or if room is entirely filled with stored material, increase dose by 1/2 lb. or more per 1000 square feet.

How to apply. Pour approximately one-third of bottle onto each sack, with head held well away from bottle (see Figure 4). Start from rear and work toward exit, as shown in Figure 5. In larger buildings, particularly with more than one floor, a mask is necessary for comfort and protection.

Close exit door tightly and do any necessary sealing. Keep building closed overnight. Open up several hours before starting work next morning.

Rats frequently harbor between foundation walls and under first floor. Bore one hole in floor for each 100 square feet, and into this, pour 1 fluid ounce of LARVACIDE 100. For greater efficiency, apply with sprayer if possible.

DEBRIS PILES AND GARBAGE DUMPS

When burrows are present, give usual burrow treatment. If there is a honeycomb of passageways in porous fill beneath a top crust, treat at rate of 1 fluid ounce of LARVACIDE 100 for every 25 square feet or so by burrow application, or in crowbar hole through top crust.

For large areas, a hand compressor sprayer of 2 or 2 1/2 gallons capacity is convenient, and nozzle can be readily inserted into burrow or opening for dosage injection. Plug or heel in all injection holes.

BURROWS

First make thorough search for all holes. Where two or more exits are part of the same system, close off all but one before treatment, to block escape.

Pour about one-half fluid ounce of LARVACIDE 100 (see bottle label) onto a small wad of bottle packing or burlap and push well into the burrow with a stick and plug the hole with earth.

A tolerance is not deemed to be necessary because Larvacide leaves no residue.

FDA Tolerance Ruling
LARVACIDE is exempt from the requirement of a tolerance when applied to the following raw agricultural commodities after harvest in accordance with good practice: barley, buckwheat, corn, oats, rice, grain sorghum, wheat.

FARM BINS

General Instructions. Have bin and space above as tight as possible to avoid gas loss. Trim or level surface of grain. Heavy roofing or building paper can be battened to outside of bins to help make more tight.

Do not allow farm animals or poultry in any concentration of LARVACIDE no matter how small.

Keep head well away when pouring or handling LARVACIDE. Avoid spilling on surface.

Take suitable precautions against reinfestation by insects from outside.

Aerate all treated grain and feed completely before using feed for animals or poultry.

GRAIN DEPTH NOT OVER 4 1/2 FEET

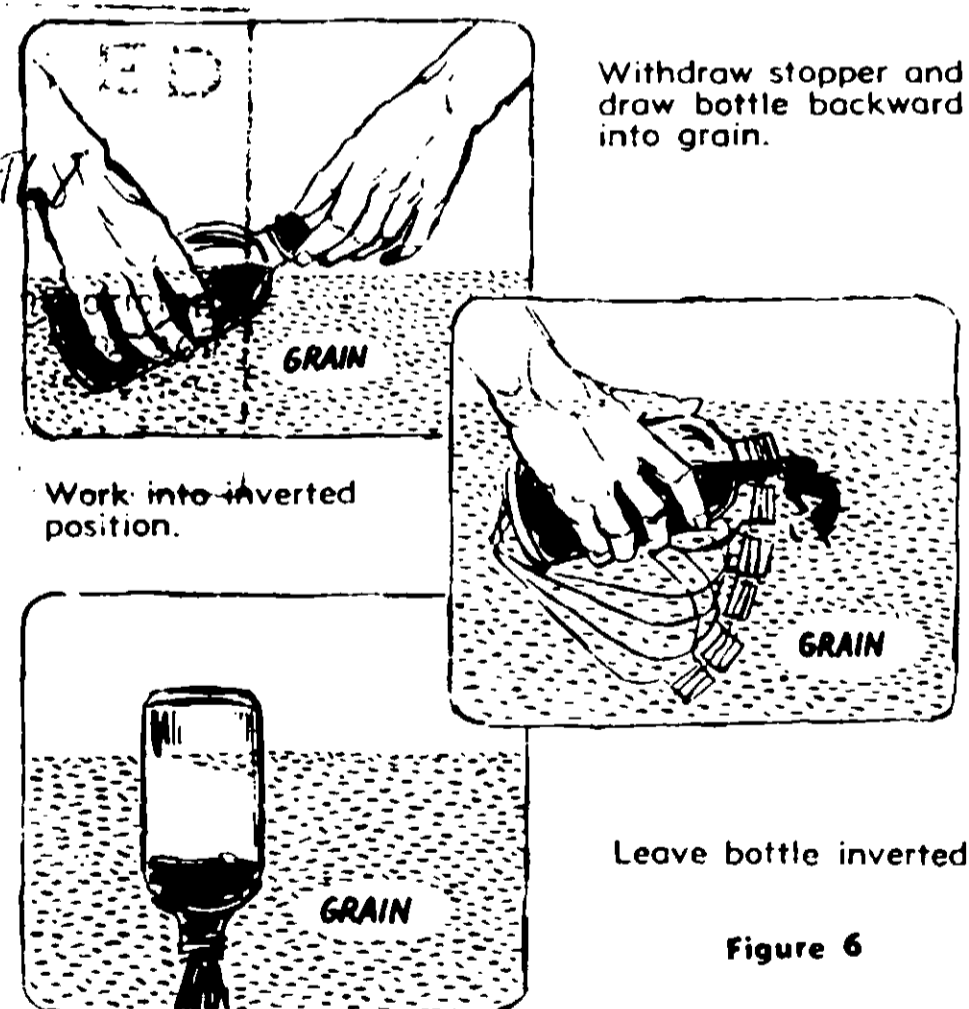
Dosage: Use 3 fl. oz. of LARVACIDE 100 per 100 bu. applied under the surface. Apply an additional amount on the surface at the rate of 1/2 to 1 fl. oz. per 100 cubic feet of empty space within granary above the grain surface; this often amounts to about 1 oz. per 100 bu. of grain.

