

8536-19

4/28/2010

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, DC 20460

OFFICE OF  
PREVENTION, PESTICIDES AND  
TOXIC SUBSTANCES

"CERTIFIED MAIL"

APR 28 2010

Mardel Rose Belotinsky  
Soil Chemical Corporation dba Cardinal Professional Products  
P.O. Box 782  
Hollister, CA 95024-0782

Subject: Methyl Bromide 98%  
EPA Reg. No. 8536-19  
Pre-RED Mitigation Amendment dated 2/2/2010  
EPA Decision Number 430376

Dear Ms. Belotinsky:

The amended label referred to above, submitted in connection with reregistration of methyl bromide under the Federal Insecticide, Fungicide and Rodenticide Act as amended is acceptable provided the following label revisions are made and the following conditions are met:

1. On page 1, revise the phrase under the product name to read "A Fumigant for Use Only by Certified Applicators".
2. On page 3, revise the first subheading "All handlers (including applicators) must wear" to read "When not performing tasks with liquid contact potential, all handlers (including applicators) must wear:"
3. On page 3, revise the second subheading "While performing tasks with liquid contact. . ." to read "When performing tasks with liquid contact. . ."
4. On page 3, revise the section "IMPORTANT: An air-supplying respirator. . ." to read "IMPORTANT: A self-contained breathing apparatus (SCBA) is not permitted for routine handler tasks. Wear an SCBA and PPE required for liquid contact potential in emergencies such as a spill or leak or when corrective action is needed to reduce air levels to acceptable levels."
5. On page 7, make the following revisions:
  - a. In the second bullet, add the website "<http://www.epa.gov/fumigantraining>".
  - b. Revise the text under Exclusion of Non Handlers from Application Block to read,

"The certified applicator supervising the application and the owner/operator of the establishment where the fumigation is taking place must make sure that all persons who are

not trained and PPE-equipped and who are not performing one of the handling tasks as stated in this labeling are excluded from the application block during the entry restricted period.”

6. On page 7, revise the subheading and text under “Air-Rescue Device Availability. . .” to read  
“AVAILABILITY OF RESPIRATORS FOR EMERGENCIES  
The employer of any handler must confirm that at least one self-contained breathing apparatus (SCBA) is on-site and is ready for use in case of an emergency. This must be documented in the FMP.”
7. On page 7, revise the subheading and text under “Air-Rescue Device and Halide Detector Availability. . .” to read  
“HALIDE DETECTOR AVAILABILITY FOR GREENHOUSE USES  
The employer of any handler must confirm that at least one halide leak detector is on-site and available. This must be documented in the FMP.”
8. On page 8, revise the text after “Hot Gas Applications:” to read, “Handlers must wear a SCBA to reenter the greenhouse/treated areas once the fumigation has started for a minimum of 48 hours after the fumigant has stopped being delivered/dispensed to the soil to perform an emergency function such as a spill or leak containment or when corrective action is needed to reduce air levels.”
9. On page 15, move the following text to appear immediately before “Tree Replant Application Using Handheld Equipment: Mandatory GAPS”:  
“Pre-plant Soil, Potting Mix, and Tobacco Tray Fumigation in Greenhouses:  
Mandatory GAPS
  - During the application keep doors, vents and windows to the outside open and fans or other mechanical ventilation systems running within the application block.
  - Leaks through which gases could enter adjacent enclosed areas must be sealed.”
10. On page 16, revise text after “Name and phone number of person responsible for perforating and/or removing tarps” to read, “(if other than certified applicator)”
11. On page 17, revise the third bullet “Respirators, air-rescue devices, and. . .” to read “Air purifying respirators, SCBAs, and other personal protective equipment (PPE) for handlers (handler task; protective clothing; respirator make, model, type, style, and size; respirator cartridge type; respirator cartridge replacement schedule; eye protection; gloves; and other PPE)”.
12. On page 17, revise the text “For handlers designated to wear air-purifying respirators. . .” to read “For handlers designated to wear respirators (air-purifying respirator or SCBA):
  - Date of medical qualification for respirator(s) that each handler is designated to wear,
  - Date of training for respirator(s) that each handler is designated to wear, and
  - Date of fit-testing for respirator(s) that each handler is designated to wear.”

- 13. On page 19, under SPILL AND LEAK PROCEDURES, revise the third sentence to read  
“Wear the personal protective equipment specified in the *Hazards to Humans And Domestic Animals* section of this labeling for entry into affected area to correct problem.”
- 14. On page 20, make the following revisions:
  - a. In footnotes below table 1, change “lb ai” to “lb of Product”
  - b. Delete the fourth footnote.

**CONDITIONS**

- 1. EPA has determined that the risk mitigation measures on the revised label for this product are necessary to adequately protect human health and the environment. Therefore, pursuant to 40 CFR § 152.130(d), EPA has decided that no product bearing previously approved labeling may be sold or distributed (release for shipment) by its registrant after December 1, 2010. Wherever state approval is required for sale or distribution of this product with this new labeling, EPA strongly encourages you to submit an application to the state authority as soon as possible. You should be aware that the Agency does not intend to modify the December 1, 2010, deadline because of any failure to obtain necessary state approvals.
- 2. Submit one copy of the final printed label that incorporates the required changes before the product is released for shipment.

One copy of the label stamped “Accepted with comments” is enclosed for your records. If you have any questions, please contact Steven Weiss by phone at (703) 308-8293 or via email at [weiss.steven@epa.gov](mailto:weiss.steven@epa.gov) or Mary Waller by phone at (703)308-9354 or via email at [waller.mary@epa.gov](mailto:waller.mary@epa.gov).

Sincerely,



Mary L. Waller  
Product Manager (21)  
Fungicide Branch  
Registration Division (7504P)

Enclosure

**RESTRICTED USE PESTICIDE  
DUE TO ACUTE TOXICITY**  
For retail sale to and use by certified applicators or persons under their direct supervision and only for those uses covered by the certified applicator's certification.

# Methyl Bromide 98%

*A Fumigant for Use Only by Professional Fumigators*

**ACCEPTED  
with COMMENTS  
in EPA Letter Dated**

**APR 28 2010**

**Under the Federal Insecticide,  
Fungicide, and Rodenticide Act  
as amended, for the pesticide  
registered under EPA Reg. No.**

ACTIVE INGREDIENT: Methyl Bromide..98%  
OTHER INGREDIENT: Chloropicrin..... 2%  
TOTAL: ..... 100%

*This product weighs 13.98 lbs. /gal. at 68° F.*

**KEEP OUT OF REACH OF CHILDREN**

8536-  
19



**DANGER                      PELIGRO**

**POISON** [Note : « Poison » will be printed in red.]

*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 TO AN EMERGENCY TREATMENT FACILITY.**

<b>FIRST AID</b>	
<b>If inhaled:</b>	<ul style="list-style-type: none"> <li>• Move person to fresh air. Keep warm.</li> <li>• If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible.</li> <li>• Call a poison control center or doctor for further treatment advice.</li> </ul>
<b>If on skin or clothing:</b>	<ul style="list-style-type: none"> <li>• Take off contaminated clothing.</li> <li>• Rinse skin immediately with plenty of water for 15-20 minutes.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
<b>If in eyes:</b>	<ul style="list-style-type: none"> <li>• Hold eye open and rinse slowly and gently with water for 15-20 minutes.</li> <li>• Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
<ul style="list-style-type: none"> <li>• For additional information in case of an emergency, call toll free (1-800-424-9300).</li> <li>• Have the product container or label with you when calling a poison control center or doctor, or going for treatment.</li> </ul>	

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**NOTE TO PHYSICIAN**

Early symptoms of overexposure to methyl bromide 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.

