

8622-17

05-07-2010

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, D.C. 20460

OFFICE OF PREVENTION, PESTICIDES AND TOXIC SUBSTANCES

“CERTIFIED MAIL”

Brenda Burgess
ICL-IP, Inc.
95 MacCorkle Ave., SW
South Charleston, WV 25303

MAY 7 2010

Subject: Metabrom 99
EPA Reg. No. 8622-17
Pre-RED Mitigation Amendment – Label Dated April 14, 2010
EPA Decision Number 432670

Dear Ms. Burgess:

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:

LABEL REVISIONS

1. Page 3, revise the paragraph that begins “**IMPORTANT:**” with the following:

“**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.”
2. Page 4, in the 3rd bullet of the SPILL AND LEAK PROCEDURES FOR SOIL FUMIGATION section, delete “(including prescribed respirators).” and put “Hazards to Humans and Domestic Animals” in italics.
3. Page 5, in the last sentence of the AGRICULTURAL USE REQUIREMENTS box, put “Hazards to Humans and Domestic Animals” in italics.
4. Page 7, replace the AIR RESCUE DEVICE AVAILABILITY FOR PRE-PLANT SOIL USES section with the following text:

“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 ready for use in case of an emergency. This must be documented in the FMP.”

5. Page 9, in the "Entry Restriction Period" section, the 2nd bullet should be divided into 2 separate bullets as follows:

- 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 "

6. Page 11, replace the 2nd major bullet with the following text:

- "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."

7. Page 17, replace the 7th major bullet with the following text:

"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)"

8. Page 18

a. At the top of the page, replace the 4th sub-bullet under "Authorized on-site personnel" with the following:

- "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."

b. Remove the extra bullet preceding the Good Agricultural Practices (GAPs) section.

c. Correct the bullet alignment for the Good Agricultural Practices (GAPs) portion of the FMP requirements as follows:

- ❖ "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)"

9. Page 19, delete the last bullet and the text therein in the “Application Restrictions” section.
10. On page 20 in table 1 and 2, revise the table header from “(lbs Methyl Bromide/A)” to (lbs Product/A)”.
11. Page 20, delete the 3 lines of text immediately preceding the “Quarantine Uses” section.
12. On page 21, revise the Pesticide Storage and Disposal section as follows:
 - a. Change the heading “Storage and Handling” to “Pesticide Storage and Handling”.
 - b. Revise the sentence “Persons moving, handling, or opening containers. . .” to read “Persons moving, handling, or opening containers must wear the personal protective equipment specified in the . . .”
 - c. Revise the sentence “Cylinders should not be subjected to rough handling. . .” to read “Do not subject cylinders to rough handling, or mechanical shock such as dropping, bumping, dragging, or sliding.”
 - d. Add the heading “Container Disposal” before the phrase “Return Cylinders To:” and add the following sentences to the section “Do not ship cylinders without safety and valve protection bonnet. Do not refill cylinder or use it for any other product or purpose.”
 - e. Change the heading “Disposal” to “Pesticide Disposal” and move the section so that it follows the Pesticide Storage and Handling section.

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.

EPA Reg. No. 8622-17

Metabrom 99

Page 4 of 4

One copy of the label stamped "Accepted with comments" is enclosed for your records. If you have any questions, please contact Susan Bartow by phone at (703) 603-0065 or via email at bartow.susan@epa.gov or Mary Waller by phone at (703) 308-9354 or via email at waller.mary@epa.gov.

Sincerely,



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

Enclosure

5/29

**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.

METABROM 99
FUMIGANT
CONTAINS 1.0% CHLOROPICRIN

ACTIVE INGREDIENT:	By Wt.
METHYL BROMIDE.....	99.0%
CHLOROPICRIN.....	1.0%
TOTAL.....	100%

*Contains CHLOROPICRIN (warning odorant tear gas)

ACUTELY TOXIC CHEMICAL

14.3 LBS. Active Ingredient per gal. (LIQUID IN CYLINDER)

KEEP OUT OF REACH OF CHILDREN

**ACCEPTED
with COMMENTS
in EPA Letter Dated
MAY 7 2010**

DANGER PELIGRO



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

8622-17

POISON

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.)

