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

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Pg. 7

Mardel Belotinsky
Regulatory Affairs Specialist
Hendrix and Dail, Inc.
1101 Industrial Boulevard
Greenville, NC 27834

OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

SUBJECT: Review of Labeling Amendment
MBC Concentrate Soil Fumigant
EPA Reg. No. 8853-2
Your Submission Dated May 5, 1998

Dear Mr. Belotinsky:

The labeling referred to above, submitted in connection with registration under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), as amended, is acceptable subject to the following conditions:

1. On the front panel, delete "OVER" in the statement, "IN ALL CASES OF OVEREXPOSURE, GET MEDICAL ATTENTION IMMEDIATELY." because persons may not be aware that they are "over" exposed to methyl bromide and chloropicrin.
2. Change "INHALATION HAZARD" back to "POISON GAS" in the diamond with the skull and crossbones or justify this change.
3. Under SOIL FUMIGATION DIRECTIONS, add the following paragraph:

"GREENHOUSES: The use of methyl bromide and chloropicrin in enclosed spaces presents a potential hazard to humans and plant life. Before fumigation, train all personnel involved in fumigation (including use of safety equipment). When used for fumigation of enclosed spaces, two persons trained in the use of this product must be present during introduction of the fumigant, initiation of aeration, and after aeration when testing for reentry. Follow USE PRECAUTIONS. Follow directions for row application with doors open and fans running. After application and tarping, secure and post the structure to prevent unprotected persons and domestic animals from entering. After the exposure period, open doors and turn on fans prior to removing tarpaulins.

On-Site Protective Equipment: Although this fumigant contains chloropicrin, the absence of chloropicrin does not always indicate the absence of methyl bromide. Do not allow any person to enter the fumigated structure without the appropriate

protective equipment for the time of injection of the fumigant until acceptable air concentration level readings are obtained using an approved detector. To maintain adequate safety standards, the following equipment must be present and accessible on the site during the entire fumigation operation: (1) one or more self-contained breathing apparatus; (2) one or more replacement air bottles per breathing apparatus; and (3) one or more halide leak detectors.

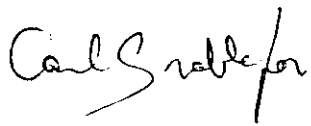
After Fumigation: At the end of the exposure period, remove all seals and open all doors and windows that are operational. Allow for complete ventilation. Use ventilation fans whenever possible to remove fumigant from dead air pockets. Follow exactly the instructions in the entry restriction section of the Agricultural Use Requirements box."

- 4. We recommend that you include the aeration time before planting to the Dosage Table - Soil Fumigation Uses.
- 5. For purposes of application for registration or amendment, copies of labeling should be submitted to the Agency on 8½" X 11" or mounted on 8½" X 11" paper.

If these conditions are not complied with, the registration for the subject product will be subject to cancellation in accordance with FIFRA section 6(e). Your release for shipment of the subject product constitutes acceptance of these conditions. A stamped copy is enclosed for your records. Please submit one copy of your final printed labeling before you release the product for shipment.

If you have any questions, then please contact Terri Stowe of my staff at (703) 305-6117.

Sincerely,



Mary L. Waller
Product Manager (21)
Fungicide Branch
Registration Division (7505C)

Enclosure

CHLOROPICRIN MAY BE IRRITATING TO THE UPPER RESPIRATORY TRACT, AND EVEN AT LOW LEVELS CAN CAUSE PAINFUL IRRITATION TO THE EYES, PRODUCING TEARING. IF THESE SYMPTOMS OCCUR, LEAVE THE FUMIGATION AREA IMMEDIATELY.

AIR CONCENTRATION LEVEL

The acceptable air concentration level for persons exposed to chloropicrin is 0.1 ppm (0.7 mg/m³). The acceptable air concentration level for persons exposed to methyl bromide is 5 ppm (20 mg/m³). The air concentration level is measured by a direct reading detection device, such as a Matheson-Kitagawa.

PERSONAL PROTECTIVE EQUIPMENT

Applicators and other handlers **MUST WEAR:**

- Loose-fitting or well ventilated long-sleeved shirt and long pants
- Shoes and socks
- Full-face shield or safety glasses with brow and temple shields when handling liquid product (Do NOT wear goggles.)
- When the acceptable air concentration level is above 5 ppm and a respirator is required, protect the eyes by wearing a full-face respirator.
- No respirator is required, if the air concentration level of chloropicrin in the working area is measured to be less than 0.1 ppm AND the air concentration level of methyl bromide in the working area is measured to be less than 5 ppm.
- **A respirator is required if the acceptable air concentration level of 0.1 ppm for chloropicrin OR 5 ppm for methyl bromide is exceeded at any time.** The respirator must be one of the following types: (a) a supplied-air respirator (MSHA/NIOSH approval number prefix TC-19C) OR (b) a self-contained breathing apparatus (SCBA) (MSHA/NIOSH approval number prefix TC-13F).

Under normal soil fumigation conditions, the air concentration level of chloropicrin in the working area will not generally exceed 0.1 ppm AND the air concentration level of methyl bromide in the working area will not generally exceed 5 ppm; therefore, no respiratory protection is required. However, there is the possibility of a spill or leak during soil fumigation. Therefore, a respirator of a type specified above must be available and will be required for entry into an affected area in the event of a leak or spill.

