

Form 32 8622-12 1/4

98-2


CONTAINS 2% CHLOROPICRIN

Preplant Soil Fumigant

ACTIVE INGREDIENT:	By Wt.
METHYL BROMIDE	97.6%
INERT INGREDIENTS*	
CHLOROPICRIN (warning odorant tear gas)	1.4%
TOTAL	100%

ACUTELY TOXIC CHEMICAL
14.1 LBS. Active Ingredient per gal. (LIQUID IN CYLINDER)

KEEP OUT OF REACH OF CHILDREN

DANGER  **PELIGRO**

POISON

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

STATEMENT OF PRACTICAL TREATMENT
In all cases of overexposure, get medical attention immediately. Take person to a doctor or emergency treatment facility.

If inhaled --Get exposed person to fresh air. Keep warm. Make sure person can breathe freely. If breathing has stopped apply artificial respiration. Do not give anything by mouth to an unconscious person

If on skin --Immediately remove contaminated clothing, shoes, jewelry, and any other item on 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.

See side panels for additional precautionary statements.

EPA REG. NO. 8622-12-AA

- EPA EST. NO. 10163-AZ-01
- EPA EST. NO. 15298-IS-01
- EPA EST. NO. 29516-FL-04
- EPA EST. NO. 29516-NC-01

Distributed by
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10001

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Chemtrec (800) 424-9390
or
Ameribrom West
5417 Santa Clara Ave
Camarillo, Calif. 93010
Call Collect: (805) 988 9717 (Calif.)
(212) 563-4600 (N.Y.)

Net contents: _____ LBS./ _____ KGS

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Prior to Fumigation: Comply with all local regulations and ordinances. Obtain an application permit from Agricultural Regulatory Agencies as required.

Never fumigate alone. It is imperative always to have an assistant and proper protective equipment in case of accidents.

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.

Handle this fumigant in the open, with the operator "up wind" from the container where there is good ventilation.

Check fumigant pressure systems for leaks before beginning operation.

Two trained persons must be present during introduction of the fumigant.

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 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."

All trash should be cleared from the field before starting fumigation.

During Fumigation: This fumigant should not be applied when there is an atmospheric inversion. Since uncomfortable concentrations of chloroform may drift to nearby areas, immediately cover treated area with plastic tarpaulin for a minimum of 48 hours.

Do not lift injection shanks to turn at the end of a pass until fumigant has drained from system following closure of shutoff valve.

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.

When changing the cylinders, be certain they are turned off and fumigant system is not under pressure.

After fumigation: Post all treated areas with warning signs

Keep all animals, children and unauthorized people away from area under fumigation for 48 hours after fumigation and during removal of tarpaulin

Two trained persons must be present during removal of the tarpaulin

Spill and Leak Procedures: In case of a rupture of hose or fitting while applying fumigant, immediately stop tractor and motor. Evacuate immediate area of spill or leak. Use SCBA or combination air-supplied/SCBA respirator for entry into affected area to correct problem. Approach from upwind to make necessary repairs. Do not reenter area without respiratory protection until a spill has evaporated or a leak has been fixed.

PRECAUTIONS FOR USAGE IN ENCLOSED SPACES

When used for fumigation of soil in enclosed spaces (e.g. greenhouses and tarpaulin covered areas) two persons trained in the use of the product must be present during introduction of the fumigant, initiation of aeration and after aeration when testing for reentry. Two persons do not need to be present if monitoring is conducted remotely (outside the area being fumigated).

Do not fumigate with this product when soil temperature is below approx. 50°F at 6-8 in. Specific directions for use in greenhouses are given in the Product Manual No. AM-210

Aeration and Reentry: After fumigation, treated areas must be aerated until the level of methyl bromide is below 5 ppm. Do not allow entry into the treated area by any person before this time unless protective clothing and a respiratory protection device (SCBA or combination air-supplied/SCBA) is worn.