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

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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.

See side panels for additional precautionary statements.

Produced for:

ICL-IP America, Inc.

EPA Reg. No. 8622-17

95 MacCorkle Ave., SW

South Charleston, WV 25303

EPA Est. No. _____

Tel: (304) 720-3950

Fax: (304) 746-3101

IN CASE OF EMERGENCY, CONTACT:

CHEMTREC: (800) 424-9300 or (703) 527-3887 (Collect calls accepted) [24 Hrs.]
or ICL-IP America/HyYield-Bromine/Clearon Emergency Response: (304) 746-3000 [24 Hrs.]
or HyYield Bromine, Inc: (910) 675-9409 or (813) 752-4244 [Business Hrs. ONLY]

Net Wt. _____ LBS. / _____ KGS.

AB04-Rev.7

11-09-09

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

**DANGER
HIGH ACUTE TOXICITY**

EXTREMELY HAZARDOUS LIQUID AND VAPOR UNDER PRESSURE. INHALATION MAY BE FATAL OR CAUSE SERIOUS ACUTE ILLNESS OR DELAYED LUNG OR NERVOUS SYSTEM INJURY. DO NOT BREATHE VAPORS. LIQUID OR EXCESSIVE 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.

PERSONAL PROTECTIVE EQUIPMENT

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. Where coveralls are required, they must be loose-fitting and constructed of woven fabrics (e.g., tight knit cotton or cotton/polyester), non-woven fabrics (e.g., Tyvek or Sontara), or fabrics containing microporous Teflon.

All handlers (including applicators) must wear:

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

When handling liquid, 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, when an air-purifying respirator is required, handlers must wear a:

- NIOSH-approved 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

- Do not wear jewelry, rubber 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.
- Immediately after application remove outer clothing, shoes, and socks. Do not reuse contaminated clothing or shoes until cleaned. Keep and wash the clothing and shoes separately from other laundry.
- Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product. Do not reuse them.
- Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.
- Follow manufacturer's instructions for cleaning/maintaining protective eyewear, face shields and respirators.

USER SAFETY RECOMMENDATIONS

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Remove clothing immediately if pesticide gets inside. 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 AND 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. Do not permit water to be used to clean the fumigant pressure system as corrosion will result. Diesel oil is satisfactory for this purpose.

DIRECTIONS FOR USE

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

GENERAL INSTRUCTIONS & INFORMATION

This fumigant is a highly hazardous material and should be used only by individuals trained in its proper use. Before using, read and follow all label precautions and directions. All persons working with this fumigant must be knowledgeable about the hazards and trained in the use of required respirator equipment and detector devices, emergency procedures, and proper use of the fumigant.

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 symphylan.

SPILL AND LEAK PROCEDURES FOR SOIL FUMIGATION

- In case of a rupture of hose or fitting while applying fumigant, immediately stop tractor and motor.
- Evacuate everyone from the immediate area of the spill or leak.

- Wear the personal protective equipment (including prescribed respirators) specified in the 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.

NOTE CAREFULLY: Fumigation may temporarily raise the level of ammonia nitrogen and soluble salts in the soil. This is most likely to occur when heavy rates of fertilizer and fumigant are applied to soils that are either cold, wet, acid, or high in organic matter. To avoid injury to plant roots, fertilize as indicated by soil tests made after fumigation. To avoid ammonia injury and/or nitrate starvation to crops, avoid using fertilizers containing ammonium salts and use only fertilizers containing at least 30% nitrates until the crop is well established and the soil temperature is above 65° F. Certain crops are tolerant to ammonia; therefore, the above rule does not apply to them. Liming highly acid soils before fumigation stimulates nitrification and reduces the possibility of ammonia toxicity.