*SEE SIDE PANELS FOR ADDITIONAL PRECAUTIONARY STATEMENTS.*



**Soil Chemicals Corporation dba Cardinal Professional Products**

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(831) 630-2258

EPA Reg. No. 8536-19

EPA Est. 11220-CA-4; 11220-CA-8; 5785-CA-1

NET CONTENTS.....LBS.

**PRECAUTIONARY STATEMENTS**

**HAZARDS TO HUMANS AND DOMESTIC ANIMALS:**

DANGER. EXTREMELY HAZARDOUS LIQUID AND VAPOR UNDER PRESSURE. DO NOT BREATHE VAPORS. INHALATION MAY BE FATAL OR CAUSE SERIOUS ACUTE ILLNESS OR DELAYED LUNG OR NERVOUS SYSTEM INJURY, WHICH MAY HAVE A DELAYED ONSET. THIS PRODUCT CONTAINS CHLOROPICRIN, WHICH IS VERY IRRITATING TO THE UPPER RESPIRATORY TRACT AND EVEN AT LOW LEVELS CAN CAUSE PAINFUL IRRITATION TO THE NOSE, THROAT, AND EYES, PRODUCING TEARING. IF THESE SYMPTOMS OCCUR, LEAVE THE FUMIGATION AREA IMMEDIATELY. CONTINUED EXPOSURE AFTER IRRITATION IS EVIDENT, OR HIGHER CONCENTRATIONS, MAY CAUSE PAINFUL IRRITATION TO THE EYES OR TEMPORARY BLINDNESS WHICH MAY CAUSE PANIC THAT MAY IN TURN LEAD TO FURTHER ACCIDENTS.

**PERSONAL PROTECTIVE EQUIPMENT (PPE)**

Some materials that are chemical-resistant to this product are listed below. For more options, follow the instructions for Category H on the chemical-resistance category selection chart. PPE constructed of Saranex, neoprene, and chlorinated polyethylene provide short-term contact or splash protection against liquid in this product. Longer-term protection is provided by PPE constructed of Viton, Teflon, and EVAL barrier laminates (for example, responder suits manufactured by Life-Guard or Silvershield gloves manufactured by North). Where chemical-resistant materials are required, leather, canvas, or cotton materials offer no protection from this

product and must not be worn as the sole article of protection when contact with this product is possible.

**All handlers (including applicators) must wear:**

- Long-sleeved shirt and long pants, and
- Shoes and socks.
- 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.

**While performing tasks with liquid contact potential, all handlers (including applicators) must wear:**

- Long-sleeved shirt and long pants,
- Chemical-resistant gloves,
- Chemical-resistant apron,
- Protective eyewear (Do NOT wear goggles), and
- Chemical-resistant footwear and socks.

**In addition, all handlers (including applicators) must wear:**

- NIOSH-approved half-face, full-face, or hood-style respirator with a cartridge or canister certified by the manufacturer for protection from exposure to methyl bromide at concentrations up to 5 ppm (e.g., a 3M air-purifying respirator equipped with 3M Model 60928 Organic Vapor/Acid Gas/P100 cartridges)

IMPORTANT: an air-supplying respirator (i.e., a respirator connected directly to a clean air source or a self-contained breathing apparatus (SCBA) is not permitted for routine handler tasks. Such respirators are only permitted in emergencies such as a spill or leak or when corrective action is needed to reduce air levels to acceptable levels.

**USER SAFETY REQUIREMENTS**

- Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.
- Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them.

**USER SAFETY RECOMMENDATIONS**

Users should:

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

**ENVIRONMENTAL HAZARDS**

- This pesticide is toxic to mammals and birds. Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters or rinsate.
- Methyl bromide has certain properties and characteristics in common with chemicals that have been detected in groundwater (methyl bromide is highly soluble in water and has low adsorption to soil).
- For untarped applications of methyl bromide, leaching and runoff may occur if there is heavy rainfall after soil fumigation.

**PHYSICAL OR CHEMICAL HAZARDS**

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. [See the *Calibration, Set-up, Repair and Maintenance for Application Rigs* section of this labeling for further requirements for application equipment.] 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**

*RESTRICTED USE PESTICIDE*

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. Do not apply this 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.

**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.*

For the entry restricted period and notification requirements, see the *Entry Restricted Period and Notification* sections of this labeling. PPE For Entry During the Entry-Restricted Period: PPE for entry that is permitted by this labeling is listed in the *Hazards to Humans and Domestic Animals* section of this labeling.

**GENERAL APPLICATION RESTRICTIONS**

This fumigant is a highly hazardous material and must be handled with care only by certified applicators or persons under their direct supervision who are trained with its proper use.

**GENERAL PRECAUTIONS**

- Comply with all local regulations and ordinances. Obtain an application permit from Agricultural Regulatory Agencies as required.
- Handle this fumigant in the open, with the operator "upwind" from the container where there is good ventilation.
- 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".
- Keep pets, livestock, and other domestic animals out of the treated area during application and during tarp perforation and/or removal, if a tarp is used.

**ENTRY RESTRICTED PERIOD AND NOTIFICATION**

**ENTRY RESTRICTED PERIOD**

Entry (including early entry that would otherwise be permitted under the WPS) by any person – other than a correctly trained and PPE-equipped handler who is performing a handling task listed on this labeling – is PROHIBITED – from the start of the application until:

- 5 days (120 hours) after the application is complete for untarped applications, or
- 5 days (120 hours) after application is complete if tarps are not perforated and removed for at least 14 days following application. Note: Persons installing, repairing, or monitoring tarps are handlers until 14 days after the application is complete if tarps are not perforated and removed during those 14 days, or
- 48 hours after tarp perforation is complete if tarps will not be removed for at least 14 days following application, or
- until tarp removal is completed if tarps are both perforated **and** removed less than 14 days after application.

NOTE: see *Tarp Perforation and/or Removal* section on this labeling for requirements about when tarps are allowed to be perforated.