Spill and Leak Procedures: Evacuate immediate area of spill or leak. Use SCBA or combination air-supplied/SCBA respirator for entry into affected area to correct problem. Move leaking or damaged cylinders or containers outdoors or to an isolated location, observing strict safety precautions. Work upwind if possible. Allow spill to evaporate. Do not permit entry into spill area by unprotected persons until concentration of methyl bromide is determined 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.

PREPLANT SOIL FUMIGATION

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

Preparation for Application: To obtain the maximum control of *Armillaria melleae* with 98-2, soil must be dry to a depth requiring treatment. This can be accomplished by: a) planting sudangrass in the spring, irrigation 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.

Dosage and Method of Application: This is a preplant or replant treatment. Crops which are planted in this treated soil will not bear harvestable fruit for a period of at least 24 months. Methods and dosage application are as follows:

Treatment Site	Rate (lbs/A)	Exposure Time
Fields to be planted to Citrus and Deciduous fruits and nuts (non-food)	400-870	24-49 hrs

1. **Non-Tarp Chisel Application:** After the soil has been properly prepared, inject 400-870 pounds of 98-2 per acre by chisel application with 2 chisels spaced 66 inches apart to a depth of 24-30 inches. For non-tarp applications be sure to properly seal the chisel line which may be accomplished by the following equipment modifications: Weld a wing behind the chisel 2 to 4 inches above the chemical outlet to break the chisel mark. Place a shovel behind the chisel at the soil surface to push dirt into the upper chisel mark. Follow with a cone-shaped press wheel with a shovel to pull additional soil into the chisel line. This is followed by a flat roller to press the soil even with the adjacent soil surface. This treatment will treat a strip 96 inches wide.
2. **Tarp Chisel Application:** After soil has been properly prepared, apply 400-870 pounds of fumigant per acre by chisels spaced 48-66 inches apart and cover with adequate polyethylene film seal.
3. **Deep Injection Auger-Probe Treatment:** Use one pound of 98-2 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:

1. To insure the proper time-concentration relationship to control oak root fungus for chisel application, 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 with other deep-rooted crops may begin 14 days later.
2. 98-2 will not usually control weed seeds under normal conditions. However, some control may be observed on deep-rooted perennials such as morning-glory (bindweed) and rhizomes of Johnsongrass.

Non-Tarp Nematode Control: For control of nematodes (including *Meloidogyne* spp., *Xiphinema* spp., *Criconeleoides*, *Pratylenchus*, and *Paratylenchus*) on almonds, apples, apricots, cherries, citrus, grape vineyards, peaches, pecans, pistachios, plums, prunes, strawberries, tomatoes and walnuts.

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. For best results soil should be kept moist for at least four days prior to treatment. Do not fumigate when soil temperature is below 50°F. For best results, fumigate when soil temperature is below 60°F to 90°F at the depth of 6 inches.

Use the higher labelled rates for muck and heavy clay soils.

Dosage 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 24 months. A waiting period of at least 14 days should be observed between application and planting. Methods and dosage of application are as follows:

1. **Chisel Application:** After the soil has been properly prepared, inject 400-870 pounds of 98-2 per acre by chisel application with 2 chisels spaced 66 inches apart to a depth of 24-30 inches. For non-tarp applications be sure to properly seal the chisel line which may be accomplished by the following equipment modifications:

Weld a wing behind the chisel 2 to 4 inches above the chemical outlet to break the chisel mark. Place a shovel behind the chisel at the soil surface to push dirt into the upper chisel mark. Follow with a cone-shaped press wheel with a shovel to pull additional soil into the chisel line. This is followed by a flat roller to press the soil even with the adjacent soil surface. This treatment will treat a strip 96 inches wide.

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2. **Deep Injection Auger-Probe Treatment:** Use one pound of 98-2 per injection site in lighter soils, two pounds of 98-2 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.

98-2 used without a tarp will not usually control most weed seeds. However, some control may be observed on deep-rooted perennials such as morningglory (bindweed) and rhizomes of Johnsongrass.

98-2 may be used as a preplant soil fumigant for land in which plants may be grown for non-food and non-feed crop uses. These uses are for 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. 98-2 may be used in vegetable seed beds for production of plants that are later transplanted in untreated soil or soil treated to label directions for registered products, and in orchard and vineyards planting sites and soils where tomatoes, strawberries, pineapples, cauliflower, broccoli, eggplants, onions (dry bulb), asparagus, lettuce and muskmelons are to be grown for food.

