

PM 21

8536-29

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, D.C. 20460

OFFICE OF  
PREVENTION, PESTICIDES  
AND TOXIC SUBSTANCES

March 3, 1997

Dr. Tom Duafala, Ph.D., Director Research  
Soil Chemicals Corporation  
P.O. Box 782  
Hollister, CA 95024

RE: Methyl Bromide Quarantine Fumigant (EPA Reg. No. 8536-29)  
Your amendment application dated January 17, 1997

Dear Dr. Duafala:

The Agency has reviewed the subject submission, and the amended labeling is accepted with comments.

The Agency has the following conclusions and recommendations with regard to the subject labeling submission: 1.) update the effluent statement under Environmental Hazards as indicated in PR Notice 95-1; 2.) the label contains two signal words; the appropriate signal word is Danger; change "Warning" to "Danger" or some other word which is not also a signal word in the box below Environmental and Chemical Hazards section; 3.) under Agricultural Use requirements, the restricted entry interval has not been included; include a restricted entry interval or the concentration levels required prior to entry.

A photocopy of the subject labeling stamped "Accepted with Comments" is enclosed for your records. An additional copy stamped "Accepted with Comments" is being included in the regulatory file jacket for the product.

If you have any questions or concerns, please call me at (703) 305-6226, or Carl Grable of my staff at (703) 305-7392.

Sincerely yours,

A handwritten signature in cursive script that reads "Carl Grable for".

Connie B. Welch,  
Product Manager 21  
Fungicide-Herbicide Branch  
Registration Division (7505C)

Enclosure

**BEST AVAILABLE COPY**

SPECIALTAY

2/10

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

# METHYL BROMIDE QUARANTINE FUMIGANT


FOR QUARANTINE/REGULATORY USE ONLY  
SUPERVISION BY REGULATORY AGENT REQUIRED

ACTIVE INGREDIENT:	
METHYL BROMIDE	100.0%
TOTAL:	100.0%

This product weighs 14.4 pounds per gallon.

ACCEPTED  
WITH COMMENTS  
In EPA Letter Dated  
3-3-97  
Under the Federal Insecticide,  
Fungicide, and Rodenticide Act  
as amended, for the pesticide  
registered under EPA Reg. No.  
8536-29

**KEEP OUT OF REACH OF CHILDREN**

**DANGER**  **PELIGRO**  
**POISON**

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

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

**STATEMENT OF PRACTICAL TREATMENT**

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

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

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

**NOTE TO PHYSICIAN:** Early symptoms of overexposure are dizziness, headache, nausea and vomiting, weakness, and collapse. Lung edema may develop 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 Panel For Additional Precautionary Statements.



Soil  
Chemicals  
Corporation  
PRODUCTS

P.O. BOX 782 - HOLLISTER, CA 95024

E.P.A. EST. 8536-CA-1, 2, 3, 4; FL-1  
E.P.A. REG. NO. 8536-29

NET CONTENTS ..... LBS.

REF  
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3/10

### STORAGE AND DISPOSAL

**STORAGE AND HANDLING:** Store in a secure manner either outdoors under ambient conditions or indoors in a well ventilated area. Post as a pesticide storage area. Do not contaminate water, food, or feed by storage. Persons moving, handling, or opening containers must wear the personal protective equipment (including prescribed respirators when necessary) specified in the Hazards 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, lings, or similar devices to unload cylinders. Transport cylinders using hand truck, fork truck or other device to which the cylinder can be firmly secured. Do not remove valve protection bonnet and safety cap until immediately before use. Replace safety cap and valve protection bonnet when cylinder is not in use. 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. Follow registrant's instructions for return of empty or partially empty cylinder.

**RETURN OF CYLINDERS:** Cylinders are the property of:

Soil Chemicals Corporation	Soil Chemicals Corporation
8770 Highway 25	2060 East 220th Street
Hollister, CA 95023	Long Beach, CA 90810

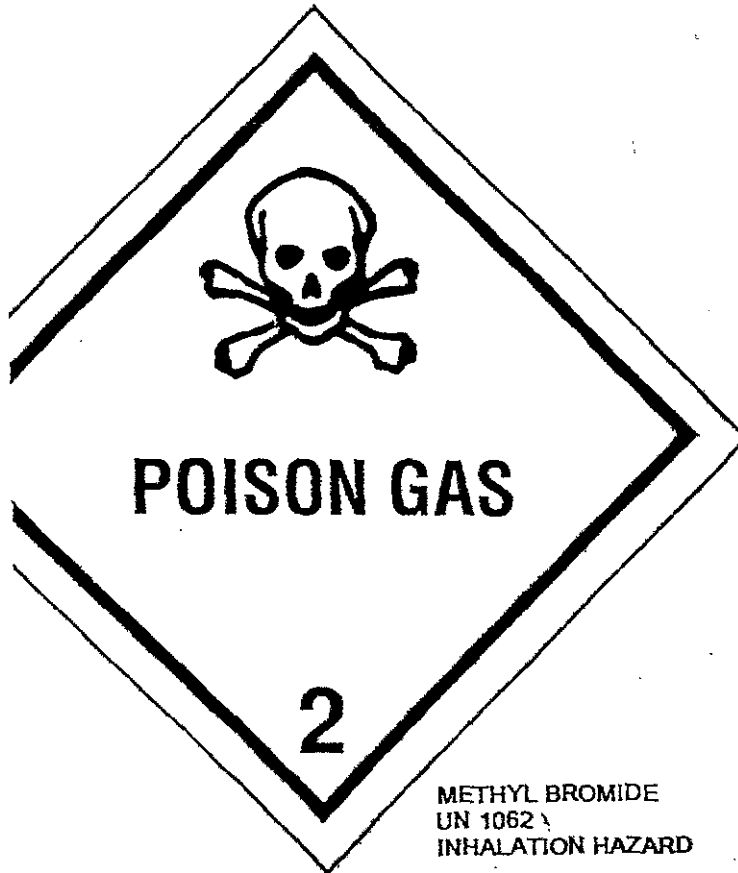
and should be returned promptly by collect auto freight. Do not ship cylinders without safety caps or valve protection bonnets. When a cylinder is partially full and there is no further requirement for the product, contact the company for return instructions.

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

**DISPOSAL:** Do not contaminate water, food, or feed by storage or 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 instruction, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

### AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR 170. Refer to supplemental labeling under "Agricultural Use Requirements" in the Directions for Use section for information about this standard.



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4/10

**SPILL AND LEAK PROCEDURES FOR ENCLOSED SPACE FUMIGATION:** 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 respirators) specified in the Hazards 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 methyl bromide is measured to be less than 5 ppm. Contaminated soil, water, and other cleanup debris is a toxic hazardous waste. Report spill to the National Response Center (800-424-8802) if the reportable quantity of 1000 lbs. is exceeded.

