

RECEIVED
30 OCT 1974
REGISTRATION DIVISION
PESTICIDES, EPA

SPECIMEN LABEL

**METHYL BROMIDE
CHLOROPICRIN
MIXTURE, LIQUID**

PROFUME®

DANGER  POISON

KEEP OUT OF REACH OF CHILDREN • EXTREMELY HAZARDOUS LIQUID AND VAPOR UNDER PRESSURE • INHALATION MAY BE FATAL OR CAUSE DELAYED LUNG INJURY • LIQUID AND VAPOR CAUSE BURNS WHICH MAY BE DELAYED

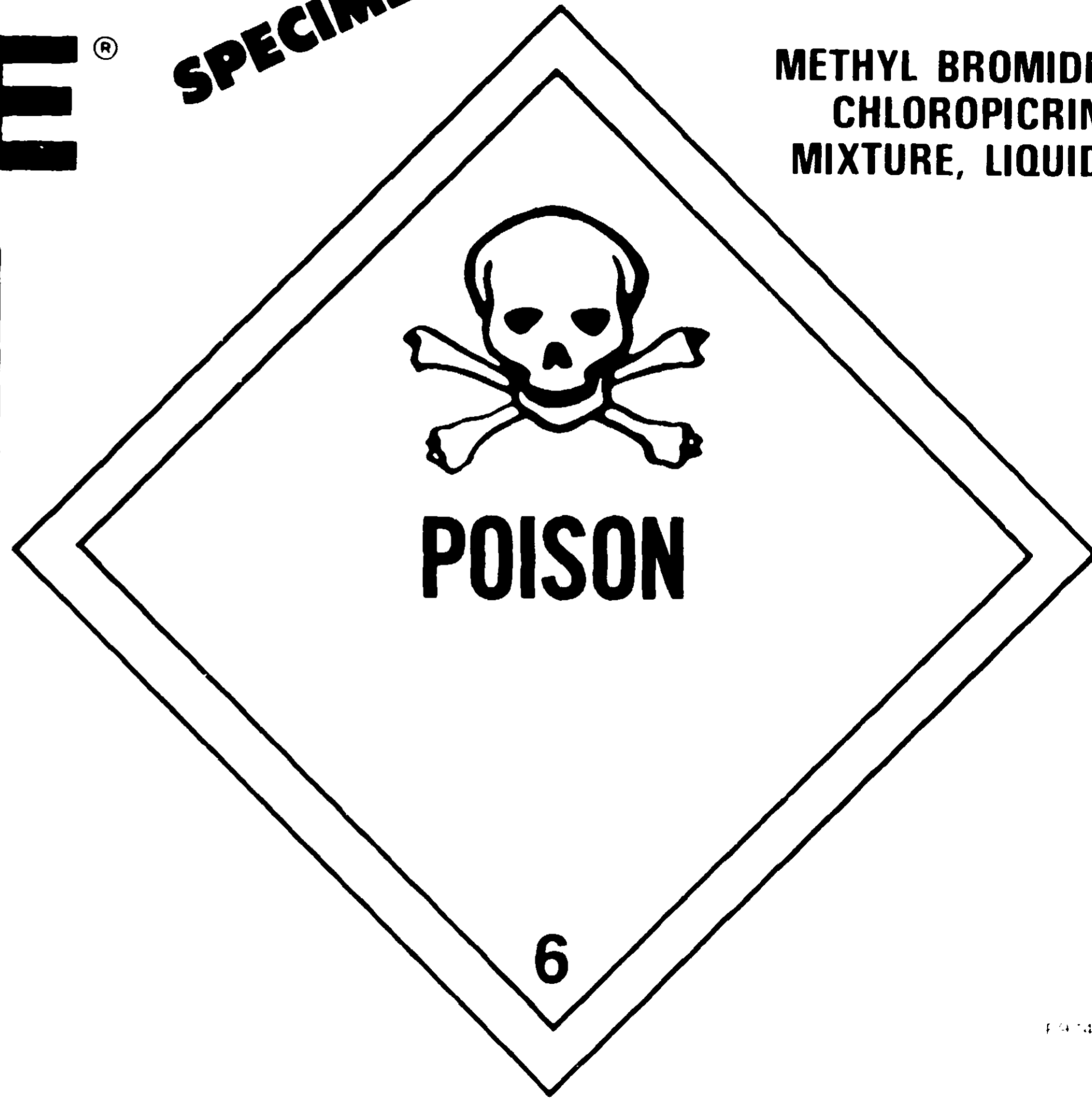
Do Not Breathe Vapor • Use Only With Adequate Ventilation • Do Not Get in Eyes, on Skin, on Clothing • Do Not Use Ordinary Rubber Protective Clothing Including Gloves and Boots • Keep Away from Heat • Wear a Full Face Gas Mask with Black Cannister Meeting Specifications of U.S. Bureau of Mines for Organic Vapors • Chloropicrin Must Never be Depended Upon as a Warning Agent When a Gas Mask is Worn • Send For a Doctor Immediately in Case of Exposure.