For old caked wheat, or for wheat temperature below 60°, increase dosage by 25% or 50%.

Leave granary closed for at least 3 days.

Application Under Surface. For each 9 or 10 sq. ft. of grain surface area, use 1 small bottle, such as any pop or soft drink bottle. Divide the LARVACIDE dosage to be applied under the surface equally among these pop bottles. Pour into pop bottles in the open air, and stopper with wad of the cellulose packing from around the 1 lb. Dispenser Bottle (or use any convenient corks). Carry bottles into bin and place upright at desired locations. Begin treatment at farthest point from exit. For application, grasp the bottle near bottom and draw it upright and backward down into the grain until only the neck is visible above surface. Then remove stopper with free hand and quickly invert bottle so that liquid will drain directly downward into grain mass without spilling on surface. Leave bottles in inverted position and get out of bin after applying last bottle.

27-4
19-5



Example: Granary is 9 ft. long by 9 ft. wide. Grain is 4 ft. deep with 3 ft. headroom. The 260 bu. will require 8 fl. oz. of LARVACIDE 100 applied under the surface in 9 pop bottles. Measure out about 1 fl. oz. into each bottle and distribute in 3 rows of 3 bottles each. For the 270 cu. ft. above the grain, put about 2 fl. oz. into pop bottle and pour onto 3 or 4 sacks.

Surface Application. Lay several burlap sacks flat on grain surface, and pour surface dosage quickly over them, preferably standing outside of bin. Leave empty bottle inside and close granary. If granary roof is very loose, try to batten a tarpaulin or binder canvas about two feet or so above grain. Apply surface dose for total space from grain to roof under this cover.

GRAIN DEPTH OVER 4½ FEET

Treat upper 4 ft. as described above. For grain depth below the upper 4 ft. figure the same 3 fl. oz. per 100 bu. but make a separate application in the following manner:

Secure 4 ft. length of pipe of ½" or slightly greater diameter and pinch one end for inserting into grain (or wire old mosquito netting over the end) to keep grain kernels out. Pour LARVACIDE 100 down these pipes inserted full length into grain. Plug pipe with packing from around bottle, or other convenient stopper. Use 1 pipe for each 15 or 20 sq. ft. of area. Then make surface application as described above.