**ENVIRONMENTAL HAZARD**

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

Monitor area immediately surrounding the fumigation site with a halide Detector during exposure and aeration periods to establish that dangerous levels of the fumigant are not present (see Aeration Statement for Halide Detector use). The high volatility of the fumigant permits it to be vented from space being fumigated and to dissipate rapidly with no hazard to surrounding areas with correct monitoring.

**CHEMICAL HAZARD**

Methyl bromide is practically nonflammable. There is no danger from fire or explosion in use concentrations. However, flame can change the chemical to produce some corrosive damage to items in the space being fumigated. Pilot lights and glowing wire heaters should be turned off.

Do not apply gas directly to metal surfaces because of possible corrosive effect on certain metals. Do not use containers or application equipment made of magnesium, aluminum, or their alloys.

The following materials can develop an undesirable odor when encountered in structural fumigation and should be removed from the space being fumigated:

1. Feedstuffs: (a) Iodized salt; (b) Full-fat soya flour; (c) Any kinds of materials that contain reactive sulfur compounds, such as some soap powders, some baking sodas, and some salt blocks used for cattle licks.
2. Certain rubber goods: (a) sponge rubber; (b) Foam rubber, as in rug padding, pillows, cushions, and mattresses; (c) Rubber stamps and other smaller forms of reclaimed rubber.
3. Furs, horsehair, and pillows (especially leather pillows).
4. Leather goods (particularly white kid or any other leather goods tanned with sulfur processes).
5. Woolens (extreme caution should be used in the fumigation of any angora woolsens, and some adverse effect has been noted on the fumigation of woolen suits, coats, blankets, hand-knit woolen socks, sweaters, shawls, and woolen yarn).
6. Viscose rayons (those rayons processed or manufactured by a process in which carbon disulfide is used).
7. Paper: (a) Silver-polishing papers; (b) Certain writing papers cured by sulphide processes; (c) Carbonless paper or blue-prints.
8. Photographic chemicals as used in photo processing darkrooms (does not include camera film).
9. Cinder blocks, or mixed concrete which occasionally picks up odors.
10. Any materials that may contain reactive sulfur compounds. **THESE PRODUCTS MAY HINDER EFFECTIVENESS OF THE FUMIGANT:** Charcoal materials (charcoal absorbs the methyl bromide, reducing the effective concentration and contaminating the charcoal).
11. If there is a question whether a material may develop an odor, a test fumigation may be run with a small quantity of the material.

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



**WARRANTY**

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

5/10

**PRECAUTIONARY STATEMENTS  
HAZARD TO HUMANS  
AND DOMESTIC ANIMALS:  
DANGER**

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. METHYL BROMIDE VAPOR IS ODORLESS AND NON-IRRITATING TO SKIN AND EYES DURING EXPOSURE. EXPOSURE TO TOXIC LEVELS MAY OCCUR WITHOUT WARNING OR DETECTION BY THE USER.

**AIR CONCENTRATION LEVEL**

The acceptable air concentration level for persons exposed to methyl bromide is 5 ppm (20 mg/m<sup>3</sup>), except that for entry into residential and commercial structures the acceptable air concentration level is 3 ppm. The air concentration level is measured by a direct reading detection device, such as a Matheson-Klugeve.

**PERSONAL PROTECTIVE EQUIPMENT**

Applicators and other handlers must wear:  
Loose-fitting or well ventilated long-sleeved shirt and long pants  
Shoes and socks  
Full-face shield or safety glasses with brow and temple shields when handling liquid product (DO NOT wear goggles).

When the acceptable air concentration level is above 5 ppm and a respirator is required, protect the eyes by wearing a full-face respirator.

No respirator is required if the air concentration level of methyl bromide in the working area is measured to be less than 5 ppm.

A respirator is required if the acceptable air concentration level of 5 ppm for methyl bromide is exceeded at any time. The respirator must be one of the following types: (a) a supplied air-respirator (MSHA/NIOSH approval number prefix TC-19C OR (b) a self-contained breathing apparatus (SCBA) (MSHA/NIOSH approval number TC-13F).

**WORK SAFETY REQUIREMENTS**

1. Do not wear jewelry, gloves, goggles, light clothing, rubber protective clothing, or rubber boots when handling. Methyl bromide is heavier than air and can be trapped inside clothing and cause skin injury.
2. If liquid fumigant splashes or spills on clothing, remove them at once, as fumes will be an intolerable source of irritation.
3. Immediately after contamination, remove outer clothing, shoes, and socks and do not reuse until thoroughly aerated or vented. Keep such clothing and shoes outdoors until thoroughly aerated. Then follow the PPE manufacturer's instructions for cleaning/maintaining PPE. If there are no such instructions for washables, use detergent and hot water. Keep and wash PPE and work clothing separately from other laundry.
4. Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product. Do not reuse them.
5. Follow PPE manufacturer's instructions for cleaning/maintaining protective eyewear 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.

**OBSERVE THE FOLLOWING PRECAUTIONS  
GENERAL PRECAUTIONS**

1. Do not get in eyes, on skin, or on clothing.
2. Do not spill or discharge contents outside of areas confined for treatment.
3. Comply with all local regulations and ordinances.
4. It is advisable to supply your physician with information on Methyl Bromide. Literature is available from your dealer or distributor.
5. Obtain medical assistance at once in case of illness after exposure, and do not allow conditions which could accidentally cause further exposure until recovery is complete. (See Note to Physician.)

**PRECAUTIONS FOR COMMODITY USE**

**GENERAL PRECAUTIONS:** (1). When used for fumigation of enclosed spaces (houses and other structures, warehouses, vaults, chambers, greenhouses, trucks, vans, boxcars, ships, and other transport vehicles, and tarpaulin-covered areas), 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. Two persons do not need to be present if monitoring is conducted remotely (outside the area being fumigated). (2). Do not fumigate with this product when the temperature is below 40 degrees F. (3). Whenever possible, apply methyl bromide from outside of structure or car being fumigated. Make sure the fumigated area is properly sealed and posted. Do not move trucks, trailers, or vans during fumigation. They must be completely aerated before movement is allowed.

**AERATION AND REENTRY:** (1). After fumigation, fumigated areas must be aerated until the air concentration level of methyl bromide is measured to be less than 5 ppm (3 ppm for residential and commercial structures). (2). Until the acceptable air concentration level is reached, do not allow any person to enter into the fumigated area unless he/she is wearing the personal protective equipment (including prescribed respirator) specified in the Hazards to Humans section of this labeling. In greenhouses, additional Worker Protection Standard restrictions apply. (3). For residential and commercial structural fumigations, specific U.S. EPA instructions as detailed elsewhere in this product label and supplemental manual must be strictly followed.