**NOTIFICATION**

- Notify workers of the application by warning them orally and by posting Fumigant Treated Area signs. The Fumigant Treated Area signs must bear the skull and crossbones symbol and state:
  - "DANGER/PELIGRO,"
  - "Area under fumigation, DO NOT ENTER/NO ENTRE,"
  - "Methyl Bromide and Chloropicrin Fumigant in USE,"
  - the date and time of fumigation,
  - the date and time entry restricted period is over,
  - "METHYL BROMIDE 98%", and
  - Name, address, and telephone number of the certified applicator in charge of the fumigation.
- Post the Fumigant Treated Area 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.
- Post the Fumigant Treated Area signs at all entrances to the application block (i.e., the greenhouse or field or portion of a field treated with a fumigant in any 24-hour period).



**HANDLERS**

The following activities are prohibited from being performed in the application block (i.e., the greenhouse or field or portion of a field treated with a fumigant in any 24-hour period) by anyone other than persons who have been appropriately trained and equipped as handlers in accordance with the requirements in the Worker Protection Standard (40 CFR Part 170), from the start of the application until the entry restricted period ends (NOTE: persons installing, perforating, removing, repairing, and monitoring tarps are considered handlers for the durations listed below). Those activities include those persons:

- Participating in the application as supervisors, loaders, drivers, tractor co-pilots, shovelers, cross ditchers, or as other direct application participants (the application starts when the fumigant is first introduced into the soil and ends after the fumigant has stopped being delivered/dispensed to the soil);
- Using devices to take air samples to monitor fumigant air concentrations;
- Cleaning up fumigant spills (this does not include emergency personnel not associated with the fumigation application);
- Handling or disposing of fumigant containers;
- Cleaning, handling, adjusting, or repairing the parts of fumigation equipment that may contain fumigant residues;
- Installing, repairing, operating, or removing irrigation equipment in the fumigant application block;
- Entering the application site to perform scouting, crop advising, or monitoring tasks;
- Installing, perforating (cutting, punching, slicing, poking), removing, repairing, or monitoring tarps:
  - until 14 days after application is complete if tarps are not perforated and removed during those 14 days, or
  - until tarp removal is complete if tarps are **both perforated and** removed less than 14 days after application, or
  - until 48 hours after tarp perforation is complete if they will not be removed within 14 days after application.

NOTE: see *Tarp Perforation and/or Removal* section on this labeling for requirements about when tarps are allowed to be perforated.

- Performing any handling tasks as defined by the WPS.

**PROTECTION FOR HANDLERS**

**SUPERVISION OF HANDLERS**

- For all applications: from the start of the application until the fumigant has stopped being delivered/dispensed into the soil, i.e., after the soil is sealed, the certified applicator must be at the fumigation site in the line of sight of the application and must directly supervise all persons performing handling activities.
- For handling activities that take place after the fumigant has been delivered/dispensed into the soil until the entry restricted period expires, the certified applicator does not have to be on-site, but must have communicated in a manner that can be understood to the site owner/operator and handlers responsible for carrying out those activities the information necessary to comply with the label and procedures described in the FMP (e.g., emergency response plans and procedures).
- Communication activities must be captured in the FMP.

- **IMPORTANT:** This requirement does not override the requirements in the Worker Protection Standard for Agricultural Pesticides for information exchange between owners/operators of agricultural establishments and commercial pesticide applicators.
- The certified applicator must provide **Fumigant Safe Handling** information to each handler involved in the application or confirm that each handler participating in the application has received **Fumigant Safe Handling** information in a manner they can understand within the past twelve months. **Fumigant Safe Handling** information will be provided where this product is purchased, or at (*EPA will provide website*).
- For all handling tasks at least two handlers trained under the provisions of the WPS 40 CFR 170.230 must be present.

**EXCLUSION OF NON HANDLERS FROM APPLICATION BLOCK**

The certified applicator supervising the application and the owner/operator of the establishment where the fumigation is taking place must make sure that all persons who are not trained and PPE-equipped and who are not performing one of the handling tasks as stated in this labeling are

- excluded from the application block during the entry-restricted period.

**PROVIDING, CLEANING, AND MAINTAINING PPE**

The employer of any handler (as stated in this label) must make sure that all handlers are provided and correctly wear the required PPE. The PPE must be cleaned and maintained as required by the Worker Protection Standard for Agricultural Pesticides.

**AIR-PURIFYING RESPIRATOR AVAILABILITY FOR PRE-PLANT SOIL USES**

- At a minimum two handlers must have the appropriate air-purifying respirator and cartridges available and these handlers must be fit-tested, trained, and medically examined. This must be documented in the FMP.
- The employer of any handler must confirm that an air-purifying respirator and appropriate cartridges of the type specified in the PPE section of this labeling are immediately available for each handler who will wear one.

**AIR-RESCUE DEVICE AVAILABILITY FOR PRE-PLANT SOIL USES**

The employer of any handler must confirm that at least one air-rescue device (e.g., SCBA) is on-site and is ready for use in case of an emergency. This must be documented in the FMP.

**AIR-RESCUE DEVICE AND HALIDE DETECTOR AVAILABILITY FOR GREENHOUSE USES**

The employer of any handler must confirm that at least two air-rescue devices (e.g., SCBA) are onsite and ready for use in case of an emergency. One or more replacement bottles per SCBA must be present and available if SCBA are the air-rescue device selected. At least one halide leak detector must be on site and available. This must be documented in the FMP.

**RESPIRATOR FIT TESTING, MEDICAL QUALIFICATION, AND TRAINING**

Employers must verify that any handler who uses a respirator is:

- Fit-tested and fit-checked using a program that conforms to OSHA's requirements (see 29 CFR Part 1910.134)
- Trained using a program that conforms to OSHA's requirements (see 29 CFR Part 1910.134)
- Examined by a qualified medical practitioner to ensure physical ability to safely wear the style of respirator to be worn. A qualified medical practitioner is a physician or other licensed health care professional who will evaluate the ability of a worker to wear a respirator. The initial evaluation consists of a questionnaire that asks about medical conditions (such as a heart condition) that would be problematic for respirator use. If concerns are identified, then additional evaluations, such as a physical exam, might be

necessary. The initial evaluation must be done before respirator use begins. Handlers must be reexamined by a qualified medical practitioner if their health status or respirator style or use-conditions change. Upon request by local/state/federal/tribal enforcement personnel, employers must provide documentation demonstrating how they have complied with these requirements.

