**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 LIVESTOCK ILLNESS, 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, REDNESS, AND 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. Chlorinated liquid in this product term protection is provided by PPE constructed of Viton, Teflon, and EVAL barrier laminates (for example, responder suits manufactured by Life-Guard or Silvershield). Nonchemical-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.

When performing tasks with NO potential for contact with liquid fumigant, all handlers (including applicators) must:

- Wear long-sleeved shirt, long pants, shoes and socks.
- Not wear jewelry, goggle, tight clothing, chemical-resistant gloves, rubber protective clothing, or rubber boots when handling. Methyl bromide can be trapped inside clothing and cause skin injury.
- Handlers with no potential for contact with liquid fumigant (e.g. shovelers) may wear cotton, leather, or other porous, non-chemical-resistant gloves. If such gloves are exposed to liquid fumigant, they must be removed and discarded.
- In addition, all handlers (including applicators) must wear:
  - Chloropicrin-resistant apron.
  - Protective eyewear (Do NOT wear goggles), and
  - Chemical-resistant footwear with socks.

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

- NIOSH-certified half-mask or full-facepiece air-purifying respirator with a cartridge 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 605/50 Organic Vapor/Acid Gas/P100 cartridges)
- If the handler is exposed to liquid fumigant, they must wear liquid-protective clothing.
- When performing tasks with potential for contact with liquid fumigant, all handlers (including applicators) must:
  - Long-sleeved shirt and long pants,
  - Chemical-resistant apron,
  - Chloropicrin-resistant apron,
  - Protective eyewear (Do NOT wear goggles), and
  - Chemical-resistant footwear with socks.

**KEEP OUT OF REACH OF CHILDREN**

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

**FIRST AID**

**INHALATION:**
- 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 a poison control center or doctor for further treatment advice.

**IN SKIN OR CLOTHING:**
- Take off contaminated clothing.
- Rinse skin immediately with plenty of water for 15-20 minutes.
- Call a poison control center or doctor for treatment advice.

**IN EYES:**
- Hold eyes 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 eyes.
- Call a poison control center or doctor for treatment advice.

**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 overexposures 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.

**EMERGENCY PHONE NUMBER:** Chemtrec, 1-800-424-9300

**NOTE:** Have the product container or label with you when calling a poison control center or doctor, or going for treatment.

**DIRECTIONS FOR USE**

Restricted Use Pesticide

Due to Acute Toxicity

For retail sale to and use by certified applicators or persons under their direct supervision and for only those uses covered by the certified applicator’s certification.

**REVIEWED USE PESTICIDE**

Methyl Bromide 98%  
A Fumigant for Use Only by Certified Applicators

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

This product weighs 13.98 lbs./gal. at 68°F (20°C)

**EMERGENCY PHONE NUMBER:** Chemtrec, 1-800-424-9300

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**Cardinal Professional Products**

POISON

**Methyl Bromide 98%**

_A Fumigant for Use Only by Certified Applicators_

**ACTIVE INGREDIENT:**
Methyl Bromide .......................................................... 98%

**OTHER INGREDIENT:**
Chloropicrin ................................................................. 2%

**TOTAL:** ...................................................................... 100%

This product weighs 13.98 lbs./gal. at 68ºF (20°C).

**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.

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Produced for:

**Soil Chemicals Corporation D/B/A**

Cardinal Professional Products

P. O. Box 782 • Hollister • CA 95024-0782

(831) 630-2258

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**FIRST AID**

**IF INHALED:**
- 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 a poison control center or doctor for further treatment advice.

**IF ON SKIN OR CLOTHING:**
- Take off contaminated clothing.
- Rinse skin immediately with plenty of water for 15-20 minutes.
- Call a poison control center or doctor for treatment advice.

**IF IN EYES:**
- Hold eyes 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 eyes.
- Call a poison control center or doctor for treatment advice.

**EMERGENCY PHONE NUMBER:** Chemtrec, 1-800-424-9300

**NOTE TO PHYSICIAN**

**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.

**KEEP OUT OF REACH OF CHILDREN**

**POISON**

_Si Usted no entiende la etiqueta, busque a alguien para que se le 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._
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.

This pesticide is toxic to mammals and birds. See the DIRECTIONS FOR USE Restricted Use Pesticide

### 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 natural rubber, 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.

When performing tasks with NO potential for contact with liquid fumigant, 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 with socks.

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

- a NIOSH-certified half-mask or full-facepiece air-purifying respirator with a cartridge 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:** A self-contained breathing apparatus (SCBA) is not permitted for routine handler tasks.

If responding to an emergency when corrective action is needed to reduce air concentrations to acceptable levels, wear an SCBA. Escape-only SCBA respirators must be used by handlers for responding to emergencies. In addition wear PPE required for potential contact with liquid fumigant.

### 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/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. 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 more information on equipment 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 handlers may be in the application block from the start of the application until the entry restricted period ends, and in the buffer zone during the buffer zone period. 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 Part 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. 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. During the Entry Restricted Period: PPE for entry that is permitted by this labeling is listed in the Personal Protective Equipment (PPE) section of this labeling.

### Terms Used in This Labeling

**Soil Fumigant Training Program:** Certified applicator training that provides information on (1) how to correctly apply the fumigant, including how to comply with new label requirements; (2) how to protect handlers and bystanders; (3) how to determine buffer zone distances; (4) how to complete an FMP and the post-application summary; (5) how to determine when weather and other site-specific factors are not favorable for fumigant application; (6) how to comply with required GAPs and how to document compliance with GAPs in the FMP; and (7) how to develop and implement emergency response plans.

**Fumigant Handling Information:** Information that must be provided annually to handlers must include the following: (1) what fumigants are and how they work, (2) safe application and handling of soil fumigants, (3) air monitoring and respiratory protection requirements for handlers, (4) early signs and symptoms of exposure, (5) appropriate steps to take to mitigate exposures, (6) what to do in case of an emergency, and (7) how to report incidents.

#### Application Block

**Application Block:** Area within the perimeter of the fumigated portion of a field (including furrows, irrigation ditches, roads) that the application block is the border that connects the outermost edges of total area treated with the fumigant product.