See Precautions Continued in Third Column

**BEST AVAILABLE COPY**

PRECAUTIONARY STATEMENTS  
HAZARD TO HUMANS  
AND DOMESTIC ANIMALS:

**D A N G E R**

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See Precautions Continued in Third Column

SPECIMEN

RESTRICTED USE PESTICIDE  
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6/10

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QUARANTINE FUMIGANT**

FOR QUARANTINE/REGULATORY USE ONLY  
SUPERVISION BY REGULATORY AGENT REQUIRED

ACTIVE INGREDIENT:

METHYL BROMIDE 100.0%

TOTAL: 100.0%

This product weighs 14.4 pounds per gallon.



Soil  
Chemicals  
Corporation  
PRODUCTS

P.O. BOX 782 • HOLLISTER, CA 95024

E.P.A. EST. 8536-CA-1, 2, 3, 4; FL-1  
E.P.A. REG. NO. 8536-29

NET CONTENTS ..... LBS.

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DANGER



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See Side Panel For Additional Precautionary Statements.

BEST AVAILABLE COPY

**SPILL AND LEAK PROCEDURES FOR ENCLOSED SPACE FUMIGATION:** 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 respirators) specified in the Hazards 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 cleanup. Do not permit entry into the spill or leak area by any other person until the concentration level of methyl bromide is measured to be less than 5 ppm. Contaminated soil, water, and other cleanup debris is a toxic hazardous waste. Report spill to the National Response Center (800-424-8802) if the reportable quantity of 1000 lbs. is exceeded.

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The following materials can develop an undesirable odor when encountered in structural fumigation and should be removed from the space being fumigated:

1. Foodstuffs: (a) Iodized salt; (b) Full-fat soya flour; (c) Any kinds of materials that contain reactive sulfur compounds, such as some soap powders, some baking sodas, and some salt blocks used for cattle licks.
2. Certain rubber goods: (a) sponge rubber; (b) Foam rubber, as in rug padding, pillows, cushions, and mattresses; (c) Rubber stamps and other similar forms of reclaimed rubber.
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6. Viscosa rayons (those rayons processed or manufactured by a process in which carbon bisulfide is used).
7. Paper: (a) Silver-polishing papers; (b) Certain writing papers cured by sulphide processes; (c) Carbonless paper or Blue-prints.
8. Photographic chemicals as used in photo processing darkrooms (does not include camera film).
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11. If there is a question whether a material may develop an odor, a test fumigation may be run with a small quantity of the material).

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

**WARRANTY**

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

CA May, 1996

MP-29235

**STORAGE AND DISPOSAL**

**STORAGE AND HANDLING:** Store in a secure manner either outdoors under ambient conditions or indoors in a well ventilated area. Post as a pesticide storage area. Do not contaminate water, food, or feed by storage. Persons moving, handling, or opening containers must wear the personal protective equipment (including prescribed respirators when necessary) specified in the Hazards 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, lings, or similar devices to unload cylinders. Transport cylinders using hand truck, fork truck or other device to which the cylinder can be firmly secured. Do not remove valve protection bonnet and safety cap until immediately before use. Replace safety cap and valve protection bonnet when cylinder is not in use. 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. Follow registrant's instructions for return of empty or partially empty cylinder.

**RETURN OF CYLINDERS:** Cylinders are the property of:

Soil Chemicals Corporation	Soil Chemicals Corporation
8770 Highway 25	2060 East 220th Street
Hollister, CA 95023	Long Beach, CA 90810

and should be returned promptly by collect auto freight. Do not ship cylinders without safety caps or valve protection bonnets. When a cylinder is partially full and there is no further requirement for the product, contact the company for return instructions.

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

**DISPOSAL:** Do not contaminate water, food, or feed by storage or 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 instruction, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

**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.

This is a limited use label for quarantine/regulatory purposes and is to be used by or under the supervision of a State or Federal agency. Tables I through IV present a summary of treatments for raw agricultural commodities, processed commodities, and non-food and/or non-feed commodities administered from the USDA/APHIS Plant Protection and Quarantine Treatment Manual. For more detailed guidance and information on treatment conditions, dosage rates, treatment periods, monitoring requirements, etc., refer to that Manual. Additional requirements may be imposed by the USDA/APHIS Manual, official government correspondence or documents, or the supervising regulatory agent at the fumigation.

The registrant assumes no responsibility for loss or damage due to required quarantine and trade fumigations using this product. Nursery stock and plant materials are generally intolerant of excessive exposures to this product and damage may occur. The condition of the material at the time of treatment will determine its reaction to treatment. Some of the factors that must be fully considered prior to fumigation of nursery stock and plant materials are the method of packing, degree of root exposure, ventilation, temperature, delays in transit, and broken dormancy.

**PLACARDING OF FUMIGATED AREAS**

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

- skull and crossbones symbol
- "DANGER/PELIGRO"
- "Area under fumigation, DO NOT ENTER/NO ENTREE"
- "Methyl Bromide Fumigant in use."
- "the date and time of fumigation, and"
- "name, address, and telephone number of the applicator."
- Boxes must be placarded with D.O.T. specified warning signs.

Do not allow entry by unprotected persons into the fumigated area until the signs are removed. Do not remove warning signs until the fumigated area and the treated commodity are completely aeration. To determine whether aeration is complete, each fumigated site or vehicle must be tested and shown to contain 5 ppm or less of methyl bromide in the airspace around and, when feasible, in the mass of the commodity. If 5 ppm or less of methyl bromide is detected, the warning sign may be removed. However, if greater than 5 ppm of methyl bromide is detected, the warning signs must be transferred with the commodity to the new site. Workers who transfer or handle incompletely aerated commodity must be informed and appropriate measures must be taken (i.e. ventilation or respiratory protection) to prevent exposures from exceeding 5 ppm of methyl bromide.

**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.

**NOTIFICATION:** Notify workers of the application by warning them orally and by posting fumigant warning signs, as described in the "Placarding of Fumigated Areas" section of this labeling. Post the fumigant warning sign instead of the WPS sign for this application, but follow all WPS requirements pertaining to location, legibility, size, and timing of posting and removal.

**PPE FOR ENTRY DURING ENTRY-RESTRICTED PERIOD:**

PPE for entry that is permitted by this labeling is listed in the "Hazards to Humans and Domestic Animals" section of this labeling.