### **RESPIRATORY PROTECTION AND STOP WORK TRIGGERS**

Air-purifying respirators must be worn during all handler tasks, and the following air monitoring procedures must be followed to ensure that the upper protection limit of the air purifying respirator plus respirator cartridge is not exceeded (i.e., 5 ppm for methyl bromide and 1.5 ppm for chloropicrin):

- Air monitoring samples for methyl bromide and chloropicrin must be collected at least every hour in the breathing zone of a handler performing a representative handling task.
- When breathing zone samples are required, they must be taken outside respiratory protection equipment and within a ten inch radius of the handler's nose and mouth.
- To monitor air concentration levels, a direct reading detection device, such as a Matheson-Kitagawa, Draeger, or Sensidyne device must be used. During the collection of air samples, a full-face air-purifying respirator must be worn by the handler taking the air samples. The devices must have sensitivity of at least 1 ppm for methyl bromide and 0.15 ppm for chloropicrin.
- If at any time (1) a handler experiences any sensory irritation while wearing an air-purifying respirator, or (2) any air sample is greater than or equal to 5 ppm for methyl bromide, or (3) any air sample is greater than or equal to 1.5 ppm for chloropicrin, then all handler activities must cease and handlers must be removed from the application block.
- Work activities can resume if all of the following conditions exist, provided the appropriate air-purifying respirator is worn.
  - Two consecutive air samples for methyl bromide and chloropicrin taken in the treatment area at least 15 minutes apart must be less than 5 ppm for methyl bromide and less than 1.5 ppm for chloropicrin.
  - During the collection of samples an air-purifying respirator must be worn by the handler taking air samples.
- Hot gas tarped applications: Once the fumigation has started, if entry into the greenhouse enclosure or the outdoor treatment area is required to perform a function necessary for the application, a SCBA must be worn. Handlers must wear SCBA to reenter the greenhouse/treated areas for a minimum of 48 hours after the fumigant has stopped being delivered/dispensed to the soil.

### **TARP PERFORATION AND/OR REMOVAL**

**IMPORTANT:** Persons perforating, repairing, removing, and/or monitoring tarps are defined, within certain time limitations, as handlers (see handlers as stated in this labeling) and must be provided the PPE and other protections for handlers as required on this labeling and in the Worker Protection Standard for Agricultural Pesticides.

- Tarps must not be perforated until a minimum of 5 days (120 hours) have elapsed after the fumigant injection into the soil is complete (e.g., after injection of the fumigant product and tarps have been laid), unless a weather condition exists which necessitates

- the need for early perforation or removal, see *Early Tarp Removal for Broadcast Applications Only* and *Early Tarp Perforation for Flood Prevention* sections.
- If tarps will be removed before planting, tarp removal must not begin until at least 2 hours after tarp perforation is complete and 2 air monitoring samples are less than 1 ppm methyl bromide. (If 2 air monitoring samples have methyl bromide levels between 1 ppm and 5 ppm, then an air-purifying respirator is required before tarp removal can begin.)
  - If tarps will not be removed before planting, planting or transplanting must not begin until at least 48 hours after the tarp perforation is complete.
  - If tarps are left intact for a minimum of 14 days after fumigant injection into the soil is complete, planting or transplanting may take place while the tarps are being perforated.
  - Each tarp panel used for broadcast fumigation must be perforated.
  - Tarps used for fumigations may be perforated manually **ONLY** for the following situations:
    - At the beginning of each row when a coulter blade (or other device which performs similarly) is used on a motorized vehicle such as an ATV.
    - In fields that are 1 acre or less.
    - During flood prevention activities.
  - In all other instances, tarps must be perforated (cut, punched, poked, or sliced) only by mechanical methods.
  - Tarp perforation for broadcast fumigations must be completed before noon.
  - For broadcast fumigations, tarps must not be perforated if rainfall is expected within 12 hours.
  - **Early Tarp Removal for Broadcast Applications Only:**
    - Tarps may be removed before the required 5 days (120 hours) if adverse weather conditions have compromised the integrity of the tarp, provided that the compromised tarp poses a safety hazard. *Adverse weather* includes high wind, hail, or storms that blow tarps off the field and create a hazard, e.g., tarps blowing into power lines and onto roads. A *compromised tarp* is a tarp that due to an adverse weather condition is no longer performing its intended function and is creating a hazard.
    - If tarps are removed before the required 5 days have elapsed due to adverse weather, the events must be documented in the Post-Application Summary.
  - **Early Tarp Perforation for Flood Prevention Activities:**
    - Tarp perforation is allowed before the 5 days (120 hours) have elapsed. Tarps must be immediately retucked and packed after soil removal.

#### **MANDATORY GOOD AGRICULTURAL PRACTICES (GAPS)**

The following GAPS must be followed during all fumigant applications. All measurements and other documentation planned to ensure that the mandatory GAPS are achieved must be recorded in the FMP and/or the Post-Application Summary.

**Tarps** (required for all applications except for deep shank orchard replant [California only] and hand held tree-hole applications)

- Tarps must be installed prior to starting hot gas applications.

- Tarps must be installed immediately after the fumigant is applied to the soil for bedded or broadcast applications.
- A written tarp plan must be developed and included in the FMP. The plan must include:
  - schedule and procedures for checking tarps for damage, tears, and other problems
  - plans for determining when and how repairs to tarps will be made, and by whom
  - minimum time following injection that tarp will be repaired
  - minimum size of tarp damage that will be repaired
  - other factors used to determine how and when tarp repair will be conducted
  - schedule, equipment, and methods used to perforate tarps
  - aeration plans and procedures following perforation of tarp, but prior to tarp removal or planting/transplanting
  - schedule, equipment, and procedures for tarp removal.

**Weather Conditions**

- Prior to fumigation the weather forecast for the day of the application and the 48-hour period following the fumigation must be checked to determine if unfavorable weather conditions exist (see *Identifying Unfavorable Weather Conditions* section) or are predicted and whether fumigation should begin.
- Wind speed at the application site must be a minimum of 2 mph at the start of the application or forecasted to reach at least 5 mph during the application.
- Do not apply if a shallow, compressed (low-level) temperature inversion is forecast to persist for more than 18 consecutive hours for the 48-hour period after the start of application, or if there is an air stagnation advisory issued by the National Weather Service in effect for the area in which the fumigation is planned.
- Detailed local forecasts for weather conditions, wind speed, and air stagnation advisories may be obtained on-line at: <http://www.nws.noaa.gov> or by contacting your local National Weather Service Forecasting Office.

***Identifying Unfavorable Weather Conditions***

- Unfavorable weather conditions block upward movement of air which results in trapping fumigant vapors near the ground. The resulting air mass can move off-site in unpredictable directions. These conditions typically exist prior to sunset and continue past sunrise and persist as late as noontime. Unfavorable conditions are common on nights with limited cloud cover and light to no wind and their presence can be indicated by ground fog or smog and can also be identified by smoke from a ground source that flattens out below a ceiling layer and moves laterally in a concentrated cloud.

**Soil Temperature**

- The maximum soil temperature at the depth of injection must not exceed 90 degrees F at the beginning of the application.
  - If air temperatures have been above 100 degrees F in any of the three days prior to application, then soil temperature must be measured and recorded in the FMP.

**Soil Moisture**

- The soil must be moist 9 inches below the surface. The amount of moisture needed in this zone will vary according to soil type and must be determined using the USDA Feel and

Appearance Method for testing (see below). Surface soil generally dries rapidly and must not be considered in this determination.

- If there is insufficient moisture 9 inches below the surface, the soil moisture must be adjusted. If irrigation is not available and there is adequate soil moisture below 9 inches, soil moisture can be adjusted by discing or plowing before fumigant injection. To conserve existing soil moisture, pretreatment irrigation or pretreatment tillage should be done as close to the time of application as possible.
- Measure soil moisture at a depth of 9 inches at either end of the field, no more than 48 hours prior to application.