#### Application Rate

**Application Rate:** The ratio of fumigant mass applied compared to the soil surface area (e.g., pounds of product per acre). The application rate is expressed on this labeling in terms of either the “treated area application rate” or the “broadcast equivalent application rate.” The “treated area application rate” relates to only the rate of fumigant applied to the portion of the field that is fumigated (e.g., rate within the buffer strips). The “broadcast equivalent application rate” relates to the rate of fumigant applied within the entire perimeter of the application block. For bedded and strip applications, the "broadcast equivalent application rate" must be calculated to determine the buffer zone distance required by this labeling.

#### Application Restricted Period

**Application Restricted Period:** Time beginning at the start of the application and expires depending on the application method and geographic location. This period is only allowed for appropriately PPE-equipped handlers performing handling tasks. See the Entry Restricted Period and Notification section for additional information.

#### Buffer Zone

**Buffer Zone:** An area established around the perimeter of each application block. The buffer zone must extend outward from the edge of the application block perimeter equally in all directions.
Product Information

This product will control the following soil-borne pests:
- Nematodes, including root-knot spp.
- Tylechulus, Pratylenchus, Xiphinema, Cruconenoides, and Paratylhelenus.
- Weeds and weed seeds, including seeds, roots, stolons, and bulbs of broadleaf weeds and grasses including shepherd’s purse, annual bluegrass, broomrapes, common lambsquarters, torpedograss and Bermuda grass.
- Insects and some species of clover.
- Plasmodiophora.

Use Precautions

- Comply with all local regulations and ordinances. Obtain an application permit from Agricultural Regulatory Agencies as required.
- Users should handle the fumigant in 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 in a container which 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.
- 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, fertilizer 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°F. Liming highly acid soils before fumigation stimulates nitrification and reduces the possibility of ammonia toxicity.

Certified Applicator Training

Any certified applicator supervising a soil fumigant application must have successfully completed one of the soil fumigant training programs listed on the following EPA website www.epa.gov/fumiganttraining for the active ingredient(s) in this product. The following activities are prohibited from being performed in the application block from the start of the application until the entry restricted period ends and in the buffer zone during the buffer zone period by anyone other than persons who have been appropriately trained and equipped as handlers in accordance with the requirements in WPS (40 CFR Part 170):
- Monitoring fumigant air concentrations;
- Cleaning up fumigant spills (this does not include emergency personnel not associated with the application);
- Handling or disposing of fumigant containers;
- Cleaning, handling, adjusting, or repairing the parts of application equipment that may contain fumigant residues; and
- Performing any handling tasks as defined by the WPS (40 CFR Part 170). (NOTE: persons repairing and monitoring tarps are considered handlers for the duration listed below). Prohibited activities (except for trained and equipped handlers) include:
  - Participating in the application as supervisors, loaders, drivers, tractor co-pilots, shovelers, cross ditchers, or as other direct application participants;
  - Installing, repairing, operating, or removing irrigation equipment;
  - Performing scouting, crop advising, or monitoring tasks;
  - Installing, perforating (cutting, punching, slicing, poking), or removing tarps; and
  - Repairing or monitoring tarps until 14 days after application is complete if tarps are not perforated and removed during those 14 days.

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

Certification Training

The certified applicator supervising the application and the owner of the establishment where the application 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;
- excluded from the buffer zone during the buffer zone period (see buffer zone exemption for transit on roadways in Buffer Zone Requirements section).

Local, state, or federal officials performing inspection, sampling, or other similar official duties are not excluded from the application block or the buffer zone by this labeling. The certified applicator supervising the application and the owner of the establishment where the application is taking place are not authorized to, or responsible for, excluding those officials from the application block or the buffer zone.
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: 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. At a minimum two handlers must have the appropriate air-purifying respirator and cartridges available (see Respirator Fit Testing, Medical Qualification, and Training section for additional requirements). Exception: Air-purifying respirators do not need to be made available for handlers performing fumigant site monitoring tasks outside of the buffer zone.

Respirator Fit Testing, Medical Qualification, and Training: Using a program that conforms to OSHA’s requirements (see 29 CFR Part 1910.134), employers must verify that any handler who uses a respirator is:
- Fit-tested and fit-checked,
- Trained, and
- 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 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.
- Upon request by local/state/federal/tribal enforcement employers must provide documentation demonstrating how they have complied with these requirements.

Respiratory Protection and Stop Work Triggers: Half-mask or full-facepiece air-purifying respirators must be worn during all handler tasks, and the following air monitoring procedures must be followed to ensure that the 5 ppm upper protection limit of the air-purifying respirator plus respirator cartridge is not exceeded:
- Air monitoring samples for methyl bromide must be collected at least every hour in the breathing zone of a handler wearing a representative handling task. Breathing zone samples must be taken outside respiratory protection equipment and within a 10 inch radius of the handler’s nose and mouth.
- When using monitoring devices to monitor air concentration levels, a direct read detection device, such as an electronic device or a colorimetric device (e.g., Matheson-Kitagawa, Draeger, or Sensidyne) must be used. The devices must have sensitivity of at least 1 ppm for methyl bromide. Persons using direct read detection devices must follow manufacturer’s directions.
- If at any time (1) a handler experiences sensory irritation (tearing, burning of the eyes or nose) while wearing a half-mask or full-facepiece air-purifying respirator, or (2) any air sample is greater than 5 ppm for methyl bromide, then all handler activities must cease and handlers must be removed from the application block and surrounding buffer zone.
- Handlers can resume work activities if all of the following conditions exist, provided the appropriate air-purifying respirator is worn.
  - Two consecutive air samples for methyl bromide taken at the handling site at least 15 minutes apart must be less than or equal to 5 ppm.
  - Sensory irritation is not experienced, and
  - Cartridges have been changed.