### GENERAL INSTRUCTIONS

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

### COMMODITY, FOOD, AND FEED FUMIGATION

The Following Precautionary Procedures Must Be Followed For All Uses:-

(1) When used for fumigation of enclosed spaces (e.g., warehouses, grain bins or elevators, trucks, chambers, trucks, vans, railroad cars, ships, and other transport vehicles, and tarpaulin-covered commodities), two persons trained in the use of this product must be present during introduction of the fumigant, initiation of aeration, and after aeration when leaving for reentry. Two persons do not need to be present if application, aeration, monitoring and/or testing is conducted remotely (outside the area being fumigated). (2) Do not fumigate with this product when the space, commodity, or structure (excluding dwellings) to be fumigated is below 40° F for control of insects or below 20° F for control of rodents and other warm-blooded pests. Fumigation at different temperatures may be allowed or required under APHIS or other governmental quarantine treatment schedules. (3) If monitoring indicates concentration of fumigant is insufficient to be effective for the target pest, additional fumigant may be added as required; but, concentration is not to exceed prescribed rates of application. (4) When fumigating tanks, silos, etc., of stored bulk flour, empty or draw down flour to less than one meter deep. Do not introduce liquid methyl bromide into flour storages. Set up fans or air circulation to avoid localized high concentrations of methyl bromide when shooting gaseous methyl bromide into the storage. Do not overdo flour storages. It is recommended that the fumigant be applied outside flour storages that are inside buildings and allowed to drift in through open hatches.

**A. Chamber and Vault Fumigation:** All precautionary procedures as outlined immediately following COMMODITY, FOOD, AND FEED FUMIGATION DIRECTIONS must be followed. Load the chamber with the material to be fumigated, close exhaust ports, turn on circulating fan and close chamber door. Determine the proper rate of application and exposure time from appropriate table. Introduce the fumigant into the chamber by releasing it into the air stream in front of a blower or fan, passing it through a vaporizer, or allowing it to evaporate from a shallow pan. All controls should be outside the chamber. At the end of the exposure period, aerate by opening the exhaust port, turning on the exhaust fan and opening the chamber door slightly or an inlet port to permit fresh air to enter. At the end of the aeration period, check fumigant concentration with a detection device. See Aeration and Reentry Section.

**B. Vacuum Chamber Fumigation:** All precautionary procedures as outlined immediately following COMMODITY, FOOD, AND FEED FUMIGATION DIRECTIONS must be followed. Place articles to be fumigated in the steel chamber and draw the vacuum (25-27 inches mercury). Release fumigant into the chamber (usually through an appropriate heating unit) to insure complete non-destructive vaporization of methyl bromide. See appropriate table for rates of application and exposure times. At the end of the exposure time, release the vacuum and change the air in the chamber at least two times. A vacuum of 15 inches mercury should be drawn for this purpose. After purging chamber, check fumigant concentration with a detection device. See Aeration and Reentry Section.

**C. Railroad Car, Truck, Van, Trailer or Air and Sea Container Fumigation:** All precautionary procedures as outlined immediately following COMMODITY, FOOD, AND FEED FUMIGATION DIRECTIONS must be followed. Railroad car should be placed on sidings used for unloading or stowing so that it will not have to be moved while under fumigation. Park vehicle or container out of traffic area, if possible on the lee side of a building to protect from winds. Do not fumigate while strong winds are blowing. Seal the doors, ventilators and other openings. If vehicle or container can not be adequately sealed, cover with tarpaulin or plastic sheeting. See Tarpaulin Fumigation Section. The end(s) of the shooting line(s) should be anchored inside an evaporating pan unless a volatilizer is used to apply gaseous fumigant. Use a fan or blower to aid in even distribution of the fumigant. Always apply fumigant from outside the vehicle. Place warning signs or doors and as needed to be easily visible. Secure or lock vehicle or container to ensure it is not moved before aeration. DO NOT FUMIGATE VEHICLES IN TRANSIT. Consult appropriate table for specific articles, rates of application and exposure times. After the appropriate exposure period, open the unit and aerate at least one hour. The vehicle must be aerated in 5 ppm or less before movement is allowed. The vehicle may then be resealed for shipment. See Aeration and Reentry Section.

**D. Tarpaulin Fumigation:** All precautionary procedures as outlined immediately following COMMODITY, FOOD, AND FEED FUMIGATION DIRECTIONS must be followed. The article or stacked articles should be placed on a concrete floor or other air-tight surface. If the floor or surface is not air-tight, it may be made so by sealing or covering it with additional tarpaulin or polyethylene sheeting. Provide a space on top of the stack for a gas expansion dome to facilitate distribution. Evaporating pans are essential for the volatilization and uniform dispersion of fumigant except where a vaporizer is used. Shallow pans or basins made of plastic or metal (except aluminum) are satisfactory for this purpose. Use one evaporator pan for each 1000 cubic feet contained under the tarp. For delivery from outside the tarpaulin, do not use polyvinyl tubing; polyethylene tubing is recommended. Anchor one end of each tube into an evaporating pan with tape or a suitable weight. This ensures that the liquid will be directed into the evaporating pan. Place evaporating pan(s) with anchored applicator tubing in the center of the expansion dome. Extend the free ends of the polyethylene tubes outside the area to be covered. Cover and seal the stack with a gas tight tarpaulin or polyethylene sheeting of 4 mil or greater thickness. Allow a margin of at least two feet at the base of the stack for sealing. Sweep around the stack to provide a clean surface for sealing the tarpaulin. Seal tarpaulin to floor by sand and/or water snakes, by taping or by means of moist soil or sand.

Attach each polyethylene tube to a can applicator or cylinder valve outlet and release fumigant. Use a cylinder dispenser or scale to meter small amounts from cylinders. Special units are available for use of 1 and 1.5 pound cans that combine opener and evaporating pan functions, and are designed to be used with all parts under the tarpaulin. Fans normally should be used in tarp fumigations to aid in the even distribution of fumigant. A vaporizer or heat exchanger may be required and is also useful to aid in application and distribution of the fumigant. Dosage rates and exposure times are shown in Table I through IV. At the end of the exposure period, unseal opposite ends of the tarpaulin and allow to aerate for at least one hour before completely removing the tarp. Check fumigant concentration with a detection device before allowing unprotected persons to enter the area. See Aeration and Reentry Section.

**E. Warehouse, Grain Elevator, Food Processing Plant, Restaurant, and Other Structures Containing Commodities:** All precautionary procedures as outlined immediately following COMMODITY, FOOD, AND FEED FUMIGATION DIRECTIONS must be followed. Check with appropriate municipal and county authorities before fumigating to be completely familiar with local regulations. Ordinances may require watchmen or locks, during fumigation and/or notification of the nearest fire station.

1. Preparation for Fumigation. Remove or protect the following items from the structure to be fumigated: 1) all food and feed commodities not included in Tables I, II, or IV; 2) medicinals not sealed in metal or glass; 3) pets (including fish and birds); 4) furs, horsehair articles, and leather goods sensitive to methyl bromide; 5) rubber goods (natural latex); 6) carbonless carbon forms and blueprints; 7) cinder blocks; 8) articles containing sulfur; 9) live cultures.