### Soil Moisture Determination

The USDA Feel and Appearance Method for estimating soil moisture as appropriate for the soil texture:

- For **coarse** textured soils (fine sand and loamy fine sand), the soil is moist enough (50 to 75 percent available soil water moisture) to form a weak ball with loose and clustered sand grains on fingers, darkened color, moderate water staining on fingers, will not ribbon.
- For **moderately coarse** textured soils (sandy loam and fine sandy loam), the soil is moist enough (50 to 75 percent available soil water moisture) to form a ball with defined finger marks, very light soil/water staining on fingers, darkened color will not stick.
- For **medium** textured soils (sandy clay loam, loam, and silt loam), the soil is moist enough (50 to 75 percent available soil water moisture) to form a ball, very light staining on fingers, darkened color, pliable, and forms a weak ribbon between the thumb and forefinger.
- For **fine** textured soils (clay, clay loam, and silty clay loam), the soil is moist enough (50 to 75 percent available soil water moisture) to form a smooth ball with defined finger marks, light soil/water staining on fingers, ribbons between thumb and forefinger.
- For **fields with more than one soil texture**, soil moisture content in the lightest textured (most sandy) areas must comply with this soil moisture requirement. Whenever possible, the field should be divided into areas of similar soil texture and the soil moisture of each area should be adjusted as needed. Coarser textured soils can be fumigated under conditions of higher soil moisture than finer textured soils; however, if the soil moisture is too high, fumigant movement will be retarded and effectiveness of the treatment will be reduced. Previous and/or local experience with the soil to be treated or the crop to be planted can often serve as a guide to conditions that will be acceptable. If there is uncertainty in determining the soil moisture content of the area to be treated, a local extension service agent, soil conservation service specialist, or pest control advisor (agriculture consultant) should be consulted for assistance.

### Soil Preparation

- Soil must be properly prepared and at the surface be generally free of large clods. The area to be fumigated must be tilled to a depth of 5 to 8 inches.
- Field trash must be properly managed. Residue from a previous crop must be worked into the soil to allow for decomposition prior to fumigation. Little or no crop residue shall be present on the soil surface. Crop residue that is present must not interfere with the soil seal. Removing the crop residue prior to fumigation is important to limit the natural "chimneys" that occur in the soil when crop residue is present. These "chimneys" allow the soil fumigants to move through the soil quickly and escape into the atmosphere. This may create

potentially harmful conditions for workers and bystanders and limit the efficacy of the fumigant. However, crop residue on the field serves to prevent soil erosion from both wind and water and is an important consideration. To accommodate erosion control, fumigant efficacy, and human health protection, clear fields of crop residue as close to the timing of the fumigation as possible to limit the length of time that the soil would be exposed to potentially erosive weather conditions.

**Soil Sealing**

- *For Broadcast Untarped Applications (CA Orchard Replant only):* Use a disc or similar equipment to uniformly mix the soil to at least a depth of 3 to 4 inches to eliminate the chisel or plow traces. Following elimination of the chisel trace, the soil surface must be compacted with a cultipacker, ring roller, and roller in combination with tillage equipment.
- *For Bedded Applications:* Preformed beds must be sealed by disruption of the chisel trace using press sealers, bed shapers, cultipackers, or by re-shaping (e.g., relisting, lifting and replacing) the beds immediately following injection. Beds formed at the time of application must be sealed by disrupting the chisel trace using press sealers, or bed shapers.
- *For Tarped-Broadcast and Tarped-Bedded Applications:* The use of a tarp does not eliminate the need to minimize chisel traces prior to application of the tarp, such as by using a Nobel plow or other injection shank that disrupts the chisel traces.

**Bedded and Broadcast Shank Applications: Additional Mandatory GAPs**

In addition to the GAPs required for all soil fumigation applications, the following GAPs apply for injection applications:

**Tarps**

- Tarps must be installed immediately after the fumigant is applied to the soil.

**Soil Preparation**

- Trash pulled by the shanks to the ends of the field must be covered with tarp, or soil, depending on the application method before making the turn for the next pass.

**Application Depth and Spacing**

- *For Tarped-Broadcast and Tarped-Bedded Applications:* The injection point must be a minimum of 8 inches from the nearest final soil/air interface. For tarped bedded applications the injection depth must not be deeper than the lowest point of the tarp (i.e., the lowest point of the tuck).
- *For Untarped-Broadcast Applications (CA orchard replant only):* The injection point must be a minimum of 18 inches from the nearest final soil/air interface.
- Apply Methyl Bromide 98% with chisel equipment. The shank spacing should be equal to the application depth, but may be up to 1½ times the application depth, not to exceed 24 inches. When applying Methyl Bromide 98% with a Nobel plow, use an outlet spacing of 9-12 inches along the sweeps.

**Prevention of End Row Spillage**

- Do not apply or allow fumigant to spill onto the soil surface. For each injection line either have a check valve located as close as possible to the final injection point, or drain/purge the line of any remaining fumigant prior to lifting injection shanks from the ground.
- Do not lift injection shanks from the soil until the shut-off valve has been closed and the fumigant has been depressurized (passively drained) or purged (actively forced out via air compressor) from the system.

**Calibration, Set-up, Repair, and Maintenance for Application Rigs**

- Brass, carbon steel or stainless steel fittings must be used throughout. Polyethylene tubing, polypropylene tubing, Teflon® tubing or Teflon® -lined steel braided tubing must be used for all low pressure lines, drain lines, and compressed gas or air pressure lines. All other tubing must be Teflon® -lined steel braided.
- Galvanized, PVC, nylon or aluminum pipe fittings must not be used.
- All rigs must include a filter to remove any particulates from the fumigant, and for pressurized systems a check valve to prevent backflow of the fumigant into the pressurizing cylinder or the compressed air system.
- Rigs must include a flow meter or a constant pressure system with orifice plates to insure the proper amount of fumigant is applied.
- To prevent the backflow of fumigant into the compressed gas cylinder (e.g., nitrogen, other inert gas, compressed air), if used, applicators must:
  - If a compressed gas cylinder is used, make sure that positive pressure is maintained in the cylinder between 80 and 200 psi during the entire time it is connected to the application rig. *(This is not required for a compressed air system that is part of the application rig because if the compressor system fails the application rig will not be operable.)*
  - Ensure that application rigs are equipped with properly functioning check valves between the compressed gas cylinder or compressed air system and the fumigant cylinder. The check valve is best placed on the outlet side of the pressure regulator, and is oriented to only allow compressed gas to flow out of the cylinder or compressed air out of the compressed air system.
  - Always pressurize the system with compressed gas or by use of a compressed air system before opening the fumigant cylinder valve.
- Before using a fumigation rig for the first time, or when preparing it for use after storage, the operator must check the following items carefully:
  - Check the filter, and clean or replace the filter element as required.
  - Check all tubes and chisels to make sure they are free of debris and obstructions.
  - Check and clean the orifice plates and screen checks, if installed.
  - Pressurize the system with compressed gas or compressed air, and check all fittings, valves, and connections for leaks using soap solution.
- Install the fumigant cylinder, and connect and secure all tubing. Slowly open the compressed gas or compressed air valve, and increase the pressure to the desired level. Slowly open the fumigant cylinder valve, always watching for leaks.
- When the application is complete, close the fumigant cylinder valve and blow residual fumigant out of the fumigant lines into the soil using compressed gas or compressed air. At the end of the application, disconnect all fumigant cylinders from the application rig. At the end of the season, seal all tubing openings with tape to prevent the entry of insects and dirt.
- Application equipment must be calibrated and all control systems must be working properly. Proper calibration is essential for application equipment to deliver the correct amount of fumigant uniformly to the soil. Refer to the manufacturer's instructions on how to calibrate your equipment, usually the equipment manufacturer, fumigant dealer, or Cooperative Extension Service can provide assistance.