Air Purifying Respirator Availability:
- Between 1 ppm and 5 ppm, then an air-purifying respirator is required to begin tarp removal.
- If tarps are perforated within 14 days after the application is complete, tarp removal must not begin until at least 2 hours after tarp perforation is complete and 2 consecutive air monitoring samples taken at least 15 minutes apart are less than 5 ppm. Air samples must be taken in the breathing zone of the handler. If the 2 consecutive air monitoring samples indicate that methyl bromide levels are:
  - Less than 1 ppm and no sensory irritation is experienced, no respiratory protection is required to begin tarp removal.
  - Between 1 ppm and 5 ppm, then an air-purifying respirator is required to begin tarp removal.
  - See the Respiratory Protection and Stop Work Triggers and Personal Protective Equipment (PPE) sections for additional requirements.
- If tarps are not perforated or removed within 14 days after the application is complete, planting or transplanting may take place while the tarps are being perforated.
- Each tarp panel used for broadcast application must be perforated.
- Tarps 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.
- In all other instances tarps must be perforated (cut, punched, poked, or sliced) only by mechanical methods.
- For broadcast applications, tarps must not be perforated if rainfall is expected within 12 hours.
- Early Tarp Removal for Broadcast Applications Only:
  - O 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.
- Early Tarp Perforation during Flood Prevention Activities for Bedded Applications Only:
  - O Tarp perforation is allowed before the 5 days (120 hours) have elapsed.
  - O Tarps must be immediately retucked and packed after soil removal.
- When perforating any tarp that qualifies for a 60% or greater reduction in buffer zone distance following broadcast shank applications:
  - All handlers must wear an air purifying respirator when perforating the tarp, and
  - Tarp removal must not begin until at least 2 hours after tarp perforation is complete and 2 consecutive air monitoring samples taken at least 15 minutes apart are less than 5 ppm. Air samples must be taken in the breathing zone of the handler. If the 2 consecutive air monitoring samples indicate that methyl bromide levels are:
    - Less than 1 ppm and no sensory irritation is experienced, no respiratory protection is required to begin tarp removal.
    - Between 1 ppm and 5 ppm, then an air-purifying respirator is required to begin tarp removal.
- See the Respiratory Protection and Stop Work Triggers and Personal Protective Equipment (PPE) sections for additional requirements.
Entry Restricted Period and Notification

Entry Restricted Period
Entry into the application block (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 untapped applications, or
• 5 days (120 hours) after the application is complete if tarp is not perforated and removed for at least 14 days after the application is complete, or
• 48 hours after tarp perforation is complete if tarp will be perforated within 14 days after the application is complete and will not be removed for at least 14 days after the application is complete, or
• tarp removal is completed if tarp is both perforated and removed less than 14 days after the application is complete.

NOTES:
• See Tarp Perforation and/or Removal section on this labeling for requirements about when tarp are allowed to be perforated.
• If early tarp removal occurs for a broadcast application, the entry restricted period is a minimum of 5 days after the application is complete.
• When listing application information for soil fumigant applications to comply with part 170.122 of the WPS, list the entry restricted period time frame in place of the REI.

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,
• “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, text size, and sign size (40 CFR §170.120).
• Post Fumigant Treated Area signs at all entrances to the application block no sooner than 24 hours prior to application.
• Fumigant Treated Area signs must remain posted for no less than the duration of the entry restricted period.

Mandatory Good Agricultural Practices (GAPs)
The following GAPs must be followed during all fumigant applications.

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.
• Once a tarp is perforated, the application is no longer considered tarped.

Weather Conditions
• To determine if unfavorable weather conditions exist or are predicted (see “Identifying Unfavorable Weather Conditions” section) and whether an application should proceed, the National Weather Service weather forecast must be checked by the certified applicator supervising the application:
  - on the day of, but prior to the start of the application, and
  - on a daily basis during the application if the time period from the start of the application until the application is complete is greater than 24 hours.
• Do not apply if an air stagnation advisory issued by the National Weather Service is in effect for the area in which the application is planned, during the application, or the 48 hours after the application is complete.
• Do not apply if light wind conditions (< 2 mph) are forecast to persist for more than 18 consecutive hours from the time the application starts until 48 hours after the application is complete.
• Detailed National Weather Service forecasts for local weather conditions, wind speed, and air stagnation advisories may be obtained on-line at: http://www.nws.noaa.gov, on NOAA weather radio, 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 within an hour prior to sunset and continue past sunrise and may 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°F at the beginning of the application.
• If air temperatures have been above 100°F in any of the three days prior to the start of the application, then soil temperature must be measured and recorded in the FMP. Record temperature measurements at the application depth or 12 inches, whichever is shallower.

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. Surface soil generally dries rapidly and must not be considered in this determination.
• Soil moisture must be determined using one of the following methods:
  - the USDA Feel and Appearance Method for testing (see below), or
  - an instrument, such as a tensiometer.
• Available water capacity must be equal to or greater than 50% for shank applications. If there is less than 50% available water capacity 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 disking or plowing before the start of the application. To conserve existing soil moisture, pretreatment irrigation or pretreatment tillage should be done as minimal to the start of the 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 the start of the application.

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% available water capacity) 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% available water capacity) to form a ball with defined finger marks, very light soil/water staining on fingers, darkened color will not stick.
For fine textured soils (clay, loam, silt loam), the soil is moist enough (50 to 75% available water capacity) 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, loam, and silty clay loam), the soil is moist enough (50 to 75% available water capacity) to form a smooth ball with defined finger marks, light soil/water staining on fingers, ribs 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 conservationist, 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 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 the start of the application. 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 the start of the application 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 start of the application as possible to limit the length of time that the soil would be exposed to potentially erosive weather conditions.

Soil Sealing
For Broadcast Untapped 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, 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.
• Do not exceed specified maximum application rates in Table 1. Row, bed or strip applications may be made at the treated acre application rates, but their broadcast equivalent rates will be proportionately less per acre depending on the spacing and width of treatment in the row, bed or strip.

**Application Depth and Spacing**

• For Tarped-Broadcast and Tarped-Bedded Applications: The injection point must be a minimum of 8 inches from the nearest soil/air interface. For tarped-bedded applications, the injection depth must not be deeper than the lowest point of the tarps (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 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 Noble 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 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 ensure 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:
  o Ensure that positive pressure is maintained in the compressed gas cylinder at not less than 200 psi during the entire time it is connected to the application rig, if a compressed gas cylinder is used. (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.)
  o 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.
  o A pressure relief valve must be installed between the regulator and the check valve to ensure a regulator failure does not over pressurize the fumigant cylinder.
  o 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:
  o Check the filter, and clean or replace the filter element as required.
  o Check all tubes and chisels to make sure they are free of debris and obstructions.
  o Check and clean the orifice plates and screen checks, if installed.
  o Pressurize the system with compressed gas or compressed air, and check all fittings, valves, and connections for leaks using soap solution.
  o 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. If the rig uses a centrifugal pump instead of compressed gas to inject fumigant into the soil, you may clear residual fumigant from the fumigant lines using an application wand connected to the system’s low point via a drain hose. Place the wand in the soil until all residual fumigant has drained from the system.