ELEVATORS

When Grain Can Be Turned. The most economical treatment is application as grain enters bin. In closed concrete bins, the dosage is 2½ lbs. of LARVACIDE 100 for wheat and barley, 3 lbs. for corn, 3½ lbs. for oats and 4½ lbs. for sorghum per 1000 bu. into grain stream, with some extra for top and bottom. For wood or open bins, increase dosage. Exposure time: 72 hours or longer. LARVACIDE 100 may be added into grain stream periodically in ¼ to ½ pound dosages simply by pouring onto grain as it falls into bin. For large installations, automatic metering devices for use with pressurized steel cylinders of LARVACIDE 100 are available. Detailed literature on grain fumigation will be mailed on request.

Bin Tops and Empty Bins. Treat bin tops for moth by sprinkling LARVACIDE 100 through top opening directly onto grain surface. Apply at the rate of 2 lbs. per 1000 cu. ft. of air space above the grain. Treat empty bins and bin bottoms from top opening. Splash in a quart from top opening for average 3000 bu. bin. Be sure that air temperatures are 60° or above.

PRECAUTIONS IN TREATING SEED

Since germination of seed can be adversely affected, do not fumigate when moisture content is above 14%. Aerate all seed 12 to 18 hours after fumigation. Do not overdose. Do not pour fumigant directly onto seed. Since some varieties and lots are more susceptible to injury than others, it is often advisable to fumigate a small quantity first and check results before general fumigation is done.

SOIL FUMIGATION

LARVACIDE Soil Fumigation—for the control of undesirable soil organisms is an established practice. LARVACIDE is well adapted to soil fumigation because it is toxic to most pathogenic soil fungi and bacteria, nematodes (eelworms), soil insects, weeds, and weed seeds.

An important advantage of LARVACIDE is that it has no effect on the physical characteristics of the soil, and soil texture is not altered. The beneficial spore-forming bacteria are not destroyed by this treatment but remain to carry on their important function of breaking down organic matter.

Plants grown in LARVACIDE fumigated soil usually show distinct improvement in root growth.

GENERAL DIRECTIONS

Soil Texture. For best penetration, have soil loose and friable. Be sure all lumps are broken up, and remove undecayed roots from previous crop. Soil conditioners such as sand, peat or manure, should be added before treating.

Soil Moisture. A medium soil moisture condition is necessary. Do not treat when very dry or wet. If soil will almost hold its shape when compacted in the hand, it is about right.

Do not treat heavy clay soil unless in pulverized condition and with somewhat lower moisture content than just indicated.

Soil Temperature. For best results soil temperature at 6-inch depth must be 60° or higher. Below 60° the killing action is not as great, particularly in the case of weed seeds.

Application. LARVACIDE 100 should be injected into the soil using suitable equipment. For best results, cover the treated area with a gas proof plastic cover or apply and maintain a water seal for 24 hours. The treated area should be left undisturbed for 24 to 48 hours.

Equipment. The FUMIGUN is a manually operated soil injector adapted for LARVACIDE soil fumigation. This machine makes the hole and discharges an accurately measured dose to desired depth. Operation is semi-automatic, and one workman can do up to 400-700 sq. ft. per hour. Usually no mask is needed. For large-scale applications inquire about our Morton Soil Fumigator.

For jobs requiring 1 lb. or less, a medicine dropper can often be used conveniently. Mark dosage desired on barrel of dropper. Withdraw from Dispenser bottle and inject into previously prepared hole.

Time to Plant. LARVACIDE is toxic to plants. Do not plant until all traces of gas have left the soil. Aeration usually takes about two weeks under summer conditions, and longer when temperature is lower or moisture is higher. Before planting examine soil carefully, by holding close to eye and nose. Aeration is speeded up by spading or tilling.

HOME GARDENS

In home gardens open furrows 5-6 inches deep and 8 inches apart—preferably narrow furrow as made with spade. Use metal vented pouring spout with cork (as for pouring from liquor bottles)—or our "Fumaleg." Pour contents of 1 lb. bottle evenly into 90-110 linear ft. of furrow—1 fl. oz. for 10 to 12 ft. Bottle label is marked in fluid ounces. To avoid fumes, pour with spout well into furrow opening.