- Avoid reinfestation of treated soil. Do not use transplants, tools, or crop remains infested with soil-borne plant parasitic pests and weed seeds. Clean applicator carefully before and after use. Do not contaminate fumigated areas by walking from unfumigated to fumigated soil. If the treated area is in a location where flooding or washing is possible after rains, plow a furrow or make a trench around it for proper drainage. Wooden frames around the beds are also satisfactory for preventing this type of contamination.
- Metabrom 99 Fumigant is toxic to plants; therefore, do not apply to areas containing roots or desirable vegetation. The edge of the cover should be at least 18 inches beyond foliage drip line of living plants.
- Do not spill or discharge contents outside ground cover.
- Some difficulty has been experienced through the use of Metabrom 99 Fumigant 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.

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 entry restricted period and notification requirements, see the *Entry Restricted Period* and *Notification* sections of this labeling.

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. 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, or operating irrigation equipment in the 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 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 by 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 the [*registrant developed*] 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 the past 12 months.

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 have the appropriate air-purifying respirator and cartridges available and that these handlers are 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.

Respirator Fit Testing, Medical Qualification, and Training

Employers must ensure that any handler that 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.

RESPIRATORY PROTECTION AND STOP WORK TRIGGERS

The following procedures must be followed to determine whether an air-purifying respirator is required or if operations must cease for any person performing a handling task as stated in this label.

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.
- To monitor air concentration levels, a direct reading detection device, such as a Matheson-Kitagawa, Draeger, or Sensidyne device must be used. 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.
- In order to resume work activities:
 - 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 area is required to perform a function necessary for the application, a SCBA must be worn. Handlers must wear SCBA to reenter the greenhouse for a minimum of 48 hours after the fumigant has stopped being delivered/dispensed to the soil. For outdoor, open-air hot-gas applications, if entry onto the treated application block is required to perform a function necessary for the application, a SCBA must be worn. To reenter the application block in an outdoor, open-air hot-gas application within 48 hours of the application, handlers must take air monitoring samples to determine if a SCBA (5 ppm or higher), or air purifying respirator (1-5 ppm), or no

respirator (less than 1 ppm) is needed.

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 or after drip lines have been purged 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.

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, 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 signs must bear the skull and crossbones symbol and state:

- "DANGER/PELIGRO,"
- "Area under fumigation, DO NOT ENTER/NO ENTRE,"
- "Methyl Bromide Fumigant in USE,"
- the date and time of fumigation,
- the date and time entry restricted period is over,
- Name of this product, 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).

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 in effect issued by the National Weather Service 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>. For further guidance, contact 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 generally be free of clods that are golf ball size or larger. 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:* 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 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

- *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-Bedded Applications:* The injection point must be a minimum of 12 inches from the nearest final soil/air interface.
- *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.

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 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 at not less than 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.

Hot Gas Soil Applications (Greenhouse and Outdoor): Mandatory GAPs

- All delivery tubes must be placed under the tarp in such a way that they do not move during the application of methyl bromide.
- The fumigant must be introduced from outside of the 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.

Tree Replant Application: 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

- Each individual tree-site must remove the tree stump and primary root system with a back-hoe or other similar equipment, for example an auger.
- The hole must be backfilled with soil before application.

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 tamp or the soil must be compacted over the injection hole.

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 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
 - 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 (registrants may also include optional 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).

MAXIMUM APPLICATION BLOCK SIZES

The maximum application block sizes allowed for methyl bromide applications are:

- 100 acres for tarped bedded and broadcast applications
- 40 acres for untarped deep applications (i.e., California orchard replant)."

MAXIMUM APPLICATION BLOCK SIZES FOR HOT GAS APPLICATIONS

The maximum application block sizes allowed for methyl bromide hot gas applications are:

- 10 acres for outdoor hot gas applications
- 45,000 square feet for greenhouse hot gas applications.

APPLICATION RESTRICTIONS:

For use only on sites and at locations that qualify for exemption under the Montreal Protocol (e.g., critical use exemption or quarantine and preshipment exemption uses) and the specific crops listed in the table titled *Maximum Application Rates for Pre-plant Soil Methyl Bromide Non-CUEs*.

Tarps must be used for all applications, except for California orchard replant using the deep broadcast application method.