**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.

**Planting Interval**

Planting or transplanting must not occur until at least 14 days after the application is complete. If odors of the fumigant persist beyond this 14 day period (and after tarps are perforated and/or removed), delay planting and disc or plow the soil to help aeration. See Tarp Perforation and/or Removal section on this labeling for further requirements.

**Pre-Plant Soil Fumigation in Greenhouses:**

• During the application keep all doors, vents, and windows to the outside open, and keep all fans or mechanical ventilation systems running within the greenhouse.

• Seal gaps through which gases could leak into adjacent enclosed areas.

**Table 1. Maximum Rates for Crops / Uses with Critical Use Exemptions (CUEs)**

<table>
<thead>
<tr>
<th>Crop / Use</th>
<th>Maximum Application Rate1 (Lbs Product / Treated Acre)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forest Nursery Seedlings</td>
<td>300 sandy soils 400 clay loam soils with less than 30% clay</td>
</tr>
<tr>
<td>Orchard Replant2 (walnuts, almonds, stone fruit, table and raisin grapes, wine grapes)</td>
<td>300</td>
</tr>
<tr>
<td>Ornamentals3*</td>
<td>200</td>
</tr>
</tbody>
</table>

1 Do not exceed specified maximum application rates in Table 1. Row, bed or strip applications may be made at the treated acre application rates, but their broadcast equivalent rates will be proportionately less per acre depending on the spacing and width of treatment in the row, bed or strip.

2 The maximum rate to control infestation of Oak Root Fungus (Armillaria mellea) and/or endoparasitic nematodes such as root-knot (Meloidogyne spp.), dagger (Xiphinema spp.), ring (Criconemoides spp.), lesion (Pratylenchus spp.), and pin (Paratylenchus spp.) nematodes is 400 lbs. methyl bromide/acre (cannot exceed 408 lbs of Methyl Bromide 98% per acre). Documentation of the pest(s) must be included in the site-specific fumigation management plan.

3 The maximum rate for greenhouse hot gas applications is 1.02 lbs. product/100 ft² and the application block may not exceed 45,000 ft².

4 The maximum rate for fumigating potting mixes used for ornamentals (including decomposed compost, soil mixes and manure) is 1.02 lbs. product/100 ft².

5 The maximum application rate when applying methyl bromide to individual tree holes using hand-held equipment is 1.02 lbs. product/100 ft² in light soils and 1.53 lbs. product/100 ft² in fine-textured soils.
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 (see entry restrictions and respiratory protection sections for further details).
- All fittings, connections, and valves must be checked for methyl bromide leaks prior to the start of application. If cylinders are replaced during the fumigation process, the connections and valves must be checked for leaks prior to continuing the application.
- The soil/potting mix material to be treated must be at least 60 °F but must not exceed 105 °F.
- Pile 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 that rigid, perforated plastic tubes are vertically inserted into the pile at 18-inch intervals to assist penetration.
- Potting mixes in flats and tobacco seedling trays may also be treated. Arrange the flats or trays in loose criss-cross 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.
- For applications in California, tarps must be included on the approved tarp list for methyl bromide applications in California issued by the California Department of Pesticide Regulation (www.cdpr.ca.gov/docs/emon/methbrom/tarps.pdf) in accordance with Title 3, California Code of Regulations, Section 6447(a). For all other applications, the tarps used must be at least 4 mil thickness or qualify for a buffer zone credit (to determine which tarps qualify for credits, see www.tarpcredits.epa.gov).
- Seal the edges of tarps by burying, covering with moist sand or soil, or by means of sand snakes.

### Tree Replant Application Using

#### Hand-held Equipment: Mandatory GAPs

In addition to the GAPs required for all soil 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.

### 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.

### Special Instructions for Non-Tarp Nematode Control (Only for Deep Shank Orchard Replant and Hand-Held Tree-Hole Applications in California)

For control of the nematodes including *Meloidogyne spp*, *Xiphinema spp*, *Crinemoides*, *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 must be observed between application and planting.
- Plow or rip the soil to the depth to which effective treatment is required.
- To ensure 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.

### 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
- Ornamental Plants: Caladiums, chrysanthemums, flower bulbs, flowering plants, ornamental grasses, rhizomes, shrubs, trees, and other perennials and annuals.

### Crop / Use

<table>
<thead>
<tr>
<th>Crop / Use</th>
<th>Maximum Application Rate¹ (Lbs Product / Treated Acre)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Golf Course Tees, Greens, and Fairways²</td>
<td>400</td>
</tr>
<tr>
<td>Athletic Fields¹</td>
<td>400</td>
</tr>
<tr>
<td>Tobacco Seedling Trays</td>
<td>3 Lbs / 1000 cu ft</td>
</tr>
</tbody>
</table>

¹ Do not exceed specified maximum application rates in Table 3.
² For resurfacing with the hot gas method only.

### Table 2. Maximum Application Rates for 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).

### Table 3. Maximum Rates for Crops / Uses without Critical Use Exemptions (CUEs)

<table>
<thead>
<tr>
<th>Crop / Use</th>
<th>Maximum Application Rate¹ (Lbs Product / Treated Acre)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Golf Course Tees, Greens, and Fairways²</td>
<td>400</td>
</tr>
<tr>
<td>Athletic Fields¹</td>
<td>400</td>
</tr>
<tr>
<td>Tobacco Seedling Trays</td>
<td>3 Lbs / 1000 cu ft</td>
</tr>
</tbody>
</table>
Calculating the Broadcast Equivalent Application Rate

To calculate the broadcast equivalent rate for bedded or strip applications, the following information is needed:

- Pounds of product per treated acre
- Strip or bed bottom width (inches)
- Center-to-center row spacing (inches)
- Application block size (acres)

Pounds of product per treated acre is the ratio of the total amount of product applied to the size of the total area treated (e.g., the rate of product applied in the bed). For bedded or strip applications, the total area treated is the summation of the area (i.e., length x width) of each treated bed bottom or strip that is located within the application block as shown by the black areas in Figure 1 (e.g., black areas are 0.6A or 60% of the area within the application block). The area of the space between the beds/strips is not factored in the total area treated.