APPLICATION: SEED AND PLANT BEDS (PLANTS GROWN FOR TRANSPLANTING)

Prior to planting apply 98-2 at the rate that appears in the dosage table by means of tractor mounted chisels spaced 12 inches apart and at a depth of 5-8 inches below the soil surface. To seal fumigant after application cover immediately with a gas tight tarpaulin by means of a mechanical tarp layer. Do not remove tarpaulin until after the proper exposure period indicated on the dosage table has passed. Prior to fumigation, the soil should be in seed-bed condition with adequate moisture to support seed germination. The soil should be worked to the depth plus desirable for the fumigant to penetrate. Plant refuse should be worked into the soil and time allowed for refuse to decompose before treatment.

TURF, NURSERIES, AND FLORAL CROPS: Follow directions for seed and plant beds. If fumigating old turf, the soil should be worked up before fumigating. It is desirable that the old turf be incorporated into the soil by rototilling, discing or plowing. Use rate and exposure time that is indicated in the dosage table.

TOMATOES, STRAWBERRIES, PINEAPPLES, CAULIFLOWER, BROCCOLI, MUSKMELON, EGGPLANTS, PEPPERS, ONIONS (DRY BULB), ASPARAGUS, AND LETTUCE. Follow directions for seed and plant beds. Use rate and exposure time that is indicated in the dosage table

Row or bed applications may be made at the broadcast rates but the amount used will be proportionately less per acre depending on the row spacing and width of treatment in the row or bed

GRAPES: Prior to planting apply 98-2 at the rate that appears in the dosage table by means of tractor mounted chisels spaced not more than 5 1/2 feet apart. Inject the 98-2 at a depth of not less than 20 inches. To seal fumigant after application for disease control, cover immediately with a gas tight tarpaulin by means of a mechanical tarp layer. Do not remove tarpaulin until after the proper exposure period indicated on the dosage table has passed. Prior to application the soil should be ripped to not less than 30 inches and the subsurface should be as dry as possible. Excess moisture will block deep penetration of the 98-2. Peat soils and soils very high in organic content should not be fumigated to control *Armillaria mellea* with 98-2. Clay soils and soils that drain poorly may be dried out by planting sudan grass and withholding water from it during the summer. This will increase penetration of 98-2. Distribute 98-2 to soil where vines will bear within 24 months.

DECIDUOUS FRUITS, NUTS, CITRUS, VINEYARDS AND OTHER PERENNIAL CROPS (Do not harvest crop for 24 months after fumigation)
Prior to planting apply 98-2 at a rate and exposure time that is indicated in the dosage table. To seal fumigant after application for disease control, cover immediately with a gas tight tarpaulin by means of a mechanical tarp layer. The soil should be ripped to not less than 30 inches and the subsurface should be as dry as possible. Excess moisture will block deep penetration of the 98-2. Peat soils and soils very high in organic content should not be fumigated to control *Armillaria mellea* with 98-2. Clay soils and soils that drain poorly may be dried out by planting sudan grass and withholding water from it during the summer. This will increase penetration of 98-2. Back hoeing and augering are alternative methods of applying 98-2 to the tree site. Attach a 98-2 dispenser to the cylinder of 98-2 and to it attach a polyethylene applicator tube. The correct dosage can be measured with the dispenser and then applied through the tube.

BACK HOEING: Field tests have demonstrated that this is an effective method for preparing the replant site for fumigation, especially in areas where a hardpan has developed through compaction of the soil. The size of the prepared site is dependent upon the degree of soil compaction. Deeply compacted soil requires preparation of a site the size of the "planter box" in which the tree is to be grown.

For stratified soils a single cut the width of the back hoe, 5 feet deep and 6 feet long, is satisfactory. Backfill site with 2 feet of soil, place applicator tube at this level, complete backfill and release entire dose of fumigant for 100 square foot tree site. When fumigant has been released, remove tube and tamp soil lightly, cover opening to seal fumigant in the site.