The maximum application rate when applying methyl bromide to individual tree holes using handheld equipment is 1.5 lb ai/100 ft².

The maximum application rate for golf course hot gas applications is 435 lb ai/acre.

The maximum application rate for vidalia onion is 350 lb ai/acre.

The maximum application rate for ginger hot gas applications is 400 lb ai/acre.

The maximum application rate for greenhouse hot gas applications is 1 lb ai/100 ft² and the application block may not exceed 45,000 ft²

MAXIMUM APPLICATION RATES FOR CRITICAL USE EXEMPTIONS (CUEs) UNDER THE MONTREAL PROTOCOL	
Maximum Application Rates for Pre-plant Soil Methyl Bromide CUEs	
Crop	Maximum Broadcast Equivalent Rates (lb ai/A)
Eggplant	200

Cucurbits (including muskmelons, cantaloupe, watermelon, cucumber, squash, pumpkin, and gourds)	<u>200</u>
Forest Nursery Seedlings	<u>400</u>
Orchard Nursery Seedlings (raspberry, deciduous trees, roses)	<u>400</u>
Strawberry Nurseries	<u>400</u>
Orchard Replant ¹ (walnuts, almonds, stone fruit, table and raisin grapes, wine grapes)	<u>250</u>
Orchard Replant (grapes)	<u>250</u>
Ornamentals	<u>400</u>
Pepper, Bell	<u>200</u>
Strawberry Fruit	<u>235</u>
Sweet Potato Slips	<u>200</u>
Tomato (grown for fresh market)	<u>200</u>
¹ <i>The maximum application rate when applying methyl bromide to individual tree holes using handheld equipment is 1.5 lb ai/100 ft².</i>	

Maximum Application Rates for Pre-plant Soil Methyl Bromide Non-CUEs

<u>Crop</u>	<u>Maximum Broadcast Equivalent Rates (lb ai/A)</u>
• <u>Peppers (grown for fresh market (CA))</u>	<u>200</u>
• <u>Tomato (grown for fresh market (CA))</u>	<u>200</u>
• <u>Caneberries (Raspberries, Blackberries, Boysenberries)</u>	<u>235</u>
• <u>Ginger (HI)</u>	<u>350</u>
• <u>Vidalia Onion (GA)</u>	<u>350</u>
• <u>Golf Courses/Athletic Fields</u>	<u>435</u>
• <u>Tobacco Seedling Trays</u>	<u>See Below</u>
• <u>Strawberry Nurseries (quarantine only)</u>	<u>400</u>
• <u>Quarantine Uses</u>	<u>Not Applicable</u>

The maximum application rate for greenhouse hot gas applications is 1 lb ai/100 ft² and the application block may not exceed 45,000 ft².
 The maximum application rate for tobacco seedling trays is 7 lb ai/1000 trays.

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)	
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."

RAISED TARP FUMIGATION METHOD

Support the center of the cover to provide a small gas dome. Inflated plastic bags, crumpled fertilizer bags, burlap bags stuffed lightly with hay or straw, inverted baskets, flowerpots or bottles placed in the soil may be used for support. Evaporating pans are

essential for the volatilization and uniform dispersion of fumigant. Shallow pans or basins made of plastic or tin are satisfactory for this purpose.

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

HOT GAS METHOD

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

DOSAGE: Use one to two pounds of Metabrom 99 Fumigant per 100 square feet for an exposure time of 24 hours when soil temperature is 60° F or higher. Methyl Bromide penetrates the soil to the depth it has been plowed or ripped. When soil temperature is between 50° F and 60° F, extend the exposure time to 48 hours. Do not treat when soil temperature is below 50° F.