The application block size is the acreage within the perimeter of the fumigated portion of a field (including furrows, irrigation ditches, roadways). The perimeter of the application block is the border that connects the outermost edges of the area treated with the fumigant product.

The broadcast equivalent rate must be calculated with the following formula:

\[
\text{broadcast equivalent rate (pounds product/acre)} = \frac{\text{strip or bed bottom width (inches)} \times \text{pounds of product applied in the strip or bed}}{\text{center-to-center row spacing (inches)}} \times \text{area of strips or beds + row spacing}}{\text{application block size}} \times \text{pounds product/treated acre applied in the bed}
\]

- The bed width must be measured from the bottom of the bed.
- The center-to-center row spacing must be calculated as shown in Figure 2.
- If there are any ditches, waterways, drive rows and other areas that are not fumigated that are in the application block, multiply the above broadcast equivalent equation by \((\text{area of strips or beds + row spacing}/\text{application block size})\). A sample calculation is provided below.

**Sample broadcast equivalent rate calculation**

Assumptions:
- Application method is shank bedded.
- Bed width is 30 inches (measured at the bottom of bed).
- Center-to-center row spacing is 60 inches.
- 200 pounds of product per treated acre is applied in the beds.
- Ditch in the middle of the application block is 0.25 acres.
- Area of beds + row spacing is 9.75 acres.

\[
= \frac{30\text{-inch width beds} \times 9.75 \text{ acres} \times 200 \text{ pounds product/acre}}{10 \text{ acres}} = 97.5 \text{ pounds product/acre}
\]
### Table 4. Tarped Bedded Buffer Zone Distances (feet)

| Application Block Size (acres) | Buffer zone distances cannot be greater than 1/2 mile (2,640 feet). If after applying applicable credits the buffer zone distances are still greater than 1/2 mile, the buffer zone distances are adjusted to meet the 1/2 mile requirement. | Table 5. Tarped Broadcast Buffer Zone Distances (feet) |

| Application Block Size (acres) | Buffer zone distances cannot be greater than 1/2 mile (2,640 feet). If after applying applicable credits the buffer zone distances are still greater than 1/2 mile, the buffer zone distances are adjusted to meet the 1/2 mile requirement. | Table 6. Deep Un tarped Buffer Zone Distances (feet) |

| Application Block Size (acres) | Buffer zone distances cannot be greater than 1/2 mile (2,640 feet). If after applying applicable credits the buffer zone distances are still greater than 1/2 mile, the buffer zone distances are adjusted to meet the 1/2 mile requirement. | Table 7. Deep Un tarped Buffer Zone Distances (feet) |

| Application Block Size (acres) | Buffer zone distances cannot be greater than 1/2 mile (2,640 feet). If after applying applicable credits the buffer zone distances are still greater than 1/2 mile, the buffer zone distances are adjusted to meet the 1/2 mile requirement. | Table 8. Deep Un tarped Buffer Zone Distances (feet) |

| Application Block Size (acres) | Buffer zone distances cannot be greater than 1/2 mile (2,640 feet). If after applying applicable credits the buffer zone distances are still greater than 1/2 mile, the buffer zone distances are adjusted to meet the 1/2 mile requirement. | Table 9. Deep Un tarped Buffer Zone Distances (feet) |

| Application Block Size (acres) | Buffer zone distances cannot be greater than 1/2 mile (2,640 feet). If after applying applicable credits the buffer zone distances are still greater than 1/2 mile, the buffer zone distances are adjusted to meet the 1/2 mile requirement. | Table 10. Deep Un tarped Buffer Zone Distances (feet) |
Buffer Zone Distances

Applications in California:
Where a Restricted Materials Permit is required for soil fumigation (pursuant to citation for California law), use the buffer zone distance for the application block that is specified in the Restricted Materials Permit issued by the County Agricultural Commissioner, provided that the buffer zone distance is equal to or greater than the buffer zones distance specified in the December 8, 2004 California Department of Pesticide Regulation Methyl Bromide Field Fumigation Guidance Manual (see http://www.cdpr.ca.gov/docs/county/training/methbrom/mebrman.pdf) in accordance with Title 3, Division 6, Subchapter 4 of the California Code of Regulations in effect on January 1, 2011.

In all other cases, determine the buffer zone distance for your application using the directions under Applications outside California.

Applications outside California:
- Buffer zone distances must be based on look-up tables in this labeling (25 feet is the minimum distance regardless of site-specific application parameters).
- If after applying all applicable buffer zone credits the buffer zone is greater than ½ mile (2,640 ft), then the application is prohibited.
- For all other applications, Tables 4, 5, 6, 7a, 7b, or 8, as appropriate for the method of application must be used to determine the minimum buffer distances. Round up to the nearest rate and block size, where applicable. Applications are prohibited for rates or block sizes that exceed what is presented in the buffer zone tables.

### Table 7a. Outdoor Tarped Hot Gas Buffer Zone Distances (feet)

<table>
<thead>
<tr>
<th>Application Block Size (square feet)</th>
<th>7,500</th>
<th>10,000</th>
<th>15,000</th>
<th>20,000</th>
<th>25,000</th>
<th>30,000</th>
<th>35,000</th>
<th>40,000</th>
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</thead>
<tbody>
<tr>
<td>Broadcast Equivalent Application Rate (lb product/100 square feet)</td>
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<td>315</td>
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### Table 7b. Outdoor Tarped Hot Gas Buffer Zone Distances (feet)

<table>
<thead>
<tr>
<th>Application Block Size (acres)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
</tr>
<tr>
<td>Broadcast Equivalent Application Rate (lb product/A)</td>
</tr>
<tr>
<td>44</td>
</tr>
<tr>
<td>77</td>
</tr>
<tr>
<td>110</td>
</tr>
<tr>
<td>137</td>
</tr>
<tr>
<td>164</td>
</tr>
<tr>
<td>192</td>
</tr>
<tr>
<td>219</td>
</tr>
<tr>
<td>247</td>
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<tr>
<td>274</td>
</tr>
<tr>
<td>302</td>
</tr>
<tr>
<td>330</td>
</tr>
<tr>
<td>357</td>
</tr>
<tr>
<td>385</td>
</tr>
<tr>
<td>411</td>
</tr>
</tbody>
</table>