**Planting Interval**

- Wait a minimum of two weeks after fumigation before planting or transplanting. If odors of the fumigant persist beyond this two-week period (and after tarps are perforated and removed), disc or plow the soil to help aeration, See *Tarp Perforation and/or Removal* section on this labeling for further requirements.

**Hot Gas Applications to Soil, Potting Mixes, and Tobacco Seedling Trays:**  
**Mandatory GAPS**

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.

- All delivery tubes must be placed under the tarp in such a way that they do not move during the fumigant application.
- The fumigant must be introduced from outside of the greenhouse/application block (i.e., the greenhouse, or field or portion of a field treated with a fumigant in any 24-hour period) (see *entry restrictions* and *respiratory protection* sections for further details).
- All fittings, connections, and valves must be checked for methyl bromide leaks prior to fumigation. If cylinders are replaced during the fumigation process, the connections and valves must be checked for leaks prior to continuing the job.
- The soil/potting mix material to be treated must be at least 60° F but must not exceed 90° F.
- Pile the potting soil mix 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.
- Potting mixes in flats and tobacco seedling trays may also be treated. Arrange the flats or trays in loose criss-crossed stacks no more than 5 feet high, then cover and seal with a tarp. Introduce the fumigant at the top and in the center of the stack. Use one injection point for each 100 cubic feet of volume.
- When treating potting mixes, the tarp must be 4 mil or greater thickness.
- Seal the edges of tarps by burying, covering with moist sand, or soil or by means of sand snakes.

**Tree Replant Application Using Handheld Equipment: Mandatory GAPS**

In addition to the GAPS required for all soil fumigation applications, the following GAPS apply for tree replant applications. This application method is used when methyl bromide is applied to individual tree sites in an existing orchard where shank applications are not possible.

**Site Preparation**

- Remove the tree stump and primary root system in each individual tree-site with a backhoe or other similar equipment, for example an auger.
- The hole must be backfilled with soil before application.
- 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.

**Application Depth**

- The fumigant must be injected at least 18 inches into the soil.

**System Flush**

- Before removing the application wand from the soil the wand must be cleared using nitrogen or compressed air.

#### **Soil Sealing**

- After the wand is cleared and removed from the soil, the injection hole must be either covered with soil and tamped, or the soil must be compacted over the injection hole.

#### **Pre-plant Soil, Potting Mix, and Tobacco Tray Fumigation in Greenhouses:**

##### **Mandatory GAPS**

- During the application keep doors, vents and windows to the outside open and fans or other mechanical ventilation systems running within the application block.
- Leaks through which gases could enter adjacent enclosed areas must be sealed.

#### **SPECIAL INSTRUCTIONS FOR THE CONTROL OF *ARMILLARIA MELLEA* (OAK ROOT FUNGUS) FOR ORCHARD REPLANT APPLICATIONS:**

To obtain the maximum control of *Armillaria mellea* with Methyl bromide 98%, soil at the point of injection (36 inches) must be dry. This can be accomplished by: (a) planting Sudan grass in the Spring, irrigating until the grass has established itself, then withholding further irrigation; (b) naturally, by allowing plants to grow without irrigation. However, to ensure sealing, the top 8 to 12 inches of soil must be moistened to comply with the GAPS by means of a sprinkler application of 1/4 to 1/2 inch of water, by natural rainfall, or other soil watering method prior to final preparation and application.

- When soil is dry, cut and remove grass, plants and debris.
- Rip soil to a depth of 36 inches and disc to smoothness.
- Chisel Application: Space chisels up to 66 inches apart. Apply tarp immediately after application.
- Deep Injection Auger-Probe Treatment: Apply Methyl Bromide 98% to a depth of 36 inches or more below the soil surface.
- To insure the proper time-concentration relationship to control oak root fungus for chisel applications, the soil should be left undisturbed for at least seven days after chisel application and at least one day for Deep Injection Auger-Probe Treatment.
- Replanting of trees, vines, or other deep-rooted orchard crops may begin 14 days later.

#### **SPECIAL INSTRUCTIONS FOR NON-TARP NEMATODE CONTROL (ONLY FOR DEEP SHANK ORCHARD REPLANT AND HAND HELD TREE-HOLE APPLICATION IN CALIFORNIA):**

For control of nematodes including *Meloidogyne* spp., *Xiphinema* spp., *Criconemoides*, *Pratylenchus*, and *Paratylenchus*.

- 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.
- Plow or rip the soil to the depth to which effective treatment is required.
- 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 ensure sealing, the top 8 to 12 inches of soil must be moistened to comply with the GAPS by means of a sprinkler application of 1/4 to 1/2 inch of water, by natural rainfall, or other soil watering method prior to final preparation and application.

- 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 or above 90° F.
- Chisel Application: Apply with chisels spaced up to 66 inches apart to a depth of up 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 affect a good seal.

**NOTE:** Methyl Bromide 98% used without a tarp (ONLY FOR DEEP SHANK ORCHARD REPLANT AND HAND HELD TREE-HOLE APPLICATION IN CALIFORNIA) or under very dry conditions at point of injection 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.

**SITE-SPECIFIC FUMIGATION MANAGEMENT PLAN (FMP)**

Prior to the start of fumigation, the certified applicator supervising the application must verify that a site-specific FMP exists for each application block (i.e., a greenhouse or field or portion of a field treated with a fumigant in any 24-hour period). In addition, a farm operation fumigating multiple application blocks may format the FMP in a manner whereby all of the information that is common to all the application blocks is captured once, and any information unique to a particular application block or blocks is captured in subsequent sections.