Prior to fumigation, extinguish all open flames and turn off all high temperature electrical equipment including laboratory ovens, pilot lights, gas refrigerators, or burners, etc. This product in the presence of intense heat from such sources may generate some hydrobromic acid which may be injurious to commodities and equipment.

Continued, Next Column:

Instructions, Continued:

2. Sealing the Building. The most important part of the fumigation is the preparation and sealing of the structure. A thorough sealing job is necessary. Avoid fumigating under windy conditions.

Sealing of the building begins with the closing of all external openings to the building. Wrap roof ventilators, chimneys and other large openings with a tarpaulin or plastic sheet and seal with duct or other appropriate tape. Screened and small openings may also be sealed with a wide, commercial duct or masking tape. Cleaning of the surfaces to be taped and the use of commercial spray-on adhesives will improve sealing.

For masonry or metal structures, seal all cracks and other air leaks with caulking material or tape, and seal cracks around doors, windows, vents and other openings. Wooden structures and others that can not be readily sealed may be completely enveloped with an impervious tarpaulin. Seal securely at seams between tarps and seal the lower edges of the tarp to the ground with moist soil or with sand or water snakes. To prevent escape of gas through the ground and avoid injury to nearby plants, wet the soil to a depth of six inches for a distance of one foot outward from the edge of the tarp.

Exterior doors and windows should be lightly sealed and locked. Large exterior doors may require additional efforts to seal properly. Check for cracks around the eaves, in the floor and roof, and seal them.

Storage or work areas in a building that are not to be fumigated should be carefully sealed off. Adjoining buildings sharing a common wall should be cleared of occupants before fumigation. If this is not feasible, seal with a gas light tarp or polyethylene sheeting (thickness of 4 mil or greater) to prevent spread of the fumigant to undesirable areas. In all such cases where the adjoining building is occupied, it should be checked frequently with a suitable gas detector during fumigation to ensure the safety of the occupants. Check local regulations for specific requirements.

Doors or hatches on milling machinery should be opened prior to fumigation. These include elevator boots, conveyor lids, setting chamber doors, dust trunks, and any other openings that will allow fumigant into the equipment. Inside doors, openings to attics and crawlspaces, cabinets, lockers, and drawers should also be opened to facilitate treatment and aeration. "Dead" spots are particularly difficult to penetrate and should be opened before the fumigation.

Set up fumigant application equipment and fans as necessary to achieve uniform fumigant concentrations and to facilitate thorough aeration after the exposure period. The choice of a fan or fans depends upon fan capability to perform the desired function without jeopardizing the success of the fumigation. Small battery operated fans may be suitable in very small situations. A fan with tubing attached may be useful for internal recirculation of the fumigant within a building or space to aid in reaching and maintaining equalized concentrations. Adequate fans should also be available to effectively aerate difficult to ventilate situations because of construction of unexpected wind direction or calm. It may be possible to use heating system fans or other installations already in a building for improved circulation or distribution of product, as well as aid in ventilation after the exposure period. All fans used for the fumigation should be running when fumigant is being introduced, and left running until uniform distribution has been accomplished. Fumigators should not enter a space or building under fumigation to turn fans off or on.

See appropriate table for rate of application and exposure times.

3. Fumigating the Structure, Inside Release. Cylinders should be placed by a team of two people and the location of each cylinder in the building should be mapped. The cylinders should be arranged so that the fumigators can walk away from the released gas as they open each subsequent cylinder. It is recommended that polyethylene sheeting or something functionally similar be used underneath cylinders and at the point of release to prevent staining or damage to floor surfaces. Narrow cylinders should be secured to prevent tipping.

Cylinders should be placed within a room for best distribution into all areas. Cylinders should be placed in a normal upright position and the shipping caps removed. Standpipes or curved pipes directed up and away from the cylinder can be attached. Polyethylene, nylon or similar tubing, possibly divided with lead or crosses, or other equipment can also be attached to facilitate distribution of the gas within the room or space to be fumigated.

Place warning signs or placards on all entrances to the building. Signs and placards should conform to all local, state, and federal regulations. It is best to inform police, fire and health officials that a fumigation process is about to begin. Observe the location of the nearest outside telephone for use in case of an emergency.

Practice or review the shooting procedure so that the operation will be done efficiently and safely. Respiratory protection equipment should be checked for leaks and other problems before the "practice session". While wearing respiratory protection, quickly open and close the cylinder valves to make certain they are in working order and thus avoid delay during the actual release.

Applicators should not be in the building longer than 30 minutes while releasing the gas. If it is impossible for one team to do it within the time period, additional experienced teams should be used. Two people should work together while the gas is being released and when entering the structure during aeration and testing.

Fumigators should always remain in sight of each other from the time they open the first cylinder until the time they leave the building together. While the fumigant is being released, it is advisable to have additional people, with respiratory protection equipment ready, waiting outside to assist if necessary. One member of the team should record the release of the fumigant from each cylinder so that none are missed. After making sure fumigation area is vacated, immediately lock and seal the last exit. If guards are used, they should remain on duty during release, exposure, and aeration periods to prevent unauthorized entry.

4. Fumigating the Structure, Outside Release. Releasing the fumigant from outside the space to be fumigated is possible in some situations and can minimize applicator exposure to the fumigant. Prepare the building as outlined previously.

Secure the ends of each "shooting" line or hose to each point where the fumigant is to be released, using evaporating pans or plastic sheeting to prevent possible damage to some surfaces. Run each line to the cylinder(s) or manifold located outside the area to be treated. Connect each line to the cylinder(s) or manifold.

When fumigating storages of bulk grain or other bulk commodities, such as silos, grain bins, tanks, etc., the fumigator should plan sealing and fumigant distribution to effectively fumigate all the target pests contained in the sealed space. The fumigant can be applied in several locations; such as the top and bottom of the storage. For bulk commodities more than 20 feet deep, a permanent or temporary fumigant recirculation system should be considered. When recirculating fumigant through a closed loop system, plan to run fans long enough to achieve at least three complete cycles.

After making sure fumigation area is vacated, immediately lock and seal the last exit. If guards are used, they should remain on duty during release, exposure, and aeration periods to prevent unauthorized entry.

Open the valves to release the fumigant. Respiratory equipment must be available in the event of a major leak or equipment failure.

5. Aeration of the Building. When the exposure period is complete, aeration generally should be started by opening previously sealed doors and windows on the ground floor. Ventilators accessible from the outside should be opened at this time.