### Table 7c. Outdoor Tarped Hot Gas Buffer Zone Distances (feet)

<table>
<thead>
<tr>
<th>Application Block Size (square feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,000</td>
</tr>
<tr>
<td>Broadcast Equivalent Application Rate (lb product/Square feet)</td>
</tr>
<tr>
<td>0.26</td>
</tr>
<tr>
<td>0.38</td>
</tr>
<tr>
<td>0.51</td>
</tr>
<tr>
<td>0.64</td>
</tr>
<tr>
<td>0.77</td>
</tr>
<tr>
<td>0.89</td>
</tr>
<tr>
<td>1.02</td>
</tr>
</tbody>
</table>

### Table 8. Greenhouse Hot Gas Buffer Zone Distances (feet)

<table>
<thead>
<tr>
<th>Application Block Size (square feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,000</td>
</tr>
<tr>
<td>Broadcast Equivalent Application Rate (lb product/100 square feet)</td>
</tr>
<tr>
<td>0.26</td>
</tr>
<tr>
<td>0.38</td>
</tr>
<tr>
<td>0.51</td>
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<tr>
<td>0.64</td>
</tr>
<tr>
<td>0.77</td>
</tr>
<tr>
<td>0.89</td>
</tr>
<tr>
<td>1.02</td>
</tr>
</tbody>
</table>
Buffer Zone Requirements

A buffer zone must be established for every fumigant application. The following describes the buffer zone requirements:

- The buffer zone must extend outward from the edge of the application block perimeter equally in all directions.
- All non-handlers, including field workers, residents, pedestrians, and other bystanders, must be excluded from the buffer zone during the buffer zone period except for transit (see Buffer Zone Exemption for Transit on Roadways section).
- Areas not under the control of the owner of the application block:
  - Buffers must not include buildings used for storage, (e.g., sheds, barns, garages) UNLESS:
    - The storage buildings are not occupied during the buffer zone period.
    - The storage buildings do not share a common wall with an occupied structure.
- Areas not under the control of the owner of the application block:
  - Buffers must not include residential areas (e.g., employee housing, private property), buildings (e.g., commercial, industrial), outdoor residential areas (e.g., lawns, gardens, play areas) and other areas that people may occupy.

Certified applicators must comply with all local laws and regulations. See the Posting section for additional requirements that may apply.

Buffer Zone Credits

The buffer zone distances for METHYL BROMIDE 98% applications may be reduced by the percentages listed below. Credits may be added, but credits cannot exceed 80%. Also, the minimum buffer zone distance is 25 feet, regardless of buffer zone credits available.

- 15% reduction in buffer zone distance, if potassium thiosulfate (KTS) is applied at a minimum rate of 300 pounds per acre.
- 10% reduction in buffer zone distance, if the organic content of the soil in the application block is > 1% - 2%; a 20% reduction in buffer zone distance, if the organic content of the soil in the application block is > 2% - 3%; and a 30% reduction in the buffer zone distance, if the organic content of the soil in the application block is > 3%.

Examples of Buffer Zone Calculations with Credits Applied

If the buffer zone is 50 feet, and the application qualifies for a buffer zone credit since the soil organic content is 1.5%, then the buffer zone can be reduced by 10%, i.e., reduced by 5 feet based on the following calculation: 50 feet - (50 feet x 20%) = 40 feet.

If the buffer zone is 50 feet, and the application qualifies for two buffer zone credits since the soil organic content is 1.5% and the clay content is greater than 27%, then the buffer zone can be reduced by 20% (10% organic content credit + 10% clay content credit), i.e., reduced by 10 feet based on the following calculation 50 feet - (50 feet x 20%) = 40 feet.

Posting Fumigant Buffer Zones

- Posting of a buffer zone is required unless there is a physical barrier that prevents bystander access to the buffer zone.
- Buffer Zone signs must be placed along or outside the perimeter of the buffer zone, at all usual points of entry and along likely routes of approach from areas where people not under the owner’s control may approach the buffer zone.
  - Some examples of points of entry include, but are not limited to, roadways, sidewalks, paths and bike trails.
  - Some examples of likely routes of approach include, but are not limited to, the area between a buffer zone and a roadway, or the area between a buffer zone and a housing development.
- When posting, the certified applicator supervising the application must ensure compliance with all local laws and regulations.
- Buffer Zone signs must meet the following criteria:
  - The printed side of the sign must face away from the application block toward areas from which people could approach.
  - Signs must remain legible during the entire posting period and must meet the general standards outlined in the WPS for sign size, text size, and legibility (see 40 CFR §170.120).
  - Signs must be posted no sooner than 24 hours prior to the start of the application and remain posted until the buffer zone period has expired.
  - Signs must be removed within 3 days after the end of the buffer zone period.
  - Buffer Zone signs which meet the criteria above will be provided at points of sale for applicators to use. Templates may be downloaded from http://www.epa.gov/pesticides/reregistration/soil_fumigants/

- The Buffer Zone signs must contain the following information:
  - The ‘Do Not Walk’ symbol
  - DO NOT ENTER/NO ENTRE
  - Methyl Bromide Fumigant [METHYL BROMIDE 98%] BUFFER ZONE.
  - Contact information for the certified applicator in charge of the fumigation operation.

Exception: If multiple contiguous blocks are fumigated within a 14-day period, the entire perimeter of the contiguous blocks’ buffer zones may be posted. Buffer Zone signs must be posted no sooner than 24-hours prior to the start of the first application. The signs must remain posted until the last buffer zone period expires, and the signs must be removed within 3-days after the buffer zone period for the last block has expired.
Restrictions for Difficult to Evacuate Sites

If your state and/or tribal lead agency requires notice, information must be provided to the appropriate state or tribal lead agency prior to the application. Please refer to www.epa.gov/fumigantstatenote for a list of states and tribal lead agencies that require notice and information on how to submit the information.