- The FMP must be prepared by the certified applicator, the site owner/operator, registrant, or other party.
- The certified applicator must verify in writing (sign and date) that the site-specific FMP(s) reflects current site conditions before the start of fumigation.
- Each site specific FMP must contain the following elements:
  - ❖ Applicator information (name, phone number, pesticide applicator license and/or certificate number, employer name, employer address)
  - ❖ General site information
    - Application block location (e.g., county, township-range-section quadrant), address, or global positioning system (GPS) coordinates
    - Name, address, and phone number of owner/operator of the application block
  - ❖ General application information (target application date/window, brand name of fumigant, EPA registration number)
  - ❖ Tarp information and procedures for repair, perforation and removal (if tarp is used)
    - Brand name, lot number, thickness
    - Name and phone number of person responsible for repairing tarps
    - Schedule for checking tarps for damage, tears, and other problems
    - Maximum time following notification of damage that the person(s) responsible for tarp repair will respond
    - Minimum time following application that tarp will be repaired
    - Minimum size of damage that will be repaired
    - Other factors used to determine when tarp repair will be conducted
    - Name and phone number of person responsible for perforating and/or removing tarps (if other than certified applicator)
    - Equipment/methods used to perforate tarps

- Schedule and target dates for perforating tarps
- Schedule and target dates for removing tarps
- ❖ Soil conditions (description of soil texture in application block, method used to determine soil moisture)
- ❖ Weather conditions (summary of forecasted conditions for the day of the application and the 48-hour period following the fumigant application)
  - Wind speed
  - Inversion conditions (e.g., shallow, compressed (low-level) temperature inversion)
  - Air stagnation advisory
- ❖ Respirators, air rescue devices, and other personal protective equipment (PPE) for handlers (handler task, protective clothing, respirator type, respirator cartridge type, respirator cartridge replacement schedule, air rescue type, eye protection, gloves, other PPE)
- ❖ Emergency procedures (evacuation routes, locations of telephones, contact information for first responders, local/state/federal/tribal contacts, key personnel and emergency procedures/responsibilities in case of an incident, equipment/tarp/seal failure or complaints, or other emergencies).
- ❖ Fumigant Treated Area posting procedures (person(s) who will post Fumigant Treated Area signs, location of Fumigant Treated Area signs, procedures for Fumigant Treated Area sign removal)
- ❖ Plan describing how communication will take place between applicator, land owner/operator, and other on-site handlers (e.g., tarp perforators/removers, irrigators) for complying with label requirements (e.g., timing of tarp perforation and removal, PPE).
  - Name and phone number of persons contacted
  - Date contacted
- ❖ Authorized on-site personnel
  - Names, addresses and phone numbers of handlers
  - Name, address, and phone number for employers of handlers
  - Tasks that each handler is authorized and trained to perform
  - For handlers designated to wear air-purifying respirators (an air-purifying respirator is required for a minimum of 2 handlers):
    - date of medical qualification to wear an air-purifying respirator,
    - date of air-purifying respirator training, and
    - date of fit testing for an air-purifying respirator .
- ❖ Air monitoring plan
  - For monitoring the breathing zone:
    - Representative handler tasks to be monitored
    - Monitoring equipment to be used and timing of the monitoring
- ❖ Good Agricultural Practices (GAPs)
  - Description of applicable mandatory GAPs
  - Measurements and documentation to ensure GAPs are achieved (e.g., measurement of soil and other site conditions)
- ❖ Description of hazard communication. (The application block has been posted in accordance with the label. Pesticide product labels and material safety data sheets are on-site and readily available for employees to review.)

- ❖ Record-keeping procedures (the owner/operator of the application block, as well as the certified applicator, must keep a signed copy of the site-specific FMP for 2 years from the date of application).

For situations where an initial FMP is developed and certain elements do not change for multiple fumigation sites (e.g., applicator information, authorized on-site personnel, record-keeping procedures, emergency procedures) only elements that have changed need to be updated in the site-specific FMP provided the following:

- The certified applicator supervising the application has verified that those elements are current and applicable to the application block before it is fumigated.
- Record-keeping requirements are followed for the entire FMP (including elements that do not change).

Once the application begins, the certified applicator must make a copy of the FMP available for viewing by handlers involved in the fumigation. The certified applicator or the owner/operator of the application block must provide a copy of the FMP to any local, state, federal, or tribal enforcement personnel who request the FMP. In the case of an emergency, the FMP must be made immediately available when requested by local/state/federal/tribal emergency response and enforcement personnel.

Within 30 days of completing the application portion of the fumigation process, the certified applicator supervising the application must complete a Post-Application Summary that describes any deviations from the FMP that have occurred, measurements taken to comply with GAPs, monitoring results, as well as any complaints and/or incidents that have been reported to him/her.

**Specifically the Post-Application Summary must contain the following elements:**

- ❖ Actual date of the application, application rate, and size of application block fumigated
- ❖ Summary of weather conditions on the day of the application and during the 48-hour period following the fumigant application
- ❖ Soil temperature measurement (if air temperatures were above 100 degrees F in any of the 3 days prior to the application)
- ❖ Tarp damage and repair information (if applicable)
  - Location and size of tarp damage
  - Description of tarp/tarp seal/tarp equipment failure
  - Date and time of tarp repair
- ❖ Tarp perforation/removal details (if applicable)
  - Description of tarp removal (if different than in the FMP)
  - Date tarps were perforated
  - Date tarps were removed
- ❖ Complaint details (if applicable)
  - Person filing a complaint (e.g., on-site handler, person off-site)
  - If off-site person, name, address, and phone number of person filing a complaint
  - Description of control measures or emergency procedures followed after a complaint
- ❖ Description of incidents, equipment failure, or other emergency and emergency procedures followed (if applicable)
- ❖ Details of elevated air concentrations monitored on-site (if applicable)

- Location of elevated air concentration levels
- Description of control measures or emergency procedures followed
- Air monitoring results
  - When sensory irritation experienced:
    - Date and time of sensory irritation
    - Handler task/activity
    - Handler location where irritation was observed
    - Resulting action (e.g., cease operations, continue operations with an air-purifying respirator)
  - When using a direct read instrument:
    - Type of sample (e.g., breathing zone)
    - Sample date and time
    - Handler task/activity
    - Handler location
    - Air concentration
    - Sampling method
- ❖ Date of Fumigant Treated Area sign removal
- ❖ Any deviations from the FMP
- ❖ Record-keeping procedures (the owner/operator of the application block, as well as the certified applicator, must keep a signed copy of the Post-Application Summary for 2 years from the date of application).

### **SPILL AND LEAK PROCEDURES**

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 *Hazards to Humans and Domestic Animals* 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. 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.

### **PRE-PLANT SOIL FUMIGATION**

#### **SOIL-BORNE PESTS CONTROLLED:**

- NEMATODES, INCLUDING: root-knot spp. *Tylenchulus*, *Pratylenchus*, *Xiphinema*, *Criconemoides*, and *Paratylenchus*.
- SOIL BORNE FUNGI, INCLUDING: *Pythium*, *Rhizoctonia*, *Phytophthora*, *Pyrenochaeta*, *Sclerotium*, *Armillaria*, and the club root organism, *Plasmodiophora*.
- WEEDS AND WEED SEED: Seeds, roots, stolons, and bulbs of broadleaf weeds and grasses including quackgrass, annual bluegrass, broomrape, common lambsquarters, torpedograss 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 symphylans.