WORK SAFETY REQUIREMENTS

- Do not wear jewelry, gloves, goggles, tight clothing, rubber protective clothing, or rubber boots when handling. Methyl bromide and chloropicrin are heavier than air and can be trapped inside clothing and cause skin injury.
- If liquid fumigant splashes or spills on clothing, remove them at once, as fumes will be an intolerable source of irritation.
- Immediately after application remove outer clothing, shoes, and socks. Do not reuse contaminated clothing or shoes until cleaned. Keep and wash the clothing and shoes separately from other laundry.
- Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product. Do not reuse them.
- Follow manufacturer's instructions for cleaning/maintaining protective eyewear, face shields and respirators.

USER SAFETY RECOMMENDATIONS

Users should:

- 1) Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.
- 2) Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- 3) Remove PPE immediately after handling this product. As soon as possible, wash thoroughly and change into clean clothing.

ENVIRONMENTAL HAZARD

This pesticide is toxic to wildlife. Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans or other waters unless in accordance with the requirements of a National Pollution Discharge Elimination System (NPDES) permit and the permitting authority has been notified in writing prior to discharge. Do not discharge effluent containing this product to sewer systems without previously notifying the local sewage treatment plant authority. For guidance contact your State Water Board or Regional Office of the EPA.

CHEMICAL HAZARD

Do not use containers or application equipment made of magnesium, aluminum, or their alloys, as under certain conditions this fumigant may be severely corrosive to such metals. Do not permit water to be used to clean the fumigant pressure system as corrosion will result. Diesel oil is satisfactory for this purpose.

DIRECTIONS FOR USE

It is a violation of Federal Law to use this product in any manner inconsistent with its labeling. Do not apply the product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

PLACARDING OF FUMIGATED AREAS

The applicator (or supervisor of the application) must placard all entrances to the fumigated area with signs bearing:

- skull and crossbones symbol
- "DANGER/PELIGRO"
- "Area under fumigation. DO NOT ENTER/NO ENTREE"
- "Methyl Bromide and Chloropicrin Fumigants in use"
- the date and time of fumigation
- name, address, and telephone number of the applicator

Do not allow entry by unprotected persons into the fumigated area until the signs are removed. Such signs must be removed when the air concentration level of chloropicrin is measured to be less than 0.1 ppm AND the concentration level of methyl bromide is measured to be less than 5 ppm. Signs must remain legible during the entire posting period. Warning signs are available from your dealer or distributor.

**RESTRICTED USE PESTICIDE
DUE TO ACUTE TOXICITY**

For retail sale to and use only by Certified Applicators, or persons under their direct supervision, and only for those uses covered by the Certified Applicator's certification.

MBC Concentrate Soil Fumigant

ACTIVE INGREDIENT: Methyl Bromide	98%
INERT INGREDIENT: Chloropicrin (added as a warning agent)	2%
TOTAL:	100%

*To control many weeds, grasses, nematodes,
and insect pests in soils to be planted to
food crops, field crops, turf areas and nurseries*

KEEP OUT OF REACH OF CHILDREN

DANGER



PELIGRO

POISON

PELIGRO: Si Usted no entiende la etiqueta, busque a alguien para que se la explique a Usted en detalle. (If you do not understand the label, find someone to explain it to you in detail.)

**IN ALL CASES OF OVEREXPOSURE
GET MEDICAL ATTENTION IMMEDIATELY.
TAKE PERSON TO A DOCTOR OR
AN EMERGENCY TREATMENT FACILITY.**

STATEMENT OF PRACTICAL TREATMENT

IF INHALED: Get exposed person to fresh air. Keep warm. Make sure person can breathe freely. If breathing has stopped, give artificial respiration. Give oxygen if needed. Do not give anything by mouth to an unconscious person. Seek medical attention.

IF ON SKIN: Immediately remove contaminated clothing, shoes, and other items covering the skin. Wash contaminated skin area thoroughly with soap and water.

IF IN EYES: Hold eyelids open and flush with a steady, gentle stream of water for at least 15 minutes.

NOTE TO PHYSICIAN: Early symptoms of overexposure are dizziness, headache, nausea and vomiting, weakness, and collapse. Lung edema may develop ion 2 to 48 hours after exposure, accompanied by cardiac irregularities; these effects are the usual cause of death. Repeated overexposure can result in blurred vision, staggering gait, and mental imbalance, with probable recovery after a period of no exposure. Blood bromide levels suggest the occurrence, but not the degree, of exposure. Treatment is symptomatic.

See side panel for additional precautionary statements.



Hendrix and Dail, Inc.

1101 Industrial Boulevard

Greenville, NC 27834

(919) 758-4263

EPA Reg. No. 8853-2

EPA Est. 8853-FL-1

8853-GA-1

8853-KY-2

8853-NC-1

8853-NC-2

METHYL BROMIDE/CHLOROPICRIN MIXTURE, LIQUID
WEIGHT: 14 POUNDS PER GALLON

NET CONTENTS: 200 LBS

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements in this labeling about personal protective equipment, restricted-entry intervals, and notification to workers. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard (WPS). No instructions elsewhere on this labeling relieve users from complying with the requirements of the WPS.