After partial aeration, a team of at least two trained people with appropriate respiratory protection, should begin opening windows or remaining sealed openings, starting at the lower floors and working upward. Fans should be on to assist aeration. Aeration is usually complete in four hours depending upon weather conditions and cross ventilation. No one should be allowed inside the building without respiratory protection until the methyl bromide concentration is 5 ppm or less in the working areas.

Contact the police, fire and health officials previously notified of the fumigation and inform them that it has been completed.



**F. Shipboard, In Transit Ship or Shiphold Fumigation.**

**IMPORTANT.** Shipboard, in transit ship or shiphold fumigation is also governed by the U.S. Coast Guard Regulations. Refer to and comply with those regulations prior to fumigation.

Prior to fumigating a vessel for in transit cargo fumigation, the master of the vessel or his representative and the fumigator must determine whether the vessel is suitably designed and configured so as to allow for safe occupancy by the ship's crew throughout the duration of the fumigation. If it is determined that the design and configuration of the vessel does not allow for safe occupancy by the ship's crew throughout the duration of the fumigation, then the vessel must not be fumigated unless all crew members are removed from the vessel. The crew members must not be allowed to reoccupy the vessel until the vessel has been properly aerated and a determination has been made by the master of the vessel and the fumigator that the vessel is safe for occupancy (5 ppm or below).

The person responsible for the fumigation must notify the master of the vessel or his representative of the requirements: 1) relating to the use of respiratory protection equipment; 2) relating to the use of detection equipment; and 3) that a person qualified in the use of this equipment must accompany the vessel with cargo under fumigation. Emergency procedures, cargo ventilation, periodic monitoring and inspections, and first aid measures must be discussed with and understood by the master of the vessel or his representative.

During fumigation, or until a manned vessel leaves port or the cargo is aerated, the person in charge of the fumigation shall ensure that a qualified person using gas detection equipment tests spaces for fumigant leakage. If leakage of the fumigant is detected, the person in charge of the fumigation shall take action to correct the leakage, or inform the master of the vessel, or his representative, of the leakage so that corrective action can be taken.

Using appropriate gas detection equipment, monitor spaces adjacent to areas containing fumigated cargo and all regularly occupied areas for fumigant leakage. If leakage above 5 ppm is detected, the area should be evacuated of all personnel, ventilated, and action taken to correct the leakage, before allowing the area to be reoccupied. Do not enter fumigated areas except under emergency conditions. If necessary to enter a fumigated area, wear a NIOSH/MSHA approved self-contained breathing apparatus (SCBA) or combination air-supplied/SCBA respirator (personal protection equipment). Never enter fumigated area alone. At least one other person, wearing personal protection equipment, should be available to assist in case of an emergency.

If necessary to enter holds prior to discharge, test spaces directly above cargo surface for fumigant concentration, using an appropriate gas detector and while wearing personal protection equipment. Do not enter without respiratory protection, unless fumigation concentrations are at or below 5 ppm, as indicated by a suitable detector.

If the fumigation is not completed and the vessel aerated before the manned vessel leaves port, the person in charge of the vessel shall ensure that there be on board the vessel during the voyage: 1) at least two NIOSH/MSHA approved self-contained breathing apparatus (SCBA) or combination air-supplied/SCBA respirators; 2) one gas detection device; and 3) a person qualified in their operation.

Fumigation of any ship, shiphold, or a portion of the vessel (e.g., galley) requires careful planning. All precautionary procedures as outlined previously must be followed. Aeration should be planned so that it can be safely and effectively conducted. Adequate supplemental fans to ventilate quarters, decks, bottom of shipholds, etc., should be available for use. Tubing attached to fans or used as a temporary exhaust stack for aeration should also be prepared in advance. Recirculation systems for fumigation of grain and other commodities in shipholds must be installed before loading.

The master of the vessel or his representative and the fumigator should discuss security of an unoccupied vessel under fumigation and make arrangements to prevent unauthorized boarding. If a crew member will need to board such a vessel for a necessary ship function (e.g., boiler check) the crew member must be trained in the proper use of respiratory protection equipment. The fumigator should test all passageways and areas where the crew member will be entering to determine if fumigant concentrations exceed 5 ppm in the air. If concentrations exceed 5 ppm, then required respiratory equipment must be worn.

See appropriate table for rates of application and exposure times.

METHYL BROMIDE QUARANTINE FUMIGANT				
TABLE I APPLICATION SUMMARY STORED RAW AGRICULTURAL COMMODITIES <sup>(1)</sup> (NOT PROCESSED FOOD)				
COMMODITY	PESTS CONTROLLED	TOLERANCE (ppm)	DOSEAGE (lb/1000ft <sup>3</sup> )	EXPOSURE TIME (hrs)
Tree Nuts and Peanuts (e.g., almonds, Brazil nuts, hazelnuts, butternuts, cashews, filberts, hickory nuts, macadamia nuts, pecans, pistachios, walnuts, etc.)	Confused flour beetle, saw toothed grain beetle, Indian meal moth, dermestids, Indian meal moth, drugstore beetle, cigarette beetle, warehouse moth, rusty grain beetle, cadelle, groundnut bruchid, pecan weevil, almond moth, nut weevil, nut fruit tortrix	200	1.5- 1.5	16 - 24
		200	2.5- 3.5 <sup>(2)</sup>	2 - 3 <sup>(2)</sup>
Chestnut		200	4 - 6	4 - 6
		200	4 <sup>(2)</sup>	5 <sup>(2)</sup>
Apples	oriental fruit moth, codling moth, apple maggot, apple carpenter, codling borer, meion fruit fly, Mediterranean fruit fly,	5	1.5 - 4	2
Apricots	oriental fruit fly, cherry fruit fly, brown site, green peach aphid, scales, thrips	20	1.5 - 4	2
Blueberries		20	1.5 - 2	2 - 3.5
Cherries		20	1.5 - 4	2
Nectarines		20	1.5 - 4	2
Peaches		20	1.5 - 4	2
Pears		5	1.5 - 4	2
Plums		20	1.5 - 4	2
Quinces		5	1.5 - 4	2
Strawberries		65	1.5 - 2	2
Trusses		20	1.5 - 4	2