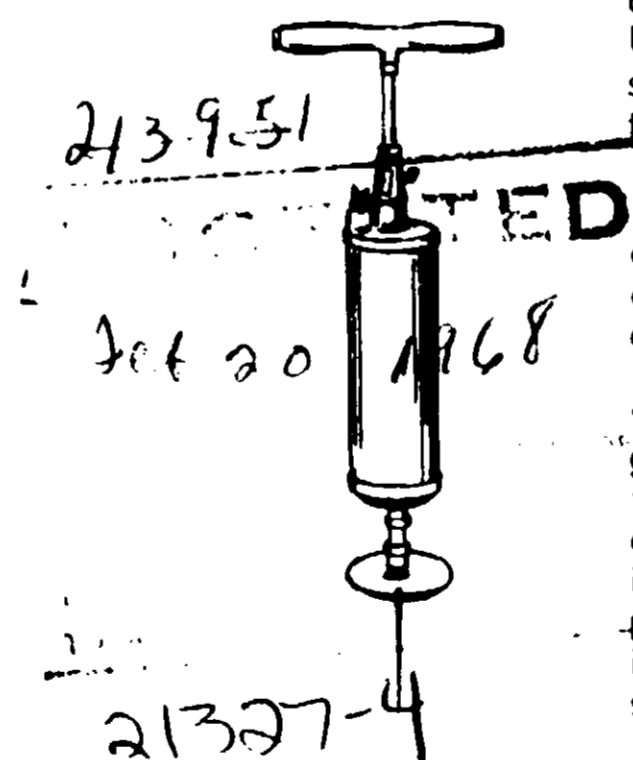


Figure 7
The FUMIGUN measures depth and makes it possible to treat 400-700 sq. ft. per hour.



Figure 8

Pouring Larvacide into narrow furrows in home gardens, furrows being closed after application.

Fill furrow promptly. Level the soil, and sprinkle with water sufficiently to wet soil to depth of about 1 inch. Repeat sprinkling, as may be necessary to keep the surface moist for one day. If canvas, burlap, or even several thicknesses of newspapers are available, place them on the treated soil after the first sprinkling and keep them moist for one

day. At that time remove cover and allow soil to dry. During exposure time or aeration, do not permit fumes to come in contact with living plants. For instance, do not treat nearer than 6 inches from edge of turf areas.

CAUTION—DO NOT PLANT UNTIL SOIL AERATION IS COMPLETE.

GREENHOUSES, OUTDOOR BEDS, SEED BEDS AND FRAMES

Prepare soil to ideal planting conditions as described under general directions. When soil is dry, sprinkle it and keep moist for at least 4 to 5 days prior to treatment. This is of particular importance for killing sclerotial organisms and weed seeds. Roots of previous crops should be removed as completely as possible and at least two weeks allowed for decay of infected roots remaining.

For control of fungi, nematodes, insects, weeds and weed seeds, inject 2-3 cc. on 10 inch centers in light soil, 8-9 inch centers in heavier soil. Inject 2-3 cc. LARVACIDE 100 4 to 6 inches deep or at half bench depth. Use deeper injections in light soils or at higher temperatures. When treating primarily for weed seed control, inject only 2½ to 3 inches deep and use a vapor proof cover for gas retention.

To kill sow bugs and other active insects, always use a cover. For garden centipedes, treat promptly after pulling previous crop.

SOIL FOR TOP DRESSING, POTTING, AND SEED FLATS

If soil is dry, wet down 4 or 5 days ahead. Screen prior to treatment and have temperature not less than 60°. Three-quarters of a pound to 1 lb. of LARVACIDE 100 per cubic yard is recommended dosage, but satisfactory results have often been obtained with ½ lb. per cubic yard.

If soil is not confined to an airtight receptacle or covered with plastic sheeting, water surface after treatment and cover with some material that can be kept moist, such as wetted peat moss, canvas, burlap, or newspapers. Wet these covers and keep moist for 24 hours, after which soil can be aerated.



Figure 9

Small amount of potting and seedling flat soil may be fumigated in barrel or metal drum, without injector.

Small Quantities of Soil. Use steel drums or small bins with tight fitting covers. Measure required amount of LARVACIDE 100 into separate bottle. Place about 6 inches of soil in bottom of soil container: Pour proportionate dosage of the LARVACIDE 100 dosage over soil surface, and quickly add another 8 inches of soil. Pour in another dosage of LARVACIDE 100 and proceed to treat successive layers. After treating top layer of soil, cover tightly.