ENTRY RESTRICTIONS: Greenhouse Soil Fumigation: Entry (including early entry that would otherwise be permitted under the WPS) by any person—other than a correctly trained and equipped handler who is performing a handling task permitted by the WPS—is PROHIBITED in the entire greenhouse (entire enclosed building/structure) from the start of application until 48 hours after application AND until the air concentration level of chloropicrin in the working area is measured to be less than 0.1 ppm AND the air concentration level of methyl bromide in the working area is measured to be less than 5 ppm. Until the aeration of the soil is complete (usually 10-14 days), non-handlers are permitted in the greenhouse ONLY while the air concentration level of chloropicrin in their working area remains less than 0.1 ppm AND the air concentration level of methyl bromide in their working area remains less than 5 ppm. If tarps are used for the application, non handler entry is prohibited during tarp removal and until the air concentration level of chloropicrin in the working area is measured to be less than 0.1 ppm AND the air concentration level of methyl bromide in the working area is measured to be less than 5 ppm. **Outdoor Soil Fumigation:** Entry (including early entry that would otherwise be permitted under the WPS) by any person—other than a correctly trained and equipped handler who is performing a handling task permitted on this labeling—is PROHIBITED from the start of application until 48 hours after application. In addition, if tarps are used for the application, non-handler entry is prohibited while tarps are being removed.

NOTIFICATION: Notify workers of the application by warning them orally and by posting fumigant warning signs, as described in the "Placarding of Fumigated Areas" section of this labeling. Post the fumigant warning sign instead of the WPS sign for this application, but follow all WPS requirements pertaining to location, legibility, size, and timing of posting and removal. **Greenhouses—Soil Fumigation:** Post the fumigant warning signs outside all entrances to the entire greenhouse (entire enclosed building/structure). **Outdoor Soil Fumigation:** Post the fumigant warning signs at entrances to treated areas.

PPE FOR ENTRY DURING ENTRY-RESTRICTED PERIOD: PPE for entry that is permitted by this labeling is listed in the "Hazard to Humans and Domestic Animals" section of this labeling.

STORAGE AND DISPOSAL

STORAGE AND HANDLING: Store in a dry, cool, well-ventilated area under lock and key. Post as a pesticide storage area. Do not contaminate water, food, or feed by storage. Persons moving, handling, or opening containers must wear the personal protective equipment (including prescribed respirators when necessary) specified in the Hazard to Humans section of this labeling. Open container only in a well-ventilated area. Store cylinders upright, secured to a rack or wall to prevent tipping. Cylinders should not be subjected to rough handling or mechanical shock such as dropping, bumping, dragging, or sliding. Do not use rope slings, hooks, tongs, or similar devices to unload cylinders. Transport cylinders using hand truck, fork truck or other device to which the cylinder can be firmly secured. Do not remove valve protection bonnet and safety cap until immediately before use. Replace safety cap and valve protection bonnet when cylinder is not in use. When cylinder is empty, close valve, screw safety cap onto valve outlet, and replace protection bonnet before returning to shipper. Only the registrant is authorized to refill cylinders. Do not use cylinders for any other purpose.

RETURN CYLINDERS TO:

Hendrix and Dail, Inc.
1101 Industrial Boulevard
Greenville, NC 27834

Cylinders are the property of Hendrix and Dail, Inc. and should be returned promptly by collect auto freight. When a cylinder is partially full and there is no further requirement for the product, contact Hendrix and Dail, Inc. at (819) 758-4263 for return instructions.

SHIPPING: This fumigant is classified in the U.S. Department of Transportation Hazardous Materials Regulations as Methyl Bromide, 2.3, UN 1082, Poison-Inhalation Hazard, Hazard Zone C and no exemptions from specifications, packaging, marking, or labeling are allowed. Describe empty cylinders as having just contained Methyl Bromide (inhalation hazard). Do not ship with foods, feeds, or clothing.

SPILL AND LEAK PROCEDURES: Evacuate everyone from the immediate area of the spill or leak. For entry into affected area to correct problem, wear the personal protective equipment (including prescribed respirator) specified in the Hazard to Humans section of this labeling. Move leaking or damaged containers outdoors or to an isolated location. Observe strict safety precautions. Work upwind, if possible. Allow spilled fumigant to evaporate. Only correctly trained and PPE-equipped handlers are permitted to perform such cleanup. Do not permit entry into the spill or leak area by any other person until the air concentration level of chloropicrin is measured to be less than 0.1 ppm AND the air concentration level of methyl bromide is measured to be less than 5 ppm. Contaminated soil, water, and other cleanup debris is a toxic hazardous waste. Report spill to the National Response Center (800-424-8802) if the reportable quantity of 1000 lbs. is exceeded.

DISPOSAL: Do not contaminate water, food, or feed by disposal. Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or insate is a violation of Federal Law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

GENERAL INSTRUCTIONS

THIS FUMIGANT IS A HIGHLY HAZARDOUS MATERIAL AND SHOULD BE USED ONLY BY INDIVIDUALS TRAINED IN ITS PROPER USE. BEFORE USING, READ AND FOLLOW ALL LABEL PRECAUTIONS AND DIRECTIONS. ALL PERSONS WORKING WITH THIS FUMIGANT MUST BE KNOWLEDGEABLE ABOUT THE HAZARDS, AND TRAINED IN THE USE OF REQUIRED RESPIRATOR EQUIPMENT AND DETECTOR DEVICES, EMERGENCY PROCEDURES, AND PROPER USE OF THE FUMIGANT.