AUGERING: This method is suitable in noncompacted soils or soils that are lightly stratified. Dig hole 5 feet deep with auger, backfill hole two feet, insert applicator tube, fill hole, and release entire dose of fumigant for 100 square foot tree site. When fumigant has been released, remove applicator and tamp or compact hole with soil to prevent too rapid escape of fumigant.

DOSEAGE AND EXPOSURE TABLE FOR SOIL FUMIGATION WITH 98-2

PEST CONTROL DESIRED	TYPE OF SOIL and/or CROP	DOSEAGE Do not treat when temp below 50°F	MHI EXP	AERATION TIME BEFORE PLANTING
Nematodes Weed Seeds and insects	Turf renovation lawns and other recreational turf areas	400-500 #/ac	24 hrs	3 days
	Nonfood and nonfeed crop areas, seed and plant beds for tobacco, flowers, shade and forest trees, ornamental shrubs and vines, vegetables for production of transplants only, floral and nursery crops	400-500 #/ac	24 hrs	3 days
Damping-off diseases such as <i>Fyrium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i>	TURF RENOVATION same sites as listed above NONFOOD AND NONFEED CROP AREA Same plants as listed above. Vegetables for production of transplants only, floral and nursery crops	800 #/ac	24 hrs	14 days if planted to transplants 3 days if seeded
Nematodes Weed Seeds and insects	Permanent planting for tomatoes, strawberries, pineapples, cauliflower, broccoli, eggplants, peppers, onions (dry bulb), asparagus, lettuce and muskmelons	240-400 #/ac	24-48 hrs	3 days if seeded 7-14 days if vegetative growth set in treated soil
Crown rot fungus Armillaria root rot Phytophthora root rot Nematodes (root knot, citrus, lesion pinning and dogger)	Grapes: For control of Nematodes in light sandy soils and fine textured clay soils	400-600 #/ac		
	Control Phytophthora in light sandy and fine textured clay soils	600 #/ac	5-7 days	Treat in summer or fall and plant following spring
	Control Armillaria in light sandy soils in fine textured clay soils	400 #/ac 600 #/ac		
Armillaria root rot Phytophthora root rot Crown rot fungus Citrus Nematodes Burrowing Nematodes	DECIDUOUS FRUITS, NUTS, CITRUS AND OTHER PERENNIAL WOODY PALMS, Phytophthora root rot	400-650 #/ac	5-7 days	
	Armillaria root rot in sandy light soils and fine textured clay soil	400-650 #/ac	5-7 days	

Not effective against mallow, dodder, and some species of clover

Citrus Soil For Control of Phytophthora in Florida Sandy Soils: This is a preplant or replant treatment. Trees which are planted in this treated soil will not bear harvestable fruit for a period of at least 24 months. Use a minimum of 1-1 1/2 pounds per 100 square feet. Expose to fumigation for 24 hours covering treated area with a 4 mil tarpaulin. Will control disease to depth of 4 feet. Aerate 2 weeks before setting transplants in treated area.

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**Methyl Bromide,
Liquid
UN 1062**



POISON

INHALATION HAZARD

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ACCEPTED
8622-1a
16 SEP 1988
UNDER THE FEDERAL INSECTICIDE
FUNGICIDE AND ROENTGENIC ACT
FOR ECONOMIC POISON REGISTE
ED UNDER NO. SUBJECT
TO ATTACHED COMMENTS.

Warranty. Seller warrants that the product conforms to its chemical description and is reasonably fit for the purpose stated on the label when used in accordance with directions under normal conditions of use, but neither this warranty nor 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.

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**PRECAUTIONARY STATEMENTS
HAZARDS TO HUMANS & DOMESTIC ANIMALS**

**DANGER
HIGH ACUTE TOXICITY**

Extremely hazardous liquid and vapor under pressure. Do not breathe vapor. Inhalation may be fatal or cause serious acute illness or delayed lung or nervous system injury. Liquid or vapor can cause serious skin or eye injury which may have a delayed onset. Do not get liquid on skin, in eyes or on clothing.