POTTING MIX FUMIGATION DIRECTIONS

Potting mixes, including decomposed compost, soil mixes and manure, can be fumigated with Metabrom 99 Fumigant. Fumigation should take place outdoors or in a well-ventilated area away from desirable plants or occupied buildings. The material to be treated should have a temperature of 60° F or above, be loose and moist enough for good seed germination. To insure a good seal, pile the material to a depth of 18 inches on a concrete floor or on wet ground. Piles two to three feet high can also be treated provided perforations are made in the pile surface at one-foot intervals to assist penetration. Once the pile has been made, install supports to hold the cover a few inches above the pile surface to aid in proper fumigant diffusion. Place the outlet of the applicator tube or tubes in evaporating pans spaced about 30 feet apart on the pile surface. Cover with a polyethylene sheeting or other gas confining material of 4 mil. or greater thickness. Seal the edges by burying, covering with moist sand, or soil or by means of sand snakes. Introduce the fumigant into the evaporating pans as a liquid or by means of the hot gas method. Consult Table for proper dosage and exposure time. Aerate for 24 to 72 hours before planting. Potting mixes in flats may also be treated. Arrange the flats in loose criss-cross stacks no more than 5 feet high, then cover and seal as described above. Introduce the fumigant at the top and in the center of the stack into evaporating pans or by means of the hot gas method at a rate of 4 pounds per 100 cubic feet. Use one injection point for each 100 cubic feet of volume. Expose for 24 to 48 hours. Aerate for 24 hours.

TREE SITE FUMIGATION DIRECTIONS (For Use in Florida Only)

Preplant or replant fumigation of citrus soil for control of *Phytophthora* and citrus nematodes in Florida sandy soils. Trees that are planted in this treated soil will not bear harvestable fruit for a period of at least 24 months. Apply with chisels spaced 12 inches apart to a depth of 6 to 8 inches. Seal fumigant with a drag or cultipacker following

immediately behind chisels. Apply Metabrom 99 Fumigant at the rate of 1 pound per 100 square feet. Immediately cover with a 4 mil. tarp and expose to fumigation for 96 hours. This treatment will control disease to a depth of 4 feet. Remove cover and aerate 2 weeks before setting transplants in treated area.

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

PRETREATMENT SOIL PREPARATION: To obtain the maximum control of *Armillaria mellea* with Metabrom 99 Fumigant, soil must be dry to a depth requiring treatment. 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. 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 that are planted in this treated soil will not bear harvestable fruit for a period of at least 12 months. Methods and rate of application are as follows:

- **Non-Tarp Chisel Application (not for use in California):** After the soil has been properly prepared, inject 400 to 870 pounds of Metabrom 99 Fumigant per acre by chisel application with chisels spaced up to 66 inches apart to a depth of 24 to 30 inches. In the row strip, treatments may be made by using a single shank. Chisels should have a wing welded on the back 2" to 4" above the chemical outlet to partially break the chisel mark. To fill in the chisel mark and seal the surface, disc and ringroll immediately after fumigant injection. Be sure that the disc and ringroller cover an area sufficiently beyond the chisel lines to effect a good seal.
- **Tarp Chisel Application:** After the soil has been properly prepared, apply 400 to 870 pounds of fumigant per acre by chisels spaced up to 66 inches apart, as described above, and cover with adequate polyethylene film seal.
- **Deep Injection Auger-Probe Treatment:** Use one pound of Metabrom 99 Fumigant in light soils (two pounds in fine-textured soils) to a depth of 36 inches or more below the soil surface. Assume one injection site per 100 square feet (on a 10 ft. x 10 ft. grid pattern) with the injection in the center of the area to be treated.

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

NON-TARP NEMATODE CONTROL

For control of nematodes including *Meloidogyne spp*, *Xiphinema spp*, *Criconemoides*, *Pratylenchus*, and *Paratylenchus* on crops such as deciduous fruits, nuts, citrus, and vineyards. This is a preplant or replant treatment. Do not apply to soil where trees or vines will bear harvestable fruit within 12 months. A waiting period of at least 14 days should be observed between application and planting.

PRETREATMENT SOIL PREPARATION: Plow or rip the soil to the depth to which effective treatment is required. The soil should be worked until free of clods or large lumps and residue from previous crops should be worked into the soil to allow for decomposition prior to fumigation. To insure maximum fumigant penetration, the soil at the point of injection should not contain more than 5 to 15% moisture, depending on soil

type. However, to improve sealing, the soil surface may be moistened by means of a sprinkler application of 1/4 to 1/2 inch of water prior to final preparation and application. For best results, fumigate when the soil temperature is above 60° F at the depth of 6 inches. Do not fumigate when soil temperature is below 50° F.