SOIL FUMIGATION DIRECTIONS

PESTS CONTROLLED—NEMATODES, INCLUDING: root-knot spp *Tylenchulus*, *Pratylenchus*, *Xiphinema*, *Criconeoides*, and *Paratylenchus*

SOIL BORNE FUNGI, INCLUDING: *Fythyum*, *Rhizoctonia*, *Phytophthora*, *Pyrenochaeta*, *Sclerotium*, *Amillaria*, and the clubroot organism, *Plasmidiophora*

WEEDS AND WEED SEED: Seeds, roots, stolons, and bulbs of broadleaf weeds and grasses including quackgrass, annual bluegrass, bromus, common lambquarters, topodgrass and Bermuda grass. Not effective against mallow, dodder, and some species of clover.

INSECTS IN THE SOIL AT THE TIME OF TREATMENT, INCLUDING: Wireworms, June beetle larvae, white grubs, and garden symphylan

PRETREATMENT SOIL PREPARATION: Plow or rip the soil to the depth to which effective treatment is required. The soil should be worked until free of clods or large lumps. Residue from previous crops should be worked into the soil to allow for decomposition prior to fumigation. Soil moisture should be optimum for seed germination. Coarse textured soils can be fumigated with higher moisture content than fine textured soils. For best results, soil should be kept moist for at least four days prior to treatment. Do not fumigate if the soil temperature is below 50°F. For best results, fumigate when soil temperature is 60°F at the depth of 6 inches.

FIELD FUMIGATION

For overall application, inject MBC Concentrate with a chisel type applicator, having the chisels spaced no more than 12 inches apart and injecting the fumigant to a depth of 6 to 8 inches below the soil surface. The soil surface must be covered immediately after treatment with simultaneous film laying equipment or by sealing with a roller or cultipacker and covering within 20 minutes with polyethylene film or other suitable cover. See Dosage Table for proper rate of application.

RAISED TARP FUMIGATION METHOD

Support the center of the cover to provide a small gas dome. Inflated plastic bags, crumpled fertilizer bags, burlap bags stuffed lightly with hay or straw, inverted baskets, flowerpots or bottles placed in the soil may be used for support. Evaporating pans are essential for the volatilization and uniform dispersion of fumigant. Shallow pans or basins made of plastic or tin are satisfactory for this purpose.

1. Use one evaporator pan for each 300 to 400 square feet of area
2. Anchor one end of each polyethylene tube into an evaporating pan with tape or a suitable weight. This insures that the liquid will be directed into the evaporating pan.
3. Extend the free ends of the polyethylene tubes outside of the area to be covered.
4. After the supports and tubing are in place, cover the area to be fumigated with a gas proof cover of polyethylene or coated fabric film.
5. Seal the outside edges with 6 to 10 inches of soil. Tamp the soil down so edges will not pull loose.

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RAISED TARP FUMIGATION METHOD, continued

6 Attach a polyethylene tube to the cylinder valve outlet and open. Use a cylinder dispenser or scale to meter small amounts.

HOT GAS METHOD

The "hot gas method" consists of using a commercially manufactured heat exchanger, or a copper coil immersed in a vessel containing hot water, to vaporize the fumigant before introduction. This method may be useful where large amounts of fumigant are required and rapid vaporization is advantageous.

DOSEAGE: Use one to two pounds of MBC Concentrate per 100 square feet for an exposure time of 24 hours, when soil temperature is 60°F or higher. Methyl Bromide penetrates the soil to the depth it has been plowed or tilled. When soil temperature is between 50°F and 60°F, extend the exposure time to 48 hours. Do not treat when soil temperature is below 50°F.

POTTING MIX FUMIGATION DIRECTIONS

Potting mixes, including decomposed compost, soil mixes and manure, can be fumigated with MBC Concentrate. Fumigation should take place outdoors or in a well ventilated area away from desirable plants or occupied buildings. The material to be treated should have a temperature of 60°F or above, be loose, and moist enough for good seed germination. To insure a good seal, pile the material to a depth of 18 inches on a concrete floor or on wet ground. Piles two to three feet high can also be treated provided perforations are made in the pile surface at one foot intervals to assist penetration. Once the pile has been made, install supports to hold the cover a few inches above the pile surface to aid in proper fumigant diffusion. Place the outlet of the applicator tube or tubes in evaporating pans spaced about 30 feet apart on the pile surface. Cover with a polyethylene sheeting or other gas containing material of 4 mil. or greater thickness. Seal the edges by burying, covering with moist sand, or soil or by means of sand snakes. Introduce the fumigant into the evaporating pans as a liquid or by means of the hot gas method. Consult Table for proper dosage and exposure time. Aerate for 24 to 72 hours before planting. Potting mixes in flats may also be treated. Arrange the flats in loose criss-cross stacks no more than 5 feet high, then cover and seal as described above. Introduce the fumigant at the top and in the center of the stack into evaporating pans or by means of the hot gas method at a rate of 4 pounds per 100 cubic feet. Use one injection point for each 100 cubic feet of volume. Expose for 24 to 48 hours. Aerate for 24 hours.

TREE SITE FUMIGATION DIRECTIONS (For Use In Florida Only)

Preplant or replant fumigation of citrus soil for control of *F. th. hyalithra* and citrus nematodes in Florida sandy soils. Trees that are planted in this treated soil will not bear harvestable fruit for a period of at least 24 months. Apply with chisels spaced 12 inches apart to a depth of 6 to 8 inches. Seal fumigant with a drag or cultipacker following immediately behind chisels. Apply MBC Concentrate Soil Fumigant at the rate of 1 pound per 100 square feet. Immediately cover with a 4 mil. tarp and expose to fumigation for 96 hours. This treatment will control disease to a depth of 4 feet. Remove cover and aerate 2 weeks before selling transplants in treated area.