TABLE I, CONTINUED				
COMMODITY	PESTS CONTROLLED	TOLERANCE (ppm)	DOSEAGE (lb/1000ft <sup>3</sup> )	EXPOSURE TIME (hrs)
Barley	Coffee bean weevil, Australian spider beetle, saw toothed and merchant grain beetles, dried fruit beetles, Indian meal moth, confused flour beetle, warehouse moth, rumex grain mite, granary weevil, lesser grain borer, rusty grain beetle, sawtoothed grain moth, rice weevil, cadelle, drugstore beetle, cigarette beetle, flat grain beetle.	50	2 - 9	4 - 24
Corn		50	2 - 9	2 - 24
Oats		50	2 - 9	4 - 24
Popcorn		240 240	1.5 - 9 <sup>(2)</sup> 2 - 9	2 - 3 <sup>(2)</sup> 4 - 24
Rice		50	2 - 9	4 - 24
Rye		50	2 - 9	4 - 24
Sorghum (grain)		50	2 - 9	4 - 24
Soled Peas Beans	Mediterranean flour moth, red flour beetle, common bean weevil, copra beetle, rice moth, foreign grain beetle, almond moth, mealworms, bruchids, weevils, mite, khapra beetle, seed beetles	50	3 - 4	4 - 24
Faba Beans (dried)		50 50	3 - 4 3 <sup>(2)</sup>	4 - 24 5 <sup>(2)</sup>
Wheat		50	2 - 9	4 - 24
Copra		100	1.5 - 3.5	16 - 24
Citrus Belbs	Xrosom lusitana, mites	50	2 - 4 <sup>(2)</sup>	2 - 4 <sup>(2)</sup>
Cocoa Beans	cocoa moth, cigarette beetle, confused flour beetle, bruchids, sawtoothed grain beetle, flat grain beetle, coffee bean weevil, coffee rust, Indian meal moth	50 50	1 - 2 1.5 <sup>(2)</sup>	16 - 24 3 <sup>(2)</sup>
Coffee Beans		75	2 - 3	16 - 24
Asparagus	Aphids, asparagus beetle, armyworm, cabbage looper, European corn borer, glass bollworm, Japanese beetle, pod borers, Oriental fruit fly, Mediterranean fruit fly, corn earworm, green stink bug, sawfly, spider mites, cabbage maggots, lygus bug, melon aphid, pickleworm, carrot rust fly, stink bug, bean leaf beetle, Mexican bean beetle, Diabrotica beetle, cucumber beetle, squash bug, false chinch bug, loopers, symphyla, blister beetles, onion maggot, onion thrips, mealybugs, pepper maggot, Colorado potato beetle,	100	1.5 - 4	2
Beans (all)		50	1 - 3	1.5 - 2
Beets (roots)		30	2 - 3	2 - 4
Cabbage		50	2 - 4	2
Carrots		30	2 - 3	4
Citrus		30	3	2
Cucumbers		30	2 - 4	2 - 4
Eggplant		20	2 - 2	2 - 4
Jerusalem Artichokes		30	2 - 2	4
Melons (e.g., cantaloupe, honeydew melon, muskmelon, watermelon)		20	2 - 4	2
Onions		30	1 - 3.5	2
Onions		20	2 - 3	4
Parsnips (roots)		30	2 - 3	2 - 4
Peas (with pods)		50	1 - 3	1.5 - 2
Sweet Corn		50	2 - 3	3 - 4
Peppers		30	2 - 4	2
Pineapples		30	2.5	3
Pineapples		20	2 - 4	2 - 4
Potatoes		75	2.5 - 3 <sup>(2)</sup>	2 <sup>(2)</sup>
Pumpkins		20	1.5 - 2.5	2
Radishes		30	2 - 3	2 - 4
Rutabagas		30	2.5 - 3	2
Squash (summer)		20	1.5 - 4	2
Squash (winter)		20	1.5 - 4	2
Squash (zucchini)		20	1.5 - 2.5	2
Sugar Beets (roots)		30	2 - 2	2 - 4
Sweet Potatoes		75	2 - 4 <sup>(2)</sup>	3 - 4.5 <sup>(2)</sup>
Tomatoes		20	2 - 3	3 - 4
Tarrips (roots)		30	2 - 2	2 - 4
Taro		30	2.5 - 4 <sup>(2)</sup>	3 - 4.5 <sup>(2)</sup>

**TABLE I, CONTINUED**

COMMODITY	PESTS CONTROLLED	TOLERANCE (ppm)	DOSEAGE (lb/1000ft <sup>3</sup> )	EXPOSURE TIME (hrs)
Garlic	<i>Brachycoxa</i> spp., <i>Dryophanes</i> siliis, brown wheat mite, onion maggot, onion thrips	50	2 - 3 <sup>1</sup>	1.5 - 4 <sup>1</sup>
Water radish (roots)	<i>Beetle lapidi</i>	30	2 - 3 <sup>1</sup>	3 <sup>1</sup>
Salsify roots	armyworm, flea beetle, leafhoppers, stink bugs, tarnished plant bug	30	2 - 3	2 - 3
Hay (alfalfa)	alfalfa weevil, cereal leaf beetle	50	2 - 3	16 - 24
Grapefruit <sup>(1)</sup>	<i>Anastrepha</i> spp., <i>Proculia</i> spp.	30	2 - 3	2
Grape	<i>Leptoglossus</i> spp., <i>Megalomatus</i> spp., <i>Nepesopsis</i> spp., <i>Sitotroena</i> spp., <i>Conoderus</i> spp.	30	1.5 - 4	2 - 4
Pumpkin	<i>Stenopeltis</i> spp., <i>Stenopeltis</i> spp., <i>Stenopeltis</i> spp.	30	2 - 3	2
Lemon <sup>(1)</sup>	ants, aphids, citrus scale, citrus mites, leaf rollers, fruit flies, white thrips, thrips,	30	2 - 3	2
Lime <sup>(1)</sup>	citrus mites, leaf rollers, fruit flies, white thrips, thrips,	30	2 - 3	2
Orange <sup>(1)</sup>	citrus scale, citrus mites, leaf rollers, fruit flies, white thrips, thrips,	30	2 - 3	2
Tangerine <sup>(1)</sup>	citrus scale, citrus mites, leaf rollers, fruit flies, white thrips, thrips,	30	2 - 3	2
Tangerines <sup>(1)</sup>	citrus scale, citrus mites, leaf rollers, fruit flies, white thrips, thrips,	30	2 - 3	2
Saled Tobacco	drugs store beetle, cigarette beetle, tobacco beetle, tobacco moth		2 - 3 4 <sup>(1)</sup>	48 - 72 4 <sup>(1)</sup>
Processed Tobacco (e.g., cigars)			2 - 3 4 <sup>(1)</sup>	16 - 24 4 <sup>(1)</sup>

<sup>(1)</sup> Consult APHIS Treatment Manual for additional treatment conditions and commodities.  
<sup>(2)</sup> Tolerance of fruit to methyl bromide may vary with variety of fruit. Check with local authorities or ECC Products for additional information.  
<sup>(3)</sup> Vacuum chamber fumigation.  
<sup>(4)</sup> Fumigation below 70°F may result in damage.  
<sup>(5)</sup> Partial vacuum (15 inches mercury).