DOSAGE AND METHOD OF APPLICATION:

- **Chisel Application:** After the soil has been properly prepared inject 400 to 870 pounds of Metabrom 99 Fumigant per acre by chisel application 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 effect a good seal.
- **Deep Injection Auger-Probe Treatment:** Use one pound of Metabrom 99 Fumigant per injection site in lighter soils; two pounds in fine textured soils. Use one injection site per 100 square feet (on a 10 ft. x 10 ft. grid pattern) with the injection in the center of the area to be treated. Tamp or compact the soil at the point of injection.

NOTE: Metabrom 99 Fumigant used without a tarp or under very dry conditions will not usually control most weed seeds. However, some control may be observed on deep-rooted perennials such as morning-glory (birdweed) and rhizomes of Johnson grass.

GREENHOUSES

- The use of methyl bromide and chloropicrin in enclosed spaces presents a special hazard to humans and plant life. Before fumigation, train all personnel involved in fumigation (including use of safety equipment). When used for fumigation of enclosed spaces, two persons trained in the use of this product must be present during introduction of the fumigant, initiation of aeration, and after aeration when testing for reentry. Follow USE PRECAUTIONS. Follow directions for row application with doors open and fans running. After application and tarping, secure and post the structure to prevent unprotected persons and domestic animals from entering. After the exposure period, open doors and turn on fans prior to removing tarpaulins.
- **On-Site Protective Equipment:** Although this fumigant contains chloropicrin, the absence of chloropicrin does not always indicate the absence of methyl bromide. Do not allow any person to enter the fumigated structure without the appropriate protective equipment from the time of injection of the fumigant until acceptable air concentration level readings are obtained using an approved detector. To maintain adequate safety standards, the following equipment must be present and accessible on the site during the entire fumigation operation: (1) one or more self-contained breathing apparatus; (2) one or more replacement air bottles per breathing apparatus; and (3) one or more halide leak detectors.
- **After Fumigation:** At the end of the exposure period, remove all seals and open all doors and windows that are operational. Allow for complete ventilation. Use ventilation fans whenever possible to remove fumigant from dead air pockets. Follow exactly the instructions in the entry restriction section of the AGRICULTURAL USE REQUIREMENTS box.

STORAGE AND DISPOSAL

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

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

RETURN CYLINDERS TO: Cylinders are the property of the manufacturer or distributor where purchased and should be returned promptly by collect auto freight. When a cylinder is partially full and there is no further requirement for the product, contact the manufacturer or distributor for return instructions.

SPILL AND LEAK PROCEDURES: Evacuate everyone from the immediate area of the spill or leak. For entry into affected area to correct problem, wear the personal protective equipment (including prescribed respirator) specified in the Hazard to Humans section of this labeling. Move leaking or damaged containers outdoors or to an isolated location. Observe strict safety precautions. Work upwind, if possible. Allow spilled fumigant to evaporate. Only correctly trained and PPE-equipped handlers are permitted to perform such cleanup. Do not permit entry into the spill or leak area by any other person until the air concentration level of chloropicrin is 0.15 ppm or less AND the air concentration level of methyl bromide is 1 ppm or less. Contaminated soil, water, and other cleanup debris are a toxic hazardous waste. Report spill to the National Response Center (800-424-8802) if the reportable quantity of 1000 lbs. is exceeded.

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.

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

WARRANTY

Warranty; Seller warrants that this product complies with the specifications expressed in this label. To the extent consistent with applicable law, Seller makes no other warranties, express or implied, including but not limited to warranties of merchantability and fitness for the intended purpose. To the extent consistent with applicable law, Seller's liability or default, breach or failure under this label shall be limited to the amount of the purchase price. To the extent consistent with applicable law, Seller shall have no liability for consequential damages