SPECIAL INSTRUCTION FOR THE CONTROL OF ARMILLARIA MELLEAE (OAK ROOT FUNGUS) ON DECIDUOUS FRUITS AND NUTS, CITRUS, AND VINEYARDS

PRETREATMENT SOIL PREPARATION: To obtain the maximum control of *Armillaria melleae* with MBC Concentrate Soil Fumigant, soil must be dry to a depth requiring treatment. This can be accomplished by: (a) planting sudangrass in the Spring, irrigating until the grass has established itself, then withholding further irrigation, (b) naturally, by allowing plants to grow without irrigation. When soil is dry, cut and remove grass, plants and debris. Rip soil to a depth of 36 inches and disc to smoothness.

DOSEAGE AND METHOD OF APPLICATION: This is a preplant or replant treatment. Crops that are planted in this treated soil will not bear harvestable fruit for a period of at least 12 months. Methods and rate of application are as follows:

- Non-Tarp Chisel Application (not for use in California): After the soil has been properly prepared, inject 400 to 870 pounds of MBC Concentrate Soil Fumigant per acre by chisel application with chisels spaced up to 66 inches apart to a depth of 24 to 30 inches. In the row strip, treatments may be made by using a single shank. Chisels should have a wing welded on the back 2" to 4" above the chemical outlet to partially break the chisel mark. To fill in the chisel mark and seal the surface, disc and ringroll immediately after fumigant injection. Be sure that the disc and ringroller cover an area sufficiently beyond the chisel lines to effect a good seal.
- Tarp Chisel Application: After the soil has been properly prepared, apply 400 to 870 pounds of fumigant per acre by chisels spaced up to 66 inches apart, as described above, and cover with adequate polyethylene film seal.
- Deep Injection Auger-Probe Treatment: Use one pound of MBC Concentrate Soil Fumigant in light soils (two pounds in fine-textured soils) to a depth of 36 inches or more below the soil surface. Assume one injection site per 100 square feet (on a 10 ft. x 10 ft. grid pattern) with the injection in the center of the area to be treated.

EXPOSURE AND AERATION PERIOD: To insure the proper time-concentration relationship to control oak root fungus for chisel applications, we recommend a seven day exposure period before removing the polyethylene film cover, and a one day interval with Deep Injection Auger-Probe Treatment, after which planting or replanting of trees, vines, or other deep-rooted crops may begin 14 days later.

NON-TARP NEMATODE CONTROL

For control of nematodes including *Meloidogyne* spp, *Xiphinema* spp, *Criconeomoides*, *Pratylenchus*, and *Paratylenchus* on deciduous fruits, nuts, citrus, and vineyards.

PRETREATMENT SOIL PREPARATION: Plow or rip the soil to the depth to which effective treatment is required. The soil should be worked until free of clods or large lumps and residue from previous crops should be worked into the soil to allow for decomposition prior to fumigation. To insure maximum fumigant penetration the soil at the point of injection should not contain more than 5 to 15% moisture depending on soil type. However, to improve sealing, the soil surface may be moistened by means of a sprinkler application of 1/4 to 1/2 inch of water prior to final preparation and application. For best results, fumigate when the soil temperature is above 60°F at the depth of 6 inches. Do not fumigate when soil temperature is below 50°F.

DOSEAGE AND METHOD OF APPLICATION: This is a preplant or replant treatment. Do not apply to soil where trees or vines will bear harvestable fruit within 12 months. A waiting period of at least 14 days should be observed between application and planting. Methods and rate of application are as follows:

1. Chisel Application: After the soil has been properly prepared inject 400 to 870 pounds of MBC Concentrate per acre by chisel application with chisels spaced up to 66 inches apart to a depth of 18 to 24 inches. In the row strip, treatments may be made by using a single shank. To fill in the chisel mark and seal the surface, disc and ringroll immediately after fumigant injection. Be sure that the disc and ringroller cover an area sufficiently beyond the chisel lines to effect a good seal.
2. Deep Injection Auger-Probe Treatment: Use one pound of MBC Concentrate per injection site in lighter soils; two pounds in fine textured soils. Use one injection site per 100 square feet (on a 10 ft. x 10 ft. grid pattern) with the injection in the center of the area to be treated. Tamp or compact the soil at the point of injection.

NOTE: MBC Concentrate used without a tarp or under very dry conditions will not usually control most weed seeds. However, some control may be observed on deep-rooted perennials such as morning-glory (birdweed) and rhizomes of Johnson grass.

PRECAUTIONS FOR SOIL FUMIGATION USE

PRIOR TO FUMIGATION:

1. Comply with all local regulations and ordinances. Obtain an application permit from Agricultural Regulatory Agencies as required.
2. Never fumigate alone. It is imperative always to have an assistant and proper protective equipment in case of accidents.
3. Drivers of application equipment must advise other workers of all precautions and procedures. In addition, drivers must instruct their helpers in the mechanical operation of the tractor and how to safely work with the tractor and driver while fumigating.
4. Handle this fumigant in the open, with the operator "up wind" from the container where there is good ventilation.
5. Check fumigant pressure system for leaks before beginning operation.
6. Two trained persons must be present during introduction of the fumigant.
7. When fumigating soil from a tractor, 5 gallons of water must be carried on the tractor and placed where it is readily accessible. In addition to water available on the tractor, at least 5 gallons of additional water must be available from the service truck. This water must be potable and in containers marked "Decontamination water not to be used for drinking."
8. Field should be reasonably free of trash before starting the fumigation.
9. Post all treated areas with warning signs.