Emergency Preparedness and Response Measures:
The certified applicator must either follow the directions under the Fumigant Site Monitoring section or follow the directions under the Response Information for Neighbors section if:
- the buffer zone is greater than 25 feet but less than or equal to 100 feet, and there are residences or businesses within 50 feet from the outer edge of the buffer zone, or
- the buffer zone is greater than 100 feet but less than or equal to 200 feet, and there are residences or businesses within 100 feet from the outer edge of the buffer zone, or
- the buffer zone is greater than 200 feet but less than or equal to 300 feet, and there are residences or businesses within 200 feet from the outer edge of the buffer zone, or
- the buffer zone is greater than 300 feet or the buffer zones overlap, and there are residences or businesses within 300 feet from the outer edge of the buffer zone.

Fumigant Site Monitoring
NOTE: Fumigant Site Monitoring is ONLY required if the Emergency Preparedness and Response Measures are triggered AND directions from the Fumigant Site Monitoring section are not followed. The certified applicator supervising the application must ensure that residences and businesses that trigger the requirement have been provided the response information at least 1 week before the application starts. The information provided may include application dates that range for no more than 4 weeks. If the application does not occur when specified, the information must be delivered again.

Information that must be included:
- The location of the application block.
- Fumigant(s) applied including the active ingredient, name of the fumigant product(s), and the EPA Registration number.
- Contact information for the applicator and property owner.
- Time period in which the application is planned to take place (must not range more than 4 weeks).
- Early signs and symptoms of exposure to the fumigant(s) applied, and what to call if you believe you are being exposed (911 in most cases).

Notice to State and Tribal Lead Agencies
If your state or tribal lead agency requires notice, information must be provided to the appropriate state or tribal lead agency prior to the application. Please refer to www.epa.gov/fumigantstatenote for a list of states and tribal lead agencies that require notice and information on how to submit the information.

The information that must be provided to state and tribal lead agencies includes the following:
- Location of the application blocks,
- Fumigant(s) applied including EPA registration number(s),
- Applicator and property owner/operator contact information, and
- Time period that fumigation may occur.

Emergency Response Plan
The certified applicator must include in the FMP a written emergency response plan that identifies:
- Evacuation routes,
- Locations of telephones,
- Contact information for first responders and local/state/federal/tribal personnel, and
- Emergency procedures/responsibilities (e.g., adding water to the field, repairing tarps, fixing equipment, evacuating upwind) if:
  - there is an incident,
  - sensory irritation is experienced outside of the buffer zone, and/or
  - there are equipment/tarp/Seal failures or complaints, or other emergencies.

Site-Specific Fumigation Management Plan (FMP)
Prior to the start of application, the certified applicator supervising the application must verify that a site-specific FMP exists for each application block. In addition, an agricultural 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 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, registrant, or other party. The certified applicator supervising the application must verify in writing (sign and date) that the site-specific FMP(s) reflects current site conditions before the start of application.

Each site specific FMP must contain the following elements:
- Certified Applicator Supervising the Application
  - Name,
  - Phone number,
  - Pesticide applicator license and/or certificate number,
  - Specify if commercial or private applicator,
  - Employer name,
  - Employer address, and
  - Date and location of completing EPA approved soil fumigant training program.
- 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 application block owner
  - Map, aerial photo, or detailed sketch showing:
    - application block location
    - application block dimensions
    - buffer zone dimensions
    - property lines
    - roadways
    - rights-of-ways
    - sidewalks
    - permanent walking paths
    - bus stops
    - nearby application blocks
    - surrounding structures (occupied and non-occupied)
    - locations of Buffer Zone signs, and
    - locations of difficult to evacuate sites with distances from the application block labeled.

General application information
- Target application date/window,
- Fumigant Product Name, and
- EPA registration number.
- Identify if application:
  - Qualifies for a critical use exemption (CUE) at time of application and is listed in Table 1,
  - Qualifies for a quarantine exemption and is listed in Table 2,
  - Does not qualify for a CUE and is listed in Table 3.

If application qualifies for a quarantine exemption, identify:
- U.S. Federal, state, or local plant, animal, environmental protection or health authority requiring the quarantine application and the particular quarantine/phytosanitary requirement.
- Requirement for the treatment (e.g., the State or Federal law).

- Documentation of pest(s) for control of (if applicable):
  - Oak Root Fungus (Armillaria mellea) and/or endoparasitic nematodes such as root-knot (Meloidogyne spp.), dagger (Xiphinema spp.), ring (Criconemoides spp.), lesion (Pratylenchus spp.), and pin (Paratylenchus spp.) nematodes for orchard replant.

- Monitoring with a direct read device must begin the evening on the day of application and continue until the buffer zone period expires with a minimum of at least 8 samples during the buffer zone period, including these periods:
  - 1 hour before sunset,
  - during the night,
  - 1 hour after sunrise, and
  - during daylight hours.
  - Implement the emergency response plan immediately if:
    - the handler monitoring experiences sensory irritation, or
    - an air sample is greater than or equal to 1 ppm for methyl bromide.

Response Information for Neighbors
NOTE: Response Information for Neighbors is ONLY required if the Emergency Preparedness and Response Measures are triggered AND directions from the Fumigant Site Monitoring section are not followed. The certified applicator supervising the application must ensure that residences and businesses that trigger the requirement have been provided the response information at least 1 week before the application starts. The information provided may include application dates that range for no more than 4 weeks. If the application does not occur when specified, the information must be delivered again.

Information that must be included:
- The location of the application block.
- Equipment/methods used to perforate tarps.
- Target dates for perforating tarps, and
- Target dates for removing tarps.
- The method used to share the response information for neighbors can be accomplished through mailings, door hangers, or other methods that will effectively inform the residences and businesses within the required distance from the edge of the buffer zone.

- Schedule for checking tarps for damage,
- Equipment/methods used to repair tarps, repaired, or replaced,
- Equipment/methods used to repair tarps, repaired, or replaced,
- Equipment/methods used to repair tarps, repaired, or replaced,
- Equipment/methods used to repair tarps, repaired, or replaced,
- Equipment/methods used to repair tarps, repaired, or replaced.
Buffer zones
- Application method,
- Injection depth,
- Application rate from lookup table on label,
- Application block size from lookup table on label,
- Credits applied and measurements taken (if applicable),
  - Tarp brand name, lot number, thickness, manufacturer, batch number, and part number
  - Sodium thiosulfate
  - Heavy metal content
  - Buffer zone distance, and
- Description of areas in the buffer zone that are not under the control of the owner of the application block. If buffer zones extend onto areas not under the control of the owner, attach the written agreement and keep it with the FMP.