Large Quantities of Soil. Larger quantities of soil may be fumigated in bins, piles or deep frames by treating at each 8 to 10 inch level as pile is built up. Inject 4 to 5 inches deep at each level. Deep frames and bins are particularly suitable because of tight side walls and ease of sealing surface.

Mushroom Casing Soil. Fumigate as described above. Be extra particular about complete aeration before use.

Window boxes. Prepare soil with trowel until loose and free from lumps. Follow previous directions for soil temperature and moisture.

Mark off soil surface in 10 inch squares and using trowel handle make three holes in center of square to half depth of soil. Put a medicine dropperfull, about 1 to 2 cc., in each hole and fill promptly. Have some newspapers soaking in water and lay them over soil surface, keeping them wet for one day. Aerate thoroughly by troweling from time to time.

Flats. There is some advantage in fumigating soil in flats because of the exposure of the wood to the vapors. For the average flat use 6 to 8 cc. of LARVACIDE 100, injecting 2 cc. with medicine dropper to half the depth of the soil at four evenly distributed points. Water the surface, stack the flats neatly in a pile, and cover top flats.

HOW TO ESTIMATE LARVACIDE REQUIREMENTS FOR SOIL FUMIGATION

1 lb. = 9¼ fluid oz. = 273 cubic centimeters (cc.)

Cc. per injection	Dosage equivalent in lbs./1000 sq. ft.	
	8 inch centers	10 inch centers
1	8¼	5¼
1½	12½	8
2	17	11
2½	20½	13¼
3	25	16

Treatment of Bulk Soil (over)

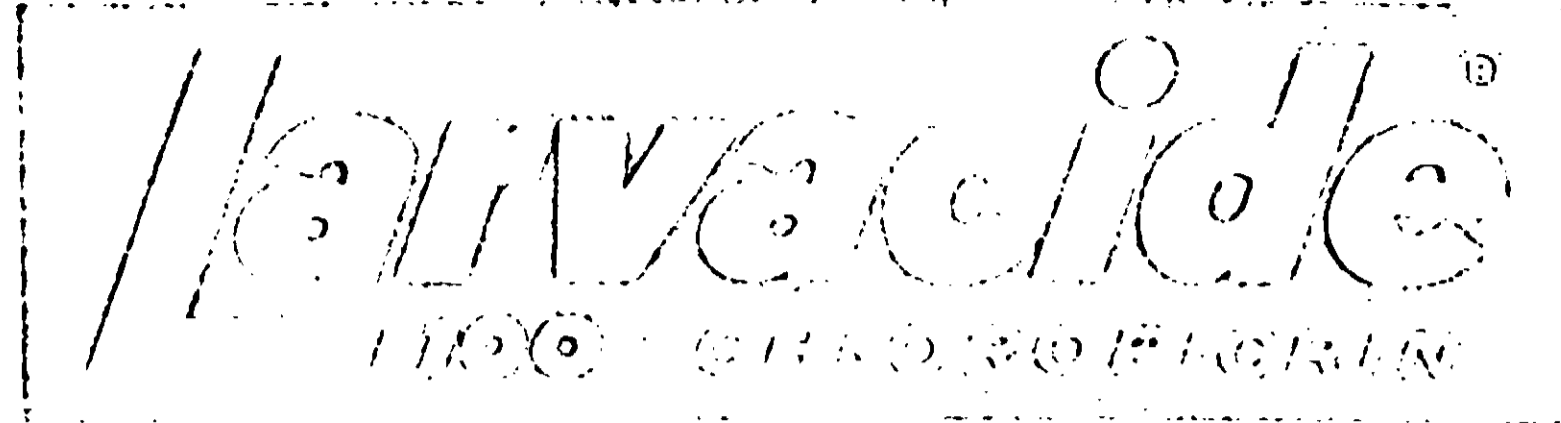
Treatment of Bulk Soil

Cc. per cu. ft.	Dosage per cu. yd. in lbs.
5	$\frac{1}{2}$
$7\frac{1}{2}$ *	$\frac{3}{4}$
10	1

*Dosage most commonly used, but to compensate for error, it is best to increase about 10%.