FIRST AID

IF INHALED — Carry patient to fresh air. Call a physician at once. Make sure patient can breathe freely. Keep patient lying down and warm. Give artificial respiration if breathing has stopped. Oxygen should be administered only by qualified personnel.

IN CASE OF CONTACT — Immediately remove all contaminated skin covering including shoes, clothing, and adhesive or other bandages. Wash skin thoroughly with soap and water. If irritation or blisters develop, get medical attention. For eyes, flush immediately with plenty of water for at least 15 minutes and get medical attention. Do not reuse shoes or clothing until free of all contamination. **NOTE TO PHYSICIAN:** Keep patient at rest and under observation for 24 to 48 hours.

DO NOT SPILL OR DISCHARGE CONTENTS OUTSIDE OF AREAS CONFINED FOR TREATMENT. KEEP CHILDREN AND ANIMALS AWAY FROM AREAS UNDER TREATMENT.



with Chloropicrin
..... 100%
..... 98%
..... 2%

AA
C-1
letter in Lot No.

**CHEMICAL
Feeds, or Clothing
TION**

**ED DIRECTIONS
s or Regulations**

to its chemical description and when used in accordance with the label. This warrant, nor any other, shall be construed as a particular purpose or for any use not reasonably foreseeable.

**L COMPANY
48640**

A. IN OCTOBER, 1974

86-1112 PRINTED IN JANUARY, 1973

EPA EST. NUMBER ADDED (2) AGRICULTURAL
ADDED (3) PRECAUTIONARY SECTION REVISED
D.

10-21-74

464-104

SPECIMEN



DOWFUME[®] MC-2 Fumigant

IMPORTANT: Use and handling instructions on this overwrap.
DO NOT DISCARD. Read precautions on can before using.



PACKAGED FOR YOUR CONVENIENCE

- ★ CONTAINS 9 POUNDS OF DOWFUME[®] MC-2
- ★ EXACTLY TAILORED FOR STANDARD
100 SQ. YARD PLANT BEDS (900 SQ. FT.)
- ★ FEWER CANS TO HANDLE
- ★ FASTER BED GAS APPLICATION
- ★ FEWER CANS TO DISPOSE OF