DURING FUMIGATION:

1. This fumigant should not be applied when there is an atmospheric inversion. Since uncomfortable concentrations of chloropicrin may drift to nearby areas, immediately cover treated area with plastic tarpaulin for a minimum of 48 hours when the injection depth is less than 10 inches.
2. Do not lift injection shanks to turn at the end of a pass until fumigant has drained from system following closure of shutoff valve.
3. If trash is inadvertently pulled by the shanks to the ends of the field when fumigating, it must be covered by lifting the shanks, then covering the trash with polyethylene film before making the turn for the next pass.
4. When changing the cylinders, be certain they are turned off and fumigant system is not under pressure. Do not open the system when there are people or structures downwind where exposures above the permissible exposure levels could occur.

AFTER FUMIGATION:

Keep pets, livestock, and other domestic animals out of the treated area during application, during the exposure period as specified for applications in Directions for Use, and during removal of tarpaulin. Two trained persons must be present during removal of the tarpaulin.

SPILL AND LEAK PROCEDURES FOR SOIL FUMIGATION:

In case of a rupture of hose or fitting while applying fumigant, immediately stop tractor and motor. Evacuate everyone from the immediate area of the spill or leak. Wear the personal protective equipment (including prescribed respirators) specified in the Hazard to Humans section of this labeling for entry into affected area to correct problem. Approach from upwind to make necessary repairs. Do not enter area without the required PPE until the spill has evaporated or the leak has been fixed.

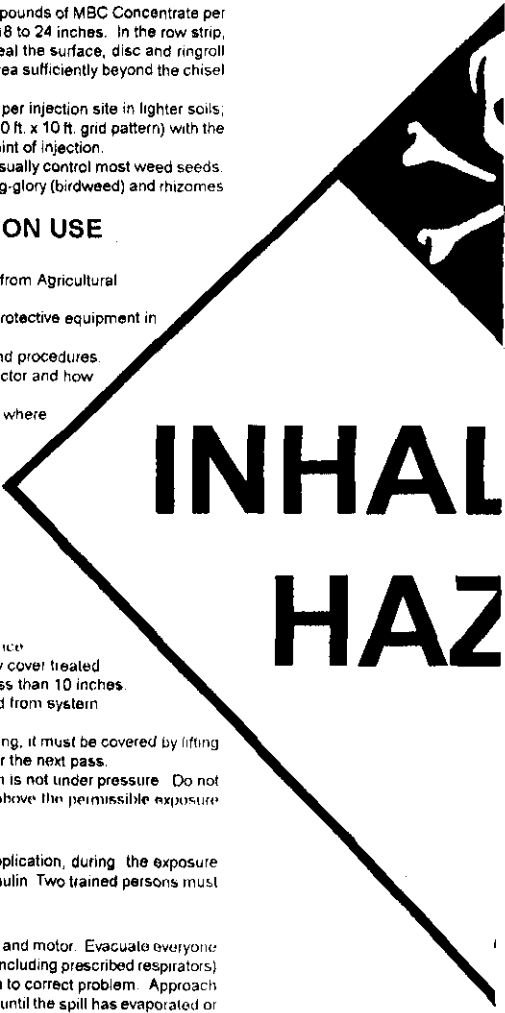
DOSAGE
TREAT
Field soils to be planted All food crops
Field soils to be planted Citrus, deciduous fr
Nursery, Turf, and Orn Turf, lawns, parks, & recreational turf are: forest tree seedlings
Greenhouse Soils: Non-Food Crops Food Crops
Food or Transplant Bed Non Food and Food Tobacco
Potting Mix

- Use the higher rates for muck
- ** Deep injection application
- *** Topical application

NOTE CAREFULLY:

- Fumigation may temporarily reduce yield or cause injury to plants. Heavy rates of fertilizer matter. To avoid injury to plants in injury and/or nitrate starvation to containing at least 30% nitrates. Certain crops are tolerant to ammonia before fumigation stimulates nitrogen.
- Avoid reinfestation of treated areas parasitic pests and weed seeds.
- Do not contaminate fumigated location where flooding or wash drainage. Wooden frames around.
- MBC Concentrate soil fumigant vegetation. The edge of the cover.
- Do not spill or discharge contents.
- Some difficulty has been experienced with conifers, salvia, snapdragons, etc. Fumigate on a small scale until safe.

NOTICE: Seller warrants that this label is for the purposes stated on the label. Neither this warranty nor any other express or implied, extends to the user under conditions not reasonably foreseeable.



FUMIGATION METHOD, continued

hylene tube to the cylinder valve outlet and open. Use a cylinder dispenser or scale to meter small

HOT GAS METHOD

od" consists of using a commercially manufactured heat exchanger, or a copper coil immersed in a hot water, to vaporize the fumigant before introduction. This method may be useful where large amounts are required and rapid vaporization is advantageous.

is to two pounds of MBC Concentrate per 100 square feet for an exposure time of 24 hours when the soil temperature is 80°F or higher. Methyl Bromide penetrates the soil to the depth it has been plowed or rippled. At a soil temperature is between 50°F and 60°F, extend the exposure time to 48 hours. Do not treat when soil temperature is below 50°F.