This product contains chloropicrin as a warning odorant. 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.

NOTE TO PHYSICIAN: Early symptoms of overexposure are dizziness, headache, nausea and vomiting, weakness and collapse. Lung edema may develop in 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.

ENVIRONMENTAL HAZARDS: This pesticide is toxic to wildlife. Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans, or public waters unless this product is specifically identified and addressed in an NPDES permit. Do not discharge effluent containing this product to sewer systems without previously notifying the sewage treatment plant authority. For guidance contact your State Water Board or Regional Office of the EPA.

PHYSICAL HAZARDS: Do not use or store near heat, open flames, or sparking electrical equipment.

CHEMICAL HAZARDS: Do not use application devices incorporating natural rubber or aluminum or magnesium or their alloys.

DIRECTIONS FOR USE

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

PROTECTIVE CLOTHING: Wear loose cotton long sleeve shirt and pants, shoes and socks that are cleaned after each wearing. Do not wear jewelry, gloves or boots when handling. Methyl bromide is heavier than air and may be trapped inside clothing and cause skin injury. If full-face respiratory protection is not required, wear goggles or full face shield for eye protection when handling liquid. After application, immediately remove clothing, shoes and socks. Do not reuse contaminated clothing or shoes until cleaned. Drenched clothing cannot be adequately decontaminated.

PESTICIDE STORAGE, HANDLING AND DISPOSAL

PESTICIDE STORAGE AND HANDLING: Store in dry, cool, well-ventilated area under lock and key. Post as a pesticide storage area.

Do not contaminate water, food or feed by storage. 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, lings, 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.

PESTICIDE DISPOSAL: Pesticide wastes are toxic. Improper disposal of excess pesticide is a violation of Federal Law. If these wastes cannot be disposed of by use according to label instructions, either contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance, or follow registrant's instructions for return of partially empty cylinders.

CONTAINER DISPOSAL: When cylinder is empty, close valve by turning clockwise until hand tight, 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. Follow registrant's instructions for return of empty or partially empty cylinders.

RETURN OF CYLINDERS:

- (1) Cylinders are the property of the manufacturer or distributor where purchased and should be returned promptly by collect freight.
- (2) Do not ship cylinders without safety caps or valve protection bonnets.
- (3) When a cylinder is partially full and there is no further requirement for the product, contact the manufacturer or distributor for return instruction.
- (4) Containers should never be refilled by the consumer or used for any other product or purpose.

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SPECIFIC DIRECTIONS FOR USE

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 precaution and directions, including those in the Manual for the Safe Handling and Application of Methyl Bromide Products No. AM-210.

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 (see the Product Manual No. AM-210).

PRECAUTIONS

Placarding Required: The applicator must placard or post all entrances to the fumigated area with signs bearing, in English and Spanish:

1. The signal word DANGER/PELIGRO and the skull and crossbones symbol.
2. The statement: "Area under fumigation, DO NOT ENTER/NO ENTRE."
3. The date of fumigation.
4. Name of fumigant used.
5. Name, address, and telephone number of the applicator.

Only a certified applicator or someone under his/her supervision may remove placards and only when the concentration of methyl bromide in the treated site is below 5 ppm. Any person who transfers a treated, tarpaulined soil to another site without aeration must ensure that the new site is placarded until the soil is aerated below the threshold concentration.

Respiratory Protection: If the concentration of methyl bromide in the working area, as measured by a direct-reading detector device (e.g., Draeger Tube as described in the Product Manual), does not exceed 5 ppm (20 mg/m³), no respiratory protection is required.

If this concentration is exceeded at any time, all persons in the working area must wear protective clothing and a NIOSH/MSHA approved self-contained breathing apparatus (SCBA) or combination air-supplied/SCBA respirator (see the Product Manual No. AM-210).

PRECAUTIONS FOR USAGE PRIOR TO, DURING, AND AFTER SOIL FUMIGATION

Specific instructions for application appears in the Manual for the Safe Handling and Application of Methyl Bromide Products No. AM-210.