Form No. 15-GF-II



**ATTENTION! THIS IS
FUMIGATE GRAIN...TREAT HOT SPOTS**
(COMPLETE INSTRUCTIONS INSIDE CAN)
ACTIVE INGREDIENT CHLOROPICRIN . . . 99%
INERT INGREDIENTS 1%

*See instructions on
can for use and vapor*

Do not breathe vapor. Do not get in eyes or on skin or on clothing. In case of contact, immediately wipe off skin and flush skin or eyes with plenty of water for at least 15 minutes; for eyes get medical attention. Remove and wash clothing before reuse.
If inhaled, get victim into fresh air. Have him lie down and rest. Give artificial respiration if breathing has stopped. CALL A PHYSICIAN IMMEDIATELY. Also refer to Larvacide 100 vapors, use full face gas mask with canister designed for organic vapors.

DANGER
KEEP OUT OF REACH OF CHILDREN
USDA REGISTRATION NO. 2139-51

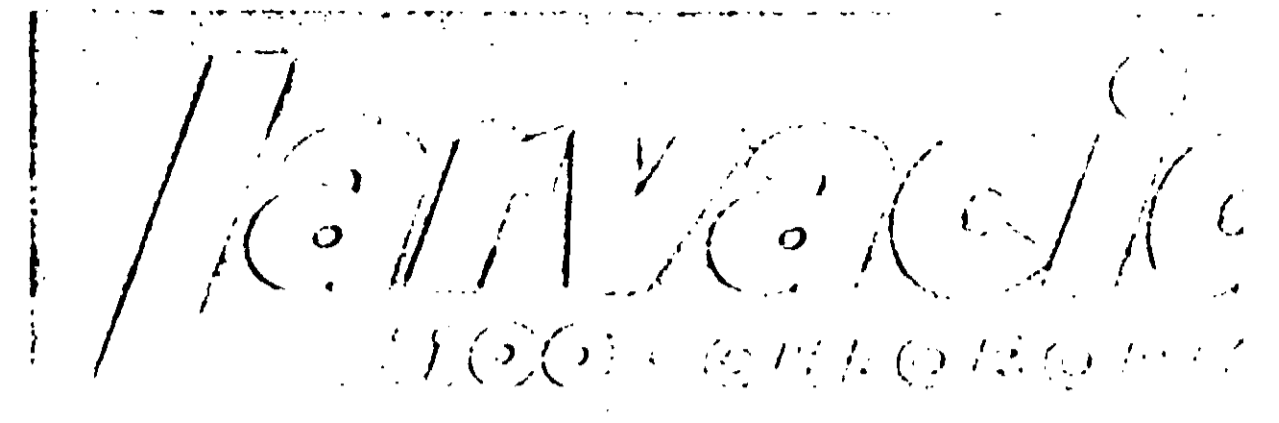
MORTON CHEMICAL COMPANY
DIVISION OF MORTON INTERNATIONAL, INC.
110 N. WACKER DRIVE • CHICAGO, ILLINOIS 60606

HOW TO USE

Built-in tear gas odor gives powerful warning . . . There is no danger of being unknowingly exposed to a lethal dosage of Larvacide 100.

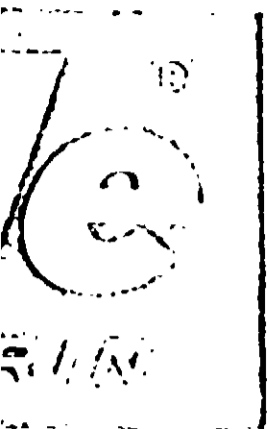
Larvacide 100 is used by - Farmers - Pest control operators - Grain elevators - Feed mills - Seedsmen - Food processing plants - Wholesale grocers - Food stores - and others who require effective insect and rodent control. Use Larvacide 100 only for - wheat, barley, oats, rye, milo, corn, rice, beans, cowpeas, and peas.

NON WARRANTY: Seller's guarantee shall be limited to the terms of the label, and subject thereto the buyer assumes any risk to persons or property arising out of use or handling and accepts the product on these conditions.