Record Emergency Response Plan as described in the Emergency Response Plan section.

Posting of Fumigant Treated Area and Buffer Zone
- Person(s) who will post and remove (if different) Fumigant Treated Area and Buffer Zone signs, and
- Location of Buffer Zone signs.

Emergency Preparedness and Response Measures (if applicable)
- Fumigant site monitoring (if applicable):
  - When and where it will be conducted
  - Response information for neighbors (if applicable):
    - List of residences and businesses informed, Name and phone number of person providing information, and
    - Method of providing the information.

State and/or tribal lead agency advance notification (if state and/or tribal lead agency requires notice, provide a list of contacts that were notified and date notified)

Plan describing how communication will take place between the certified applicator supervising the application, the owner, and other on-site handlers (e.g., tarp perforators/removers, irrigators) for complying with label requirements (e.g., location, buffer zone start and end times, timing of tarp perforation and removal, PPE).
- Name and phone number of persons contacted by the certified applicator, and
- Date contacted.

Handler (including Certified Applicators) Information (if applicable)
- Names, addresses and phone numbers of handlers
- Names, addresses, and phone numbers for employers of handlers
- Tasks that each handler is authorized and trained to perform
- Date of PPE training for each handler
- Applicable handler PPE including:
  - Long-sleeved shirts/long pants, shoes, socks
  - Chemical-resistant apron
  - Chemical-resistant footwear
  - Protective eyewear (not goggles)
  - Chemical-resistant gloves
  - Air-purifying respirators
    - Respirator make, model, type, style, size, and cartridge type
  - SCBA:
    - Respirator make, model, type, style, size
    - Other PPE
- For handlers: Confirmation of receipt of Fumigant Safe Handling Information.
- For certified applicator(s) supervising the application: Completion date and location of the soil fumigant training program listed on the following EPA website www.epa.gov/fumiganttraining for the active ingredient(s) in this product.
- For handlers designated to wear respirators (air-purifying respirator or SCBA):
  - Date of medical qualification to wear a respirator,
  - Date of respirator training, and
  - Date of fit-testing for the respirator.
- Unless exempted in the Protection of Handlers section, verify that:
  - At minimum 2 handlers have the appropriate respirator and cartridges to complete the application,
  - The employer has confirmed that the appropriate respirator and cartridges/canisters are immediately available for each handler who will wear one.

Air monitoring plan
- For monitoring after tarp perforation is complete and before tarp removal begins, indicate:
  - Monitoring equipment to be used, and
  - Timing of monitoring.
- For monitoring the breathing zone, indicate:
  - Representative handler tasks to be monitored,
  - Monitoring equipment to be used, and
  - Timing of monitoring.
- For monitoring residential structures within the buffer zone (for re-entry), indicate:
  - Monitoring equipment to be used,
  - Timing of the monitoring, and
  - Monitoring location.

Good Agricultural Practices (GAPs)
- Identify (e.g., list, attach applicable label section) applicable mandatory GAPs.

Pesticide Product Labels and Material Safety Data Sheets (MSDS)
- Ensure that labels and MSDS are on-site and readily available for employees to review.

Record-Keeping Procedures
The owner of the application block as well as the certified applicator supervising the application 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 24 application blocks (e.g., applicator information, certified applicator, handlers, 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).

The certified applicator must make a copy of the FMP immediately available for viewing by handlers involved in the application. The certified applicator or the owner of the application block must provide a copy of the FMP to any local/state/federal/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. The certified applicator supervising the application must ensure the FMP is at the application block during all handler activities.

Within 30 days after the application is complete, the certified applicator supervising the application must complete a Post-Application Summary.

Post-Application Summary
The Post-Application Summary must contain the following elements:
- Actual date and time of the application
- Application rate
- Size of application block
- Weather Conditions
  - Summary of the National Weather Service weather forecast during the application and the 48-hours after the application is complete including:
    - wind speed, and
    - air stagnation advisory (if applicable).
  - Forecast must be checked on the day of, and prior to the start of the application, and on a daily basis during the application if the time period from the start of the application until the application is complete is greater than 24 hours.

Tarp damage and repair information (if applicable):
- Date of tarp damage discovery,
- Location and size of tarp damage,
- Description of tarp/tarp seal/tarp equipment failure, and
- Date and time of tarp repair completion.

Tarp perforation/removal details (if applicable):
- Date and time tarps were perforated,
- Date and time tarps were removed, and
- Record if tarps were perforated and/or removed early. Describe the conditions that caused early tarp perforation and/or removal.

Complaint details (if applicable):
- Person filing complaint (e.g., on-site handler, person off-site),
- If off-site person, name, address, and phone number of person filing complaint, and
- Description of control measures or emergency procedures followed after complaint.

Description of incidents, equipment failure, or other emergency and emergency procedures followed (if applicable).

Air monitoring results:
- When sensory irritation was experienced:
  - Date, time, location, and handler task/activity where irritation was observed and
  - Resulting action (e.g., cease operations, continue operations with air-purifying respirators, implement Emergency Response Plan).
- When using a direct read detection device:
  - Sample date(s), time(s), location(s), and concentration(s),
  - Handler task/activity monitored (if applicable), and
  - Resulting action (e.g., cease operations, continue operations with air-purifying respirators, implement Emergency Response Plan).

Fumigant Treated Area and Buffer Zone Signs:
- Dates of posting and removal.
- Any deviations from the FMP (e.g., changes in emergency response actions, changes in handler information, changes in personal protective equipment responsible for completing emergency tasks, changes in communication between certified applicator, owner, and other handlers).

Record-Keeping Procedures
The owner of the application block, as well as the certified applicator supervising the application, 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 specified in the Personal Protective Equipment (PPE) section of this labeling for entering affected area to correct problems. Approach from upwind to make necessary repairs. Remove any appreciable fumigant residue. The owner of the application block as well as the certified applicator supervising the application must keep a signed copy of the Post-Application Summary for 2 years from the date of application.