**NOTE:**

- Some difficulty has been experienced through the use of Methyl Bromide 98% 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.
- 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 injury and/or nitrate starvation to crops, avoid using fertilizers containing ammonia salts and use only fertilizers containing nitrates until after the crop is well established and the soil temperature is about 65 degrees F. Liming highly acid soils before fumigation stimulates nitrification and reduces the possibility of ammonia toxicity.

**APPLICATION RESTRICTIONS:**

- For use only on sites and at locations that qualify for exemptions under the Montreal Protocol (e.g., critical use exemption or quarantine and preshipment exemption uses) and for sites listed in the Table 2 of this label.
- This product may only be used on crops/uses identified in the Quarantine Uses section or in Tables 1 and 2 of this label.
- Tarps must be used for all applications, except for California orchard replant using the deep broadcast application method.
- The maximum application block sizes allowed for the application of Methyl Bromide 98% are:
  - 100 acres for tarped bedded and broadcast applications
  - 40 acres for untarped deep applications (i.e., California orchard replant)
  - 10 acres for outdoor hot gas applications
  - 45,000 square feet for greenhouse hot gas applications

<b>Table 1. Maximum Application Rates For Crops/Uses With Critical Use Exemptions</b>	
<b>Crop</b>	<b>Broadcast Application Rates (lbs Product/A)</b>
Forest Nursery Seedlings	375-400
Ornamentals <sup>1,2</sup>	375-400
Orchard Replant (walnuts, almonds, stone fruit, table and raisin grapes, wine grapes) <sup>3,4</sup>	250
Orchard Replant (grapes) <sup>3,4</sup>	250

<sup>1</sup>The maximum rate for greenhouse hot gas applications is 1 lb ai/100 ft<sup>2</sup>.

<sup>2</sup>The maximum rate for fumigating potting mixes used for ornamentals (including decomposed compost, soil mixes and manure) is 1 lb ai/100 ft<sup>2</sup>.

<sup>3</sup>The maximum rate for applications to individual tree holes using handheld equipment is 1.0 lb ai/100 ft<sup>2</sup> in light soils and 1.5 lb ai/100 ft<sup>2</sup> in fine-textured soils.

<sup>4</sup>The maximum rate for control of *Armillaria mellea* (oak root fungus) is 400 lbs ai/A when using a tarp containing EVOH resin barrier, such as VaporSafe™ by Raven Industries.

<b>Crop</b>	<b>Broadcast Application Rates (lbs Product/A)</b>
Golf Course Tees, Greens, and Fairways <sup>1</sup>	400
Athletic Fields <sup>1</sup>	400
Tobacco Seedling Trays	7 lbs/1000 trays

<sup>1</sup> For resurfacing with hot gas method only

**QUARANTINE USES**

This product may be used as part of a quarantine program as described below.

Quarantine applications with respect to methyl bromide, are treatments to prevent the introduction, establishment and/or spread of quarantine pests (including diseases), or to ensure their official control, where: (i) Official control is that performed by, or authorized by, a national (including state, tribal or local) plant, animal or environmental protection or health authority; (ii) quarantine pests are pests of potential importance to the areas endangered thereby and not yet present there, or present but not widely distributed and being officially controlled. This definition excludes treatments of commodities not entering or leaving the United States or any State (or political subdivision thereof).

**USDA-APHIS Quarantine Uses**

This product may be used as a soil fumigant at any crop or non-crop site as part of a quarantine program established by the United States Department of Agriculture-Animal and Plant Health Inspection Service (USDA-APHIS) under the Plant Protection Act (7 U.S.C. 7701 et seq.). Limitations including but not limited to application rates and methods and crops and cropping practices must be in accordance with those established by the USDA-APHIS quarantine program.

**Other Quarantine Uses (not USDA-APHIS Quarantine uses)**

Quarantine use of methyl bromide is restricted to fields used for the production of plant propagative material listed below and unplanted areas immediately adjacent thereto, where all production from the treated fields will be shipped to areas where a plant regulatory authority requires the source or the incoming material to be free of quarantine pests or be accompanied by a certificate issued by a plant regulatory official.

**Forest Seedlings:**

Conifer and hardwood seedling for reforestation, Christmas tree seedlings

**Nursery Stock:**

Roses, strawberry transplants, sweet potato slips, caneberry and blueberry nursery stock, fruit and nut trees, garlic transplants, onion transplants, vineyard stock, seed potato, tobacco seed beds, food crop transplants, and other wild or cultivated trees, shrubs, vines and forbs.

**Ornamental Plants:**

Caladiums, chrysanthemums, flower bulbs, flowering plants, ornamental grasses, rhizomes, shrubs, trees, and other perennials and annuals.



**Turf or Sod:**

For interstate and intrastate shipments to areas that require fumigation with methyl bromide to meet quarantine/phytosanitary requirements

The maximum application rate for quarantine uses shall be 400 lbs of methyl bromide per acre, or less if specified in the applicable quarantine/phytosanitary requirements.

The U.S. Federal, state, or local plant, animal, environmental protection or health authority requiring the quarantine application and the particular quarantine/phytosanitary requirement must be identified in the site-specific fumigant management plan. Additionally, the requirement for the treatment (e.g., the State or Federal law) must be listed in the site-specific fumigant management plan.

**STORAGE AND DISPOSAL**

*DO NOT CONTAMINATE WATER, FOOD, OR FEED BY STORAGE OR DISPOSAL.*

**PESTICIDE STORAGE AND HANDLING:** Store in a dry, cool, well-ventilated area under lock and key. Post as a pesticide storage area. Store cylinders upright, secured to a rack or wall to prevent tipping. Do not subject cylinders 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.

**PESTICIDE DISPOSAL:** Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate 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. When a cylinder is partially full, and there is no further requirement for the product, return the cylinder to the registrant or distributor. Replace safety cap and valve protection bonnet before shipping container.

**RETURN OF CONTAINERS:** Cylinders are the property of the registrant or distributor and must be returned promptly after use by collect auto freight. Do not ship cylinders without safety caps or valve protection bonnets.

**REFILLABLE CONTAINER:** Only the registrant or distributor is allowed to refill this container. This container can be refilled with pesticide only. Do not reuse this container for any other purpose. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller.

**CONTAINER DISPOSAL:** To clean the container before final disposal, remove any remaining liquid from the container, using dry air pressure if necessary. Allow container to aerate for at least 5 days. After aeration, wash container using hot water; then offer container to qualified reconditioner or dispose of as directed by State or local regulations.

**SHIPPING:** This fumigant is classified in the U.S. Department of Transportation Hazardous Materials Regulations as Methyl Bromide, 2.3, UN 1062, Poison-Inhalation Hazard, Hazard Zone C and no exemptions from specifications, packaging, marking, or labeling are allowed. Describe empty cylinders as having last contained Methyl Bromide (inhalation hazard). Do not ship with foods, feeds, or clothing.

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

#### **WARRANTY**

Seller warrants that this product conforms to the chemical description on its label and is reasonably fit for the purposes stated on the label when used in accordance with directions under normal conditions of use. To the extent consistent with applicable law, 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 in a manner contrary to its label.