**KILL
AND
DRIVE OUT
RATS AND
MICE EASILY IN GRANARIES, WAREHOUSES, ETC.
RODENT CONTROL**





SPOTS

%
%

in eye or on skin
immediately wipe
with plenty of water
and get medical attention
before re-use.

air. Have him fit
an artificial respi-
rator. ALL A PHYSICIAN
should be called for
the 100 vapors.
The container is
designed for

CHILDREN
D. 2139-51

COMPANY
TIONAL, INC.
ILLINOIS 60608

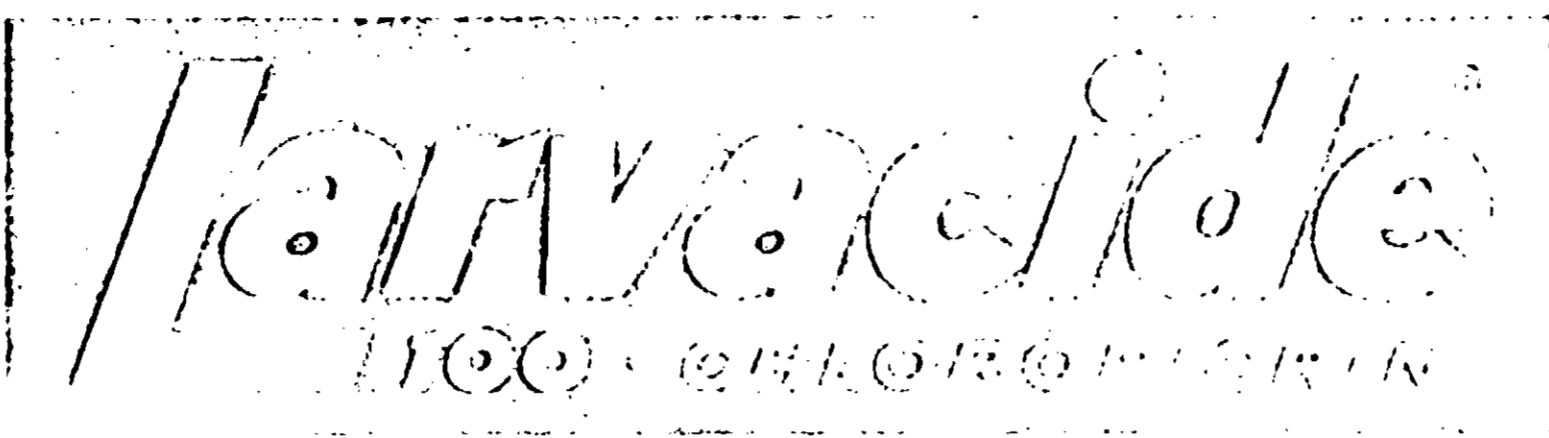
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FOR MORE INFORMATION
CONTACT THE
MANUFACTURER



KILLS

AND

DRIVES OUT

RATS AND MICE

WORKS EASILY IN GRANARIES, WAREHOUSES, ELEVATORS, FOR RODENT CONTROL



FOR MORE INFORMATION CONTACT THE MANUFACTURER

Camerman's Note
Poor Copy

FUMIGATE GRAIN...TREAT HOT SPOTS

(COMPLETE INSTRUCTIONS INSIDE CAN)

ACTIVE INGREDIENT CHLOROPICRIN ... 99%

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If inhaled get victim into fresh air. Have him lie down and keep warm and quiet. Give artificial respiration if breathing has stopped. CALL A PHYSICIAN IMMEDIATELY. When exposed to Larvacide 100 vapors, use full-face gas mask with canister designed for organic vapors.

Larvacide 100 is used by—
Farmers—Pest control operators—Grain elevators—Feed mills—Seedsmen—Food processing plants—Wholesale grocers—Food stores—and others who require effective insect and rodent control. Use Larvacide 100 only for—wheat, barley, oats, rye, milo, corn, rice, beans, cowpeas, and peas.

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POISON
POISONOUS LIQUID AND VAPOR

DANGER
KEEP OUT OF REACH OF CHILDREN
USDA REGISTRATION NO. 2139-51

COMPLETE INSTRUCTIONS INSIDE CAN

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