POTTING MIX FUMIGATION DIRECTIONS

Using decomposed compost, soil mixes and manure, can be fumigated with MBC Concentrate. Take place outdoors or in a well ventilated area away from desirable plants or occupied buildings. Treatments should have a temperature of 60°F or above, be loose, and moist enough for good seed germination. A good seal, pile the material to a depth of 18 inches on a concrete floor or on well ground soil. Seal the edges by burying, covering with moist sand, or soil or by means of sand snakes. Seal high can also be treated provided perforations are made in the pile surface at one foot intervals on. Once the pile has been made, install supports to hold the cover a few inches above the pile proper fumigant diffusion. Place the outlet of the applicator tube or tubes in evaporating pans set apart on the pile surface. Cover with a polyethylene sheeting or other gas confining material of thickness. Seal the edges by burying, covering with moist sand, or soil or by means of sand snakes. Inject into the evaporating pans as a liquid or by means of the hot gas method. Consult table for 1 exposure time. Aerate for 24 to 72 hours before planting. Potting mixes in flats may also be fumigated. Place flats in loose criss-cross stacks no more than 5 feet high, then cover and seal as described. The fumigant at the top and in the center of the stack into evaporating pans or by means of the hot gas method at 4 pounds per 100 cubic feet. Use one injection point for each 100 cubic feet of volume. 8 hours. Aerate for 24 hours.

TREE SITE FUMIGATION DIRECTIONS (For Use in Florida Only)

Fumigation of citrus soil for control of *Phytophthora* and citrus nematodes in Florida sandy soils treated in this treated soil will not bear harvestable fruit for a period of at least 24 months. Apply with 2 inches apart to a depth of 8 to 8 inches. Seal fumigant with a drag or cultipacker following of chisels. Apply MBC Concentrate Soil Fumigant at the rate of 1 pound per 100 square feet with a 4 mil tarp and expose to fumigation for 96 hours. This treatment will control disease to a remove cover and aerate 2 weeks before setting transplants in treated area.

INSTRUCTION FOR THE CONTROL OF ARMILLARIA MELLEAE (OAK ROOT GUS) ON DECIDUOUS FRUITS AND NUTS, CITRUS, AND VINEYARDS

SOIL PREPARATION: To obtain the maximum control of *Armillaria melleae* with MBC Concentrate must be dry to a depth requiring treatment. This can be accomplished by (a) planting sodgrass grazing until the grass has established itself, then withholding further irrigation, (b) naturally, by grow without irrigation. When soil is dry, cut and remove grass, plants and debris. Rip soil to a 3 and disc to smoothness.

METHOD OF APPLICATION: This is a preplant or replant treatment. Crops that are planted in this soil will bear harvestable fruit for a period of at least 12 months. Methods and rate of application are as

Application (not for use in California): After the soil has been properly prepared, inject 400 to 870 pounds of MBC Concentrate Soil Fumigant per acre by chisel application with chisels spaced up to 86 inches apart 30 inches. In the row strip, treatments may be made by using a single shank. Chisels should have the back 2" to 4" above the chemical outlet to partially break the chisel mark. To fill in the chisel surface, disc and ringroll immediately after fumigant injection. Be sure that the disc and ringroll is sufficiently beyond the chisel lines to effect a good seal.

Application: After the soil has been properly prepared, apply 400 to 870 pounds of fumigant per acre up to 86 inches apart, as described above, and cover with adequate polyethylene film seal.

Auger-Probe Treatment: Use one pound of MBC Concentrate Soil Fumigant in light soils (two treated soils) to a depth of 36 inches or more below the soil surface. Assume one injection site per 10 ft. x 10 ft. grid pattern) with the injection in the center of the area to be treated.

AERATION PERIOD: To insure the proper time-concentration relationship to control oak root applications, we recommend a seven day exposure period before removing the polyethylene film tarp interval with Deep Injection Auger-Probe Treatment, after which planting or replanting of trees, deep-rooted crops may begin 14 days later.

NON-TARP NEMATODE CONTROL

Nematodes including *Meloidogyne* spp., *Xiphinema* spp., *Ciconemoides Pratylenchus* and deciduous fruits, nuts, citrus, and vineyards.

SOIL PREPARATION: Plow or rip the soil to the depth to which effective treatment is required. Worked until free of clods or large lumps and residue from previous crops should be worked into the decomposition prior to fumigation. To insure maximum fumigant penetration the soil at the point it not contain more than 5 to 15% moisture depending on soil type. However, to improve sealing, may be moistened by means of a sprinkler application of 1/4 to 1/2 inch of water prior to final application. For best results, fumigate when the soil temperature is above 60°F at the depth of 6 inches when soil temperature is below 50°F.

METHOD OF APPLICATION: This is a preplant or replant treatment. Do not apply to soil where trees harvestable fruit within 12 months. A waiting period of at least 14 days should be observed on and planting. Methods and rate of application are as follows.

Application: After the soil has been properly prepared inject 400 to 870 pounds of MBC Concentrate per acre with chisels spaced up to 86 inches apart to a depth of 18 to 24 inches. In the row strip, treatments may be made by using a single shank. To fill in the chisel mark and seal the surface, disc and ringroll immediately after fumigant injection. Be sure that the disc and ringroll covers an area sufficiently beyond the chisel lines to effect a good seal.

Auger-Probe Treatment: Use one pound of MBC Concentrate per injection site in light soils, treated soils. Use one injection site per 100 square feet on a 10 ft. x 10 ft. grid pattern) with the injection in the center of the area to be treated. Auger-Probe Treatment should be used without a tarp or under very dry conditions will not usually control most weed seeds. Control may be observed on deep-rooted perennials such as morning glory (bindweed) and rhizomes.