E.P.A. Registration No. 464-104-AA
E.P.A. Est. 464-MI-1

6-1.5 LB CANS 9 LB/4.08 KG NET WT

THE DOW CHEMICAL COMPANY MIDLAND, MICHIGAN 48640

Dosage Table for DOWFUME MC-2		
Pest Control Desired	TYPE OF SOIL OR MATERIAL	Dosage
Nematodes, insects and weed seeds	Turf Renovation: Lawns, parks, golf greens, athletic fields and other ornamental and recreational turf areas.	1 1/2 lb per 150 sq ft
	Nonfood and Nonfeed Crop Areas: Seed and plant beds for tobacco, flowers, shade and forest trees, ornamental shrubs and vines, and other similar plants. Also vegetables for production of transplants only.	
	Permanent planting sites for tobacco, flowers, shade and forest trees, ornamental shrubs and vines and other similar plants.	
Damping off organisms such as: <i>Fythyrium</i> , <i>Fhizoctonia</i> , <i>Fusarium</i>	Well rotted compost, manure and top soil	1/2 lb per cu yd
	Mulching straw or hay	1 1/2 lb per 6 bales
Damping off organisms such as: <i>Fythyrium</i> , <i>Fhizoctonia</i> , <i>Fusarium</i>	Turf Renovation: Same sites as listed above. Nonfood and Nonfeed Crop Areas: Same plants as listed above.	3 lb per 150 sq ft
	Well rotted compost and manure	1 lb per cu yd

* Exposure and rotation times should be doubled if soil temperature is between 40°F and 50°F. DOWFUME MC-2 is not recommended for use in soil temperatures below 40°F or above 90°F.

14271-294-4

B874

86-1047 PRINTED IN U.S.A. IN SEPTEMBER, 1974

REPLACES SPECIMEN LABEL 86-1047 PRINTED IN NOVEMBER, 1973

REVISIONS INCLUDE: (1) EPA ESTABLISHMENT NUMBER ADDED.

21-74

464-104

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E.P.A. Registration No. 464-104-AA
E.P.A. Est. 464-MI-1

Dosage Table for DOWFUME MC-2				
Pest Control Desired	TYPE OF SOIL OR MATERIAL	Dosage	Minimum Exposure Time *	Aeration Time Before Planting **
Nematodes, insects and weed seeds	Turf Renovation: Lawns, parks, golf greens, athletic fields and other ornamental and recreational turf areas. Nonfood and Nonfeed Crop Areas: Seed and plant beds for tobacco, flowers, shade and forest trees, ornamental shrubs and vines, and other similar plants. Also vegetables for production of transplants only. Permanent planting sites for tobacco, flowers, shade and forest trees, ornamental shrubs and vines and other similar plants.	1 1/2 lb per 150 sq ft	24 hrs	48 hrs
	Well rotted compost, manure and top soil	1 1/2 lb per cu yd	24 hrs	72 hrs
	Mulching straw or hay	1 1/2 lb per 6 bales	48 hrs	24 hrs
Damping off organisms such as: <i>Fythium</i> , <i>Fhizoctonia</i> , <i>Fusarium</i>	Turf Renovation: Same sites as listed above. Nonfood and Nonfeed Crop Areas: Same plants as listed above.	3 lb per 150 sq ft	24 hrs	72 hrs or longer
	Well rotted compost and manure	1 lb per cu yd	24 hrs	72 hrs or longer

* Exposure and aeration times should be adjusted for air temperatures between 50°F and 60°F. DOWFUME MC-2 should not be used if temperature is below 50°F.
** Soil in which plants are to be set should be aerated for 1 week to 10 days.

6-1.5 LB CANS 9 LB/4.08 KG NET WT

THE DOW CHEMICAL COMPANY MIDLAND, MICHIGAN 48640

14271-294-4

B874

MBER, 1974

PRINTED IN NOVEMBER, 1973

LISHMENT NUMBER ADDED.



SPECIMEN LABEL
(BACK)

GENERAL INFORMATION

DOWFUME MC-2 fumigant contains methyl bromide with 2-chloropicrin added as warning agent against the hazard of over-exposure of personnel to methyl bromide. Chloropicrin must never be depended upon as a warning agent when a gas mask is worn. It is designed for application under a gasproof cover for treating soil and certain other materials in which plants may be grown for nonfood and nonfeed crop uses including seed and plant beds, nurseries and permanent planting sites for tobacco, lawns, and other ornamental and recreational turf areas, forest and shade trees, ornamental flowers, vines, and shrubs and other similar plants.

It may also be used for treatment of vegetable seed beds for production of plants that are later transplanted and grown to maturity in untreated soil or soil treated according to label directions for registered products.

The use of DOWFUME MC-2 is recommended for control of seeds of broadleaf and grass weeds and their roots, stolons and bulbs as well as nematodes, insects in the soil at time of treatment including wireworms, June beetle larvae, and other grubs and certain soil-borne fungi which produce plant diseases. It is par-

ticularly useful for the eradication of patches of quackgrass, johnsongrass, nutgrass, garlic wild onions and certain other noxious plants. Consult the Dosage Table which appears on this overwrap for more precise details on uses for DOWFUME MC-2 fumigant and read the entire overwrap before using the product. While in the container, DOWFUME MC-2 fumigant is a liquid under pressure. It turns to a gas when released and must be confined under a gasproof cover of either plastic or coated fabric. Both the liquid and the gas are poisonous and may cause burns on contact. Observe all Precautionary Labeling and Use and Handling Precautions given on this overwrap and the product label.

APPLICATION EQUIPMENT: Open only with special equipment designed for this purpose. The Star Model 1.5 Opener (Southeastern Tool and Die Company, 1420 Metals Drive, Charlotte, North Carolina) The Star applicator punctures the can and gaskets the opening, allowing the fumigant to discharge through the attached tube into the confined area to be treated. To avoid possible contact with DOWFUME MC-2 when using the Star applicator, follow these simple rules:

1. Place can in applicator cradle, draw handle quickly toward body of can until piercing point has entered can and gasket is seated. It is important not to puncture the can on the side seam and to keep the point of puncture at the lowest point in the can while it is being emptied so that the pressure within the can will cause the liquid to flow through the tubing. If the can is punctured high, fumigant vapors rather than liquid will flow through the tubing, the contents of the can will be cooled and the pressure may be reduced to a point where it may be quite difficult to get the liquid out of the can.
2. Do not open cans without first making certain fumigant will be dispensed where desired.
3. Do not disconnect applicator from can or from polyethylene tubing until can is completely empty of fumigant. This applicator is not equipped with a valve or other device to stop the flow of fumigant after the can is punctured.
4. In case of breakage or failure of the applicator to puncture or seal, then properly keep away from the can until all the fumigant has evaporated and the vapors carried away.

INSTRUCTIONS

SEED AND PLANT BEDS. Soil preparation. With the exception of light, sandy soils, DOWFUME MC-2 fumigant will normally be effective only as deep as the soil is properly prepared. Have soil in condition suitable for planting, moist, fine and loose, with no clumps or clods. Moisture content of weed seeds must be high for good control. Consequently dry soil should be thoroughly drenched and kept moist for at least 3 to 4 days before fumigating. For best results fumigate when soil temperature is above 60° F at the 4 inch depth. If soil temperature is between 50° F and 60° F, double the recommended exposure time. Do not fumigate if soil temperature is below 50° F.

DOSAGE. Determine dosage from the Dosage Table which appears on this overwrap. DOWFUME MC-2 will control most weed seeds, nematodes and insects present in the soil at time of treatment when used at recommended rates. Certain resistant species such as round-leaf mallow and hard coated seeds such as clover may require a somewhat higher dosage or an exposure time longer than the minimum indicated in the table.

APPLICATION: Materials required include evaporating containers, a gasproof cover of polyethylene or other material impervious to DOWFUME MC-2, cover supports, polyethylene tubing and an applicator to dispense the fumigant.

Start by digging a 4 to 6 inch deep trench or furrow around the border of the area to be treated. This will later provide an easy and effective way of sealing the gasproof cover before releasing the fumigant. Next place cover supports at regular intervals on the prepared bed. Supports should be high enough to hold the cover above the soil surface and evaporating containers so that the fumigant vapors can diffuse and circulate freely. Any handy object that will not puncture or tear the cover can be used for support purposes including inflated polyethylene bags, crumpled fertilizer bags, burlap bags stuffed with hay or straw, inverted flower pots, bottles or cardboard boxes. With the supports in place set the evaporating containers about 30 feet apart in the area to be treated. The containers are essential

for volatilization and uniform dispersion of the fumigant. Anything convenient to hold the fumigant and keep it from soaking into the ground as a liquid can be used including tin pans or basins made of cover material. Do not use containers made of aluminum or its alloys. Containers should be shallow—4 to 5 inches deep at most—to allow ready dispersion of fumigant vapors and with sufficient capacity to hold about one pint volume for each 1 1/2 lb can of DOWFUME MC-2 dispensed.

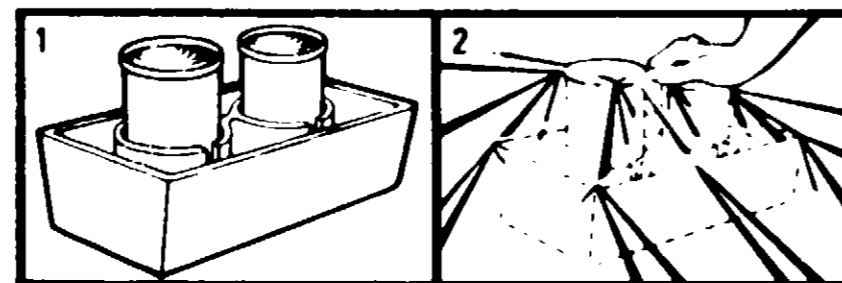
After placing the evaporating containers on the seed bed, fasten a polyethylene applicator tube to each, making sure the end is directed into the container. Tubes should extend out from under the gasproof cover when in place, and be long enough to allow the fumigant applicator to be easily attached.

Lay the gasproof cover over the area to be treated placing the edges of cover in the trench or furrow previously dug and seal with earth. Use enough earth to cover the edges to a width of 6 to 10 inches and tamp down firmly. During this operation use special care not to damage the cover. A cover should last several years if handled and stored properly.

Apply DOWFUME MC-2 using a Star Model 1.5 applicator previously described. Only one applicator is needed as it is transferred from one polyethylene tube to the next. CAUTION: Transfer applicator to next tube only after can of DOWFUME MC-2 to which it is connected is completely empty. Have cans of fumigant warm (60° F to 90° F) so fumigant will flow rapidly through the polyethylene tube into the evaporating container. A can should empty in less than one minute. Discharge necessary number of cans into each container being careful not to disturb the earth seal along the cover edge. After application is complete do not disturb either gasproof cover or polyethylene applicator tubes. Gas may escape and create a hazard to the operator and reduce effectiveness of the soil treatment.

An alternate method of application involves vaporizing DOWFUME MC-2 before release under the gasproof cover. The purpose of this method is to ensure maximum fumigant efficiency by obtaining a uniform concentration of gas throughout the treated area as quickly as possible. Because the fumigant is released as a gas rather than as a liquid, evaporating containers are not needed. DOWFUME MC-2 is vaporized by submerging the punctured can in hot water while applying. This can be achieved by puncturing can in conventional manner, immediately turning it upside down and submerging both the punctured can with applicator attached into the hot water. Keep submerged until empty. Additional hot water should be available as the original supply will be cooled by the rapid vaporization of the fumigant. A small stove of the type commonly used by campers may be used to keep the water hot.

SIMPLEX 2 TRAY OPENER



The SIMPLEX 2 Tray Opener, which serves both as a can-piercing device designed specifically for 1.5 lb. cans, and as an evaporation tray is used only for soil fumigation under polyethylene covers.

Soil Fumigants Company, Box 7801, Orlando, Florida 32804

1. Place trays (one for every 300 sq. ft. to be treated) upright on prepared seedbed. Carefully insert two 1.5 lb. cans into guides to rest lightly upon nails in bottom. NOTICE: Do not allow nail to puncture can.
2. With trays positioned near edge of seedbed, cover trays and bed with polyethylene, using soil to seal all edges in prepared trenches. Walk toe-to-heel around entire perimeter, compacting soil to prevent wind from breaking seal during fumigation.
3. From outside gas-tight polyethylene cover, press palm down firmly against each can or turn to puncture can against nail. Use only palm of hand, never use a foot, board, shovel or other hard object which might tear plastic and permit fumigant to escape. Have masking tape or plastic tape available to repair accidental punctures. Do not attempt to remove trays or cans until cover removed after the 24 to 48-hour exposure period.

EXPOSURE AND AERATION. Let fumigated area stand undisturbed for 24 to 48 hours depending on temperature. Remove cover and let the soil aerate for 24 to 72 hours, if more. Work thoroughly to speed further aeration. Some kinds of seed can be planted immediately, sensitive species cannot be planted until, after several days aeration. Do not set out seed and plants until at least one week.

WELL-ROTTED COMPOST AND MANURE. Follow the general instructions given above for soil treatment. Conduct fumigation either outdoors or in a well-ventilated place. The material should be loose, moist enough for good seed germination, and at a temperature above 60° F. For best results pile the material in a 6 to 8 foot deep on wet ground or on a concrete floor. Piles up to three feet high can, when necessary, be fumigated if perforated every 12 inches. Support the cover a few inches above the material to permit gas to diffuse and introduce DOWFUME MC-2 at the highest point of the pile. After exposure, aerate material for one day. Then stir thoroughly and aerate 48 hours, or longer before using.

MULCHING MATERIALS. Straw, or hay, should be thoroughly soaked several days before treatment. At time of treatment pile the bales up and cover with a gasproof cover sealed in the same manner as recommended for soil.

ESTABLISHING WEED-FREE TURF. Lawn grass seed or sprigs may be planted after treatment with DOWFUME MC-2 has killed existing grass and weeds. Follow directions given above for seed and plant bed treatment. With an old lawn the turf is usually worked up before fumigating. If desired, the turf may be left undisturbed; in this case dig a shallow trench around the area in which to seal the edges of the cover before fumigating. After exposure and removal of the cover the treated area may be seeded or sprigged without removing the dead sod. NOTE: Frequent sprinkling after seeding will help ensure a uniform stand.

ADDITIONAL USES: DOWFUME MC-2 fumigant may also be used for the control of insect pests infesting lumber and bagged or bulk grains in railroad boxcars or by treatment under a gas proof cover (Tarpaulin). DOWFUME MC-2 may also be used for pre-

IMPORTANT

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on this overwrap.
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Read precautions
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planting application to control citrus nematode, burrowing nematode, root knot nematode, *Armillaria* root rot fungus, *Phytophthora* root rot and crown rot fungus in sandy and fine textured clay soil, tree replant sites in peach and almond orchards and citrus groves.

Before using DOWFUME MC-2 for these purposes consult complete directions given in the following literature available from The Dow Chemical Company, Ag-Organics Department, Midland, Michigan 48640.

DOW Methyl Bromide for Boxcar Fumigation (Form No. 132-89)

Operating Information on Tarpaulin Fumigation with DOW Methyl Bromide (Form No. 132-59)

Preplant Soil Fumigation with DOWFUME MC-2 for Control of Certain Soil-borne Pests in Replant Tree Sites (Form No. 133-408)

USE PRECAUTIONS: DOWFUME MC-2 has given excellent results with a wide variety of soils and plants. However, for reasons not clearly understood, plant growth has occasionally been un-

satisfactory following treatment. Difficulty has been experienced with carnations, conifers, holly, multiflora roses, snapdragons, and certain other ornamental plants and shrubs. Every grower should experiment on a small scale for at least a full season before extensive use.

- For best results, observe the following precautions:
1. Do not treat soil when very cold, very wet or very dry.
 2. DOWFUME MC-2 is toxic to all plants. Do not fumigate too close to desirable vegetation. Keep the edge of the cover at least a foot away from the roots of desirable plants and water the root zone thoroughly in area not covered by the tarp or polyethylene cover. If possible, pre-soak root zone around desirable plants immediately adjacent to cover to help contain the gas under the cover.
 3. Be sure treated soil or material is free from DOWFUME MC-2 before seeding or using. Work and live in aeration.
 4. Prevent contamination of fumigated areas. If necessary, build and flood a trench around them or build wooden or earthen dams. Clean your shoes carefully when walking from untreated to treated soil. Do not use tools, transplants or crop remains that may carry pests from unfumigated areas.
 5. Fumigation with DOWFUME MC-2 sometimes slows down the rate of nitrification in the conversion of nitrates from ammonia by bacterial action. Certain common sensitive plants, such as tomatoes, may suffer growth inhibition or stand reduction when planted in fumigated soils containing high amounts of ammonia nitrogen. To lessen this hazard, at least 1 pound per acre of the nitrogen fertilizer added immediately before or soon after fumigation should be in the form of nitrate nitrogen. This hazard may also be reduced by delaying planting until several months after fumigation. If a fertilizer of nitrogen, such as sodium or calcium nitrate is used, it is advisable to apply it immediately and sparingly will supply the nitrogen needed with the soil. Phosphorus, potassium, and other nutrients should be used according to soil tests.
 6. Fumigation with DOWFUME MC-2 may cause a temporary loss of soil fertility. This is due to the fact that the soil is sterilized and the nutrients are not available to the plants. This is not a permanent loss of fertility and the soil will recover after aeration.

HANDLING PRECAUTIONS. DOWFUME MC-2 fumigant is a highly hazardous material and should be handled in accordance with the following precautions:

1. Before using read and understand the entire overwrap and label.
2. Do not breathe the vapor.
3. Do not spill. If liquid DOWFUME MC-2 spills on shoes, clothing, or remove them at once and do not wear them again until dried outdoors for several days. Do not wear gloves when applying DOWFUME MC-2.
4. Keep animals and children away from pits when under treatment and for at least 30 minutes after the cover is removed. The warning agent in DOWFUME MC-2, by irritating the eyes, will warn of leaks or spillage in handling and storage. It disappears in a few hours, however, and will not keep children or animals from creeping under the cover.
5. When fumigating inside buildings, keep doors and windows open at all times until after aeration is completed. Good ventila-

6. It is essential both for safety and in accordance with directions when fumigating.
7. Application of DOWFUME MC-2 often eliminates the need for a gas mask.
8. Always have a helper to assist in handling the product.

NOTICE: Better warrants than a typical and is reasonably fit for use in accordance with directions. Neither this warranty nor any other warranty shall apply to the use of this product contrary to the directions under conditions that assume the risk of any such use.

Active Ingredients:
Methyl Bromide
Chloropicrin
E.P.A. Registration No. 4

DANGER

KEEP OUT OF EXTREMELY HAZARDOUS PRESSURE • INHALATION LAYED LUNG INJURY • WHICH MAY BE DELAYED • USE ONLY WITH ADEQUATE PROTECTION IN EYES, ON SKIN, CLOTHING AND RUBBER GLOVES AND BOOTS • FULL FACE GAS MASK SPECIFICATIONS OF U.S. ARMY • CHLOROPICRIN VAPORS UPON AS A WARNING • SEND FOR FULL LIST OF EXPOSURE

IF INHALED—CARRY TO PHYSICIAN AT ONCE. DO NOT BREATH FREELY. KEEP PATIENT UNDER ARTIFICIAL RESPIRATION. OXYGEN SHOULD BE AVAILABLE TO PERSONNEL.

IN CASE OF CONTACT WITH CONTAMINATED SKIN, CLOTHING, AND ADJACENT WASH SKIN THOROUGHLY. IRRITATION OR BLISTERS ATTENTION. FOR EYE IRRITATION GET MEDICAL ATTENTION. CLOTHING UNTIL FREELY WASHED.

NOTE TO PHYSICIAN: KEEP UNDER OBSERVATION FOR 24 HOURS. DO NOT SPILL ON DISINFESTED AREAS. CONFINED FOR 24 HOURS. KEEP ANIMALS AWAY FROM TREATED AREAS.