**TABLE III  
APPLICATION SUMMARY FOR STRUCTURES OR VEHICLES ASSOCIATED WITH RAW OR PROCESSED COMMODITIES<sup>(1)</sup>**

TREATMENT SITE	PESTS	RATE (lb/1000ft <sup>3</sup> )	EXPOSURE TIME (hrs)
Warehouse <sup>(2)</sup> , Shipboard, Railroad Car, Truck, Air and Sea Containers, Grain Elevators, Poultry Houses, Food Processing Plant, Restaurants, Feed Room, Grain Bin	cockroaches, confused flour beetle, rice weevil, granary weevil, saw toothed grain beetle, rusty grain beetle, lesser grain borer, cadellie, khapra beetle, drugstore beetle, larder beetle, carpet beetle, copra beetle, coffee bean weevil, groundnut bruchid, common bean weevil, Meled fruit beetle, golden spider beetle, Australian spider beetle, cigarette beetle, angoumois grain moth, Mediterranean flour moth, warehouse moth, Indian meal moth, common grain mite, snails	1 - 9	16 - 72
	rats, mice and brown tree snakes ( <i>Boiga irregularis</i> )	0.2 - 0.4	3 - 16
	(fungi and some bacteria (e.g., <i>Salmonella</i> spp.))	3 - 4	24 - 36

<sup>(1)</sup> At temperatures below 60°F, increase the dosage by 1/2 lb. per 1,000 cu-ft. for every 10°F drop in temperature or use an approved procedure to heat the fumigant. No additional fumigant is required for rats and mice. Do not fumigate fungi and some bacteria when inside temperatures are less than 70°F.  
<sup>(2)</sup> Seals in warehouses should not be fumigated at rates greater than 1 lb/1000 ft<sup>3</sup>. Seed temperatures should not exceed 85°F and moisture should not exceed 12%. Ambient temperatures should not exceed 85°F and relative humidity should not exceed 85%.  
**NOTE:** Remove or protect any food and food commodities not listed in Table I, II, or IV before fumigating structure or protect any commodity with specific commodity exposure times less than the times listed in this table.

**TABLE II  
APPLICATION SUMMARY FOR PROCESSED FOOD<sup>(1)</sup>**

COMMODITY	PESTS CONTROLLED	TOLERANCE (ppm)	DOSEAGE (lb/1000ft <sup>3</sup> )	EXPOSURE TIME (hrs)
Dried Fruits (e.g., apples, apricots, cherries, dates, peaches, prunes, raisins)	saw-toothed grain beetle, merchant grain beetle, dried fruit beetle, Indian meal moth, confused flour beetle, spider beetle, cigarette beetle, warehouse moth, carob moth, raisin moth, mites, fruit flies	325	1 - 2	16 - 24
Figs (dried)		250	1 - 2	16 - 24
Cheese (e.g., Parmesan and Roquefort)	cheese mites, cheese skipper, cheese maggot	325	1 - 2	16 - 24
Eggs (dried)	larval beetle, mites	400	2 - 2	16 - 24
Hams and Cured Meats	cheese skipper, larval beetle, red legged ham beetle, mites	325	1 - 2	16 - 24
Processed Foods and Processed Grains	saw-toothed grain beetle, flat grain beetle, cigarette beetle, Indian meal moth, psocids, rusty grain beetle, drugstore beetle, spider beetle, Mediterranean flour moth, mealworms, warehouse beetle, warehouse moth, mites, foreign grain beetle, khapra beetle	125	1 - 12	12 - 48
Spices and Herbs (dried)		400	2 - 3	16 - 24
Animal Feed (e.g., pet food)		400	1 - 2	12 - 24

<sup>(1)</sup> Consult APHIS Treatment Manual for additional treatment conditions and commodities.

**TABLE IV  
APPLICATION SUMMARY FOR NON-FOOD PRODUCTS<sup>(1)</sup>**

MATERIALS AND PRODUCTS	PESTS CONTROLLED	RATE (lb/1000ft <sup>3</sup> )	EXPOSURE TIME (hrs)
Cotton (i.e., lint, bales, seed)	pink bollworm, boll weevil, khapra beetle, Coleoptera, Lepidoptera	3 - 11	3 - 25
Plants, Bulbs, Corms, Tubers, Rhizomes and Roots	mealybugs, scale insects, aphids, Coleoptera, Japanese beetle, Hemiptera, thrips, ants, Homoptera, Lepidoptera, mites, thrips	1 - 4.5	1 - 4.5
Christmas Trees	Gypsy moth, Pine shoot borer, Homoptera, Hymenoptera, Coleoptera, Lepidoptera, insects	1.5 - 3 <sup>(2)</sup>	2.5 - 4.5 <sup>(2)</sup>
Propagative Seeds	<i>Scolytus</i> spp., <i>Callisobruchus</i> spp., <i>Cryptophlebia illopidia</i> , <i>Helicella</i> spp., Coleoptera, Lepidoptera, mites	1 - 4	3 - 24
Machinery, packing & bagging material, miscellaneous non-food cargo (e.g., ceramic, marble, brassware, handicrafts, burlap, appliances)	khapra beetle, woodborer insects, Coleoptera, mites, spiders, snails, brown tree snakes ( <i>Boiga irregularis</i> ), cockroaches, Coleoptera, Lepidoptera	2 - 15	24 - 72
Soil and soil contaminated miscellaneous non-food cargo (e.g., farm and military equipment, machinery, construction equipment, bagging material, roots, etc.)	nematodes, weed seeds, insects, spiders, brown tree snakes ( <i>Boiga irregularis</i> )	4 - 20	8 - 24
Vehicles and outdoor equipment, furnishings, and materials	gypsy moths, rodents, cockroaches	1.5 - 4.5	2.5 - 16
Logs and Lumber	oak wilt and other timber pathogens	12 - 15	48 - 72
Forest and plant products (e.g., lumber, firewood, driftwood, pallets, crates, paper, cardboard, carvings, grapevine wreaths, dried plants, Spanish moss, bamboo and wicker, mulch, etc.)	khapra beetle, woodborers, bark beetles, termites, carpenter ants, hornbeetles, old house borer, powder post beetles, Hymenoptera, Coleoptera, wood-bora, sharp horn, wood wasps, mites, Lepidoptera, spiders, brown tree snakes ( <i>Boiga irregularis</i> )	3 - 9	16 - 24
Beehives and Beekeeping Equipment, Beeboards	greater wax moth, mites, insects, diseased and feral bees	1.5 - 2	16 - 24

<sup>(1)</sup> Consult APHIS Treatment Manual for additional treatment conditions and commodities.  
<sup>(2)</sup> Damage possible. Reduce by cutting trees at least 2 weeks prior to fumigation.

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