PRECAUTIONS FOR SOIL FUMIGATION USE

FUMIGATION:

Obtain local regulations and ordinances. Obtain an application permit from Agricultural Extension Service as required.

It is imperative always to have an assistant and proper protective equipment in the fumigation area.

Personnel must advise other workers of all precautions and procedures and must instruct their helpers in the mechanical operation of the tractor and how to operate the tractor and driver while fumigating.

Work in the open, with the operator "up wind" from the container where fumigation is taking place.

Check pressure system for leaks before beginning operation. Personnel must be present during introduction of the fumigant.

Carry a fire extinguisher on the tractor, 5 gallons of water must be carried on the tractor where it is readily accessible. In addition to water on the tractor, at least 5 gallons of additional water must be carried on the service truck. This water must be potable and in containers marked "potable water not to be used for drinking."

Remove all flammable trash before starting the fumigation. Post warning signs in the fumigation areas.

FUMIGATION:

Fumigation should not be applied when there is an atmospheric inversion. Since fumigant concentrations of chloropicrin may drift to nearby areas, immediately cover treated areas with tarpaulin for a minimum of 48 hours when the injection depth is less than 10 inches.

At the end of a pass until fumigant has drained from system. Shut off the shutoff valve.

When the tractor is pulled by the shanks to the ends of the field when fumigating, it must be covered by lifting the tarpaulin over the trash with polyethylene film before making the turn for the next pass.

Check the cylinders, be certain they are turned off and fumigant system is not under pressure. Do not work in the area when there are people or structures downwind where exposures above the permissible exposure limit may occur.

Remove all people and other domestic animals out of the treated area during application, during the exposure period for applications in Directions for Use, and during removal of tarpaulin. Two trained persons must be present for removal of the tarpaulin.

SAFETY PROCEDURES FOR SOIL FUMIGATION:

Remove all people and other domestic animals out of the treated area during application, during the exposure period for applications in Directions for Use, and during removal of tarpaulin. Two trained persons must be present for removal of the tarpaulin.

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DOSAGE TABLE - SOIL FUMIGATION USES

TREATMENT SITE	RATE LBS./ACRE*	EXPOSURE TIME (HRS.)
Field soils to be planted to: All food crops	180 - 240	24 - 48
Field soils to be planted to: Citrus, deciduous fruits and nuts, vineyards	400 - 870** 435 - 870***	24 - 48 24 - 48
Nursery, Turf, and Ornamentals Soil: Turf, lawns, parks, golf greens, athletic fields, recreational turf areas, ornamentals, floral crops, forest tree seedlings	180 - 800	24 - 48
Greenhouse Soils: Non-Food Crops Food Crops	180 - 435 180 - 240	24 - 48 24 - 48
Seed or Transplant Beds: Non-Food and Food Crops Tobacco	180 - 435 872	24 - 48 24 - 48
Potting Mix	1 lb./cu. yd.	24 - 48

* Use the higher rates for muck and heavy clay soils

** Deep injection application

*** Topical application

NOTE CAREFULLY:

- Fumigation may temporarily raise the level of ammonia nitrogen and soluble salts in the soil. This is most likely to occur when heavy rates of fertilizer and fumigant are applied to soils that are either cold, wet, acid, or high in organic matter. To avoid injury to plant roots, fertilize as indicated by soil tests made after fumigation. To avoid ammonia, nitrate or nitrite starvation to crops, avoid using fertilizers containing ammonium salts and use only fertilizers containing at least 30% nitrates until the crop is well established and the soil temperature is above 65 degrees F. Certain crops are tolerant to ammonia, therefore, the above rule does not apply to them. Liming highly acid soils before fumigation stimulates nitrification and reduces the possibility of ammonia toxicity.
- Avoid reinfestation of treated soil. Do not use transplants, tools, or crop remains infested with soil-borne plant parasitic pests and weed seeds. Clean applicator carefully before and after use.
- Do not contaminate fumigated areas by walking from unfumigated to fumigated soil. If the treated area is in a location where flooding or washing is possible after rains, plow a furrow or make a trench around it for proper drainage. Wooden frames around the beds are also satisfactory for preventing this type of contamination.
- MBC Concentrate soil fumigant is toxic to plants; therefore, do not apply to areas containing roots or desirable vegetation. The edge of the cover should be at least 18 inches beyond foliage drip line of living plants.
- Do not spill or discharge contents outside cover.
- Some difficulty has been experienced through the use of MBC Concentrate on soil planted to the following crops: conifers, salvia, snapdragons, carnation, multiflora roses, Burford's Chinese holly, as well as certain other plants. Fumigate on a small scale until safety to all plants is determined under growing conditions.

WARRANTY DISCLAIMER

NOTICE: Seller warrants that the product conforms to the chemical description on the label and is reasonably fit for the purposes stated on the label when used in accordance with directions under normal conditions of use, but neither this warranty nor any other warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE, express or implied, extends to the use of this product contrary to label instructions, or under abnormal conditions, or under conditions not reasonably foreseeable to Seller, and Buyer assumes the risk of any such use.

WARNING: Contains methyl bromide, a substance which harms public health and environment by destroying ozone in the upper atmosphere.

ACCEPTED
AUG 25 1998
UNDER THE FEDERAL INSECTICIDE FUNGICIDE AND RODENTICIDE ACT FOR ECONOMIC POISON REGISTER UNDER NO. P853-2



**METHYL BROMIDE
UN 1062
INHALATION